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RELEVANCE • READINESS • OPTIMIZATION

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The information within this document has been contributed and verified by over seventy members of the University community. Directly due to the tremendous achievements and dedicated efforts of the USU faculty, students, staff, and alumni, the University President and I were able to produce a reference document which clearly demonstrates how the entire USU community has worked together to meet, or surpass, all of the missions assigned to the University since its establishment some thirty years ago. The Journal provides comprehensive documentation to assure the University's Chain-of-Command, the Congress, civilian and military associations, and colleagues throughout the military and civilian health care community that USU's focus steadfastly remains on its mission to provide continuity and leadership, the core elements of force readiness, for the Military Health System (MHS). The University's continued focus on relevance, readiness, and optimization is aligned with its establishing legislation and the special needs of the Uniformed Services. The Journal documents that the University is an essential, cost effective entity within the Department of Defense (DoD); and, that DoD officially recognizes the many cost-effective products of USU.

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Editor's Foreword

LEARNING TO CARE FOR THOSE IN HARM'S WAY. On September 11, 2001, the World witnessed unprecedented acts of terrorism, which ended the lives of almost three thousand Americans. The emotional, physical, and psychological impact of the terrorists' attacks at the Twin Towers of New York, the crash site in the Pennsylvania countryside, and the outer corridors of the Pentagon, combined with greatly intensified levels of concern over security throughout the Nation, has changed the lives of all Americans and of our friends around the World. Those cowardly acts were intended "to erode the security of our Nation, to disrupt the continuity of our society, and to destroy the Nation's social capital - its morale, cohesion, and values."[1] Instead, the citizens of our Nation responded with incredible heroism and renewed patriotism and commitment to the ideals upon which our government was established. Fortunately, our USU alumni and faculty were able to effectively respond during the aftermath of September 11th, in large part, due to USU's unique curricula and educational training. Today, USU alumni and faculty are actively working with other government and civilian institutions to share their internationally recognized expertise in weapons of mass destruction (WMD)-related areas and unique education and training, all of which is focused on USU's mission: **Learning to Care for Those in Harm's Way**. This edition of the USU Journal includes specific examples of the significant contributions of the USU alumni, faculty, and students immediately following the terrorists' attacks on September 11, 2001.

> **While the Regents have always recognized the importance of maintaining a medical curriculum which incorporates the unique challenges created by the use of biologic, chemical and radiologic weapons, we were especially pleased to note that DoD's University of the Health Sciences is now widely recognized as a "first stop" for reliable education, training and research in the medical response to weapons of mass destruction. The entire University effort in support of our Nation's response to the terrorist threat is a testament to the foresight of the Department in maintaining such a unique asset.**
>
> – **The Honorable Everett Alvarez, Jr., J.D., Chairman, USU Board of Regents**, Letter to the Secretary of Defense, December 4, 2001.

[1] New England Journal of Medicine, Volume 346, No. 2, "Post-Traumatic Stress Disorder," Robert Ursano, M.D., Uniformed Services University of the Health Sciences (USU) School of Medicine (SOM) Chair of Psychiatry and Director, USU Center for the Study of Traumatic Stress.

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THREE CORE VALUES. The University's continued focus on **relevance**, **readiness**, and **optimization** is aligned with its establishing legislation and the special needs of the Uniformed Services. Strategic guidance, provided by the President of the United States, the Secretary of Defense, the Surgeons General of the Armed Forces, the Quadrennial Defense Review Report of September 30, 2001, and the Navy's Strategic Message, A Framework for Action, emphasizes the on-going significance of three core values - relevance, readiness, and optimization. The Journal documents that the University is an essential, cost-effective entity within the Department of Defense (DoD). In addition, the Journal provides comprehensive documentation to assure the University's chain-of-command, the Congress, civilian and military associations, and colleagues throughout the military and civilian health care communities that USU's focus steadfastly remains on its mission to provide continuity and leadership, the core elements of readiness, as required by the Military Health System (MHS).

- **RELEVANCE.** The University's time-tested alignment with the overall mission and core requirements of the Department of Defense (DoD) is recognized by the Office of the Secretary of Defense (OSD). The USU products, programs, and expertise which ensure the University's response to the special needs of the MHS include: 1) the recruitment and retention of uniquely qualified uniformed physicians, advanced practice nurses, and scientists; 2) extraordinary dedication and retention, which ensure the provision of continuity for the MHS mission and the essential safeguarding of lessons learned during combat and casualty care; 3) the provision of career-oriented officers with leadership skills required by the multi-Service environment of the MHS; 4) the development and sharing of unique health care expertise for the response to WMD, disaster or humanitarian assistance, and contingencies other than war; and, 5) the provision of continuously evolving curricula interwoven with military applications, which are essential for force health protection and readiness. The combination of these capabilities is unique to USU. They are not duplicated elsewhere; nor, can they be more cost-effectively placed than within the Department of Defense.

> **The Department takes great pride in the fact that the USUHS graduates have become the backbone for our Military Health System. The training they receive in combat and peacetime medicine is essential to providing superior force health protection, and improving the quality of life for our service members, retirees, and families. All of us in the Office of the Secretary of Defense place great emphasis on the retention of quality physicians in the military. The USUHS ensures those goals are met.**
>
> - **The Honorable Donald Rumsfeld, Secretary of Defense,** Letter to the Chairman of the USU Board of Regents, dated March 22, 2001.

- **READINESS.** USU is the only University dedicated to ensure readiness for the MHS. Its military-unique curricula and programs, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented uniformed officers - physicians, advanced practice nurses, and scientists with military-unique expertise. These USU Alumni have been educated with the latest technological advances; and, they are trained to envision and formulate force health protection strategies to ensure the warfighting capabilities of the Armed Forces. As mentioned above, continuity and leadership are essential components of readiness. Today, USU SOM alumni represent 21 percent of the 11,833 physicians on active duty in the MHS; approximately one out of every two USU SOM alumni who have completed residency training is holding a leadership or operational position in the MHS. In 1998, the Association of American Medical Colleges (AAMC) Reporter stated that USU was "... the one place where physicians of tomorrow do get thorough preparation to deal with the medical aspects of chemical and biological terrorism." Following the terrorists' attacks on September 11th, the Reporter re-confirmed its earlier findings:

> **Large-scale terrorist attacks and biological intimidation campaigns on American soil have sent shockwaves of change rippling through every layer of society. Each unexpected new challenge requires an adjustment in preconceptions and contains a practical lesson for the future. But, AT USU, IT IS LEARNING AS USUAL. Students have been explicitly trained to provide a medical response to terrorism scenarios like the ones that are playing out in the United States and abroad today.**
>
> - The AAMC Reporter, the Association of American Medical Colleges, December 2001, page 8.

- **OPTIMIZATION.** Continuous accreditation granted by the Commission on Higher Education of the Middle States Association of Colleges and Schools has enabled USU to support and generate cost avoidance for the MHS through its multiple educational programs, all of which are fully accredited by fourteen independent accrediting entities. In addition to 3,258 USU Alumni (3,101 uniformed physician officers and 157 advanced practice nurses who have received degrees from USU as of April 2002), today, the DoD recognizes the many cost-effective products of USU: (**Accredited Programs:** i.e., Graduate Education; Graduate Medical Education; Continuing Education for Health Professionals; the VA/DoD Distance Learning Program; and, the Military Training Network; **Centers of Unique Expertise for:** i.e., the Study of Traumatic Stress; Preventive Medicine and Public Health; Casualty Care Research; Disaster and Humanitarian Assistance Medicine; Prostate Disease Research; Pediatric Molecular Medicine; and, Space Medicine; and, **Institutes for:** Armed Forces Radiobiology Research; and, Cancer Research). The USU Journal - 2001 Edition documents an estimated $23.3 million of annual cost avoidance generated by USU during the past year for the DoD.

The Uniformed Services University of the Health Sciences (USUHS)... was recently honored by the U.S. Department of Defense with the Joint Meritorious Unit Award ... This notable award endorses and recognizes the multiple products and the critical cost effectiveness of the USUHS in maintaining the health and readiness of our Nation's Armed Forces.

- **The Honorable Constance A. Morella, United States House of Representatives, 8th District, Maryland**, Letter to the Members of the House of Representatives, dated February 1, 2001.

THIRTY YEARS OF SUPPORT AND GUIDANCE. Today, as the MHS addresses the medical aspects of Homeland Security and Defense, USU is positioned to play a significant role. Many positive factors have ensured the University's on-going capability to respond to the special needs of military medicine: 1) the visionary action of the United States Congress when it enacted Public Law 92-426, the Uniformed Services Health Professions Revitalization Act of 1972; 2) the essential guidance of acknowledged experts from the Federal and Civilian Medical Communities and the Office of the Secretary of Defense who coordinated on the foundation of USU's uniquely relevant curricula and training; 3) the dedicated and on-going leadership of the Surgeons General of the Armed Forces; 4) the steadfast oversight and counsel of the USU Board of Regents and the Office of the Assistant Secretary of Defense for Health Affairs; 5) the support and mentorship of many military and civilian associations; and, 6) the executive management of the USU Presidents: Anthony R. Curreri, M.D. (awarded the DoD Distinguished Public Service Award for the development of the overall objectives and goals of the USU); Mr. David Packard (also the first Chairman of the USU Board of Regents); Jay P. Sanford, M.D. (also the first Dean of the USU School of Medicine); and, James A. Zimble, M.D. (former Surgeon General of the Navy and 2001 Recipient of the Frank Brown Berry Prize in Federal Healthcare).

The USU Journal - 2001 Edition provides an inclusive background on the history and development of the University. The report also describes the achievements of the past year and any changes that have taken place throughout USU's educational programs, centers, and institutes. The Journal serves as a source document for the University's responses to congressional, executive, and general requests for information throughout the current year.

Mary A. Dix
Vice President for Administration
and Management, and
Editor-in-Chief
USU Journal - 2001 Edition

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The Department of Defense has, itself, come to fully appreciate the unique role of the University, not only for its on-line provision of medical education and specialty training, but especially for its incomparable value as a recruitment tool and retention incentive for military medical personnel. The University's curriculum is tailored to all levels of military medicine; and, the University's program growth, academic enhancement, and research involvement have earned national and international acclaim.

– U.S. Medicine, the Voice of Federal Medicine, Volume 37, Number 8, August 2001, page two.

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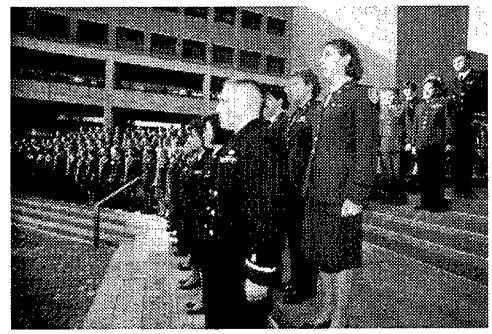
RELEVANCE

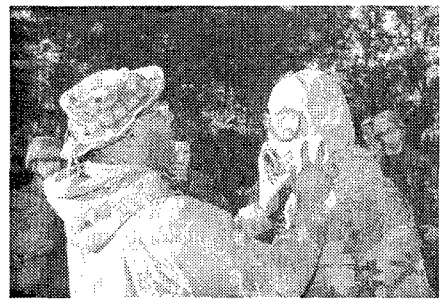


USUHS, in providing a cadre of career physicians, has developed curricula to enable its students (medical, advanced practice nursing, graduate, and continuing education) **to prepare thoroughly to deal with the medical aspects of chemical, biological, and radiological terrorism and has developed exportable packages for distance learning in those arenas as well as in disaster medicine in the broadest sense.** – J. Edward Hill, M.D., Chair-Elect, American Medical Association Board of Trustees, Testimony before the House Committee on Veterans' Affairs, Subcommittee on Oversight and Investigations, November 14, 2001.

Our medical professionals must be ready and able to effectively respond to fallout from weapons of mass destruction... An article in the Association of American Medical Colleges Reporter, in December 1998, quotes an issue of Military Medicine that says, "Even military physicians, who should be more prepared than civilian doctors, aren't sure about their capability of handling such a situation." The June 1998 issue of Military Medicine reported that only 19 percent of military physicians were confident about providing care in an NBC situation. The majority of those confident few, or 53 percent, were USUHS graduates.... I think it is extremely important that we disseminate that expertise... – The Honorable Stephen E. Buyer, Chairman, House Subcommittee on Oversight and Investigations, Committee on Veterans' Affairs, Hearings held on November 14, 2001.

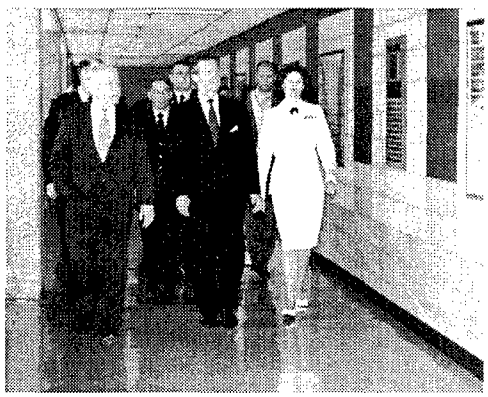
The Department takes great pride in the fact that the USUHS graduates have become the backbone for our Military Health System. The training they receive in combat and peacetime medicine is essential to providing superior force health protection, and improving the quality of life for our service members, retirees, and families. All of us in the Office of the Secretary of Defense place great emphasis on the retention of quality physicians in the military. The USUHS ensures those goals are met. I look forward to continued excellence from the University. – The Honorable Donald Rumsfeld, The Secretary of Defense, Correspondence to the USU Board of Regents, March 22, 2001.

Your outstanding performance was recently recognized by the National League for Nursing Accrediting Commission (NLNAC), in the report granting continuing accreditation for an impressive eight additional years. I am particularly gratified by the following statement: "This program (the Graduate School of Nursing) provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice, and scholarship as nursing moves into care of the global community." This is a truly outstanding review of the school, which reflects great credit upon your entire staff and our Military Health System. – The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs, Correspondence to USU Reference the NLNAC Notice of Maximum Accreditation, January 24, 2002.



Military physicians and military medicine planners and educators have long expected that foes of the United States would resort to the offensive use of weapons of mass destruction (WMD). Memories of World War I, when chlorine and phosgene gas were used as weapons, the knowledge that the world powers had weaponized chemical and biological agents such as anthrax, and vivid images of the use of chemical weapons in the Middle East made it mandatory for American practitioners of uniformed medicine to be educated, trained, and prepared to treat casualties of WMD. Therefore, since the arrival of its first class in 1976, USUHS has provided in-depth instruction for more than 3,100 USUHS School of Medicine graduates regarding the recognition, diagnosis, management and decontamination of persons exposed to WMD. To my knowledge, USUHS is the only school of medicine in the United States with WMD as a formal part of its curriculum. – Val G. Hemming, M.D., Dean and Professor, USUHS School of Medicine, Testimony before the House Subcommittee on Oversight and Investigations, Committee on Veterans' Affairs, November 14, 2001.

I truly wish there was a way all 535 (members of the United States Senate and House of Representatives) could visit USUHS so they would fully appreciate the national resource that sits in their back yard. The work you do has never been more important or relevant. While few use the words, we are a nation at war; a different kind of war than we have fought in the past, but a war nevertheless. We must win this war decisively.... we will continue to tell the USUHS story at every opportunity... you have our continuing support. – Kenneth A. Goss, Director Government Relations, The Air Force Association, Letter to USU, January 30, 2002.



USUHS provides an invaluable service to the Armed Forces and to America. Nowhere else will you find a similar quality of research and medical training with the specific goal of meeting the demands of military medicine.
– The Honorable F. Whitten Peters, Secretary of the Air Force, Department of Defense, Letter to USU, January 20, 2001.

RELEVANCE • READINESS • OPTIMIZATION
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES
• 1972 •
RELEVANCE • READINESS • OPTIMIZATION

I. THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES (USU)

The University community completed the Year 2001 with renewed dedication to public service and its mission-driven goal of "Learning to Care for Those in Harm's Way." In accordance with strategic guidance, the University has continued its focused attention on: RELEVANCE - the critical nature of its unique mission to provide continuity, leadership, and responsiveness to the special needs of the Military Health System (MHS); READINESS - the provision of physicians, advanced practice nurses, and graduate degree recipients who are uniquely qualified to respond to the aftermath of weapons of mass destruction (WMD) and to provide assistance during humanitarian, disaster, or operational contingencies; and, OPTIMIZATION - the cost-effective management of its resources to ensure the generation of annual cost avoidance for the MHS through its multiple, fully accredited programs (estimated cost avoidance during 2001 was $23.3 million).

ESTABLISHMENT, DEVELOPMENT, AND GOVERNANCE

The Uniformed Services Health Professions Revitalization Act of 1972 Establishes the University. Public Law 92-426, the Uniformed Services Health Professions Revitalization Act of 1972, established the University as a separate agency within the Department of Defense (DoD). Planning for the development of USU began with the **President of the United States Richard Nixon's** appointment of a Board of Regents and **Dr. Anthony R. Curreri** as the University's first President in 1974. Initial efforts were focused on establishing the USUHS School of Medicine (SOM) as the University's first academic program.

******

Collaborative Efforts by the Joint Services and Civilian Medical Communities in the Development of the University. The initial development of objectives for the USUHS SOM was accomplished through the combined efforts of the Board of Regents; the Board of Regents' Educational Affairs Committee; **Dr. Curreri**; the USUHS SOM Dean, **Dr. Jay Sanford**; and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: the Surgeons General of the Army, Navy, and Air Force; Chiefs of the Medical Departments/Services of the Army, Navy, and Air Force; physicians from the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow U.S. Air Force Medical Center at Andrews Air Force Base, the Wilford Hall U.S. Air Force Medical Center, the U.S. Army Academy of Health Sciences, the Sheppard Air Force Base Academy of Health Sciences, the Brooke Army Medical Center, and the Armed Forces Institute of Pathology; the Secretary of the Air Force; the Secretary of the Navy; the Association of American Medical Colleges (AAMC); the American Medical Association (AMA); the Liaison Committee on Medical Education (LCME); the Department of Health, Education, and Welfare; the National Institutes of Health (NIH); George Washington University; Georgetown University; and, Howard University. The fine tradition of the University's identifying and responding to the special needs of the Uniformed Services has been an on-going process since 1974.

******

DoD Directive 5105.45. Significant changes in the USU governance structure resulted from actions taken during 1991. On April 15, 1991, the Secretary of Defense revised the DoD Directive for Health Affairs, 5136.1, to delegate responsibility for the University from his office to the Assistant Secretary of Defense for Health Affairs (ASD/HA). The authority to appoint the President of the University was retained by the Secretary of Defense. On April 19, 1991, the DoD Directive for USU, 5105.45, was updated to reflect those changes and to define in detail the mission, organization, responsibilities, functions, relationships, authorities, and governance of the University. In a memorandum dated May 3, 1991, the ASD/HA redelegated the authority for the day-to-day management of the University to the USUHS President; the current delegation of authority to the USUHS President for the on-going management of the University is also included in DoD Directive 5105.45. (A copy of the current revision of DoD Directive 5105.45, dated March 9, 2000, is at Appendix A.)

******

Board of Regents Charter. Prior to 1991, the USU Board of Regents (BOR) had been an independent policy-making body; it is now an advisory body to the Secretary of Defense. A Charter for the BOR was approved by the Office of the Secretary of Defense (OSD) on April 1, 1991 (the most current edition of the BOR Charter is dated April 4, 2001). The Charter defines the objectives and scope of the BOR to: 1) provide advice and guidance to the Secretary of Defense through the ASD/HA for the operation of USU; and, 2) assure that the University operates in the best tradition of academia and is in compliance with the appropriate accreditation authorities. The USU administration and faculty provided substantial input into the revision of both the USU DoD Directive and the BOR Charter. As a result, the administrative/governance documents of 1991 reflected the coordinated efforts of the ASD/HA, the BOR, the USU administration and activity heads, SOM department chairpersons, the SOM Faculty Senate, and the Dean's Executive Advisory Committee. In addition, during this process, the Acting Dean of the SOM coordinated with and briefed the LCME and the Commission on Higher Education of the Middle States Association of Colleges and Schools to ensure compliance with the University's accrediting entities on issues regarding governance and administration. And, on February 6, 2001, the BOR Bylaws were updated and approved. (Copies of the current BOR Charter and Bylaws are at Appendix A.)

******

USU - The 1998 Defense Reform Initiative. In November of 1997, **William Cohen, Secretary of Defense,** substantiated his support of the University by including USU as part of his Fiscal Year 1998 Defense Reform Initiative (DRI). Program Budget Decision (PBD) 711 issued on December 17, 1997, outlined the DRI and moved USU from under the direct oversight of the Office of Health Affairs, Office of the Secretary of Defense (OSD), to the collective oversight of the Surgeons General of the Army, Navy and Air Force. The PBD ensured manpower and funding for USU and established the Surgeon General of the Navy as the Executive Agent for program, budget, and funding execution responsibilities. The PBD also directed that the University's funding would continue to be programmed, budgeted, and executed within the Defense Health Program.

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The Establishment of the USU Executive Committee. The administrative process for fiscal matters was defined during 1998 by the ASD/HA, in consultation with the USU BOR, the USU administration, and the Surgeons General. As a result, DoD Directive 5105.45, was updated on May 17, 1999, to include the formal establishment of the USU Executive Committee (to be composed of the three military Surgeons General; current membership includes: **Lieutenant General James B. Peake, Surgeon General of the Army**; **Vice Admiral Michael L. Cowan, Surgeon General of the Navy**; and, **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force**) to provide management oversight for the University. As outlined in DoD Directive 5105.45, the USU President reports through the Executive Committee to the ASD/HA. The Executive Committee, chaired by **Lieutenant General Paul K. Carlton, Jr.**, conducts quarterly meetings which focus on important academic and administrative issues at the University. The USU Executive Committee and the USU Board of Regents have developed a close working relationship in a shared effort to enhance the academic and administrative programs at the University (a copy of the current Charter for the USU Executive Committee dated December 18, 2000, is at Appendix A).

As the Executive Agent, the Navy Surgeon General's Office provides oversight for the University's budgeting and programming activities. The DoD Directive further clarifies that the USU funding and personnel requirements will not be offset against the Navy Surgeon General's budget or work-year allocations; USU funding remains within the Defense Health Program. Section 7.2.1 of Directive 5105.45 also directs that USU civilian personnel authorizations will be under the purview of the DoD Executive Agent (Navy) and that USU civilian employees should be moved from OSD and carried on the rolls of the Department of the Navy. The USU civilian employees officially converted from OSD to Navy employees with the changing of the University's Subelement and Unit Identification Code at the end of Fiscal Year 1999. All official reporting documents will reflect this change (following the implementation of the Modern Defense Civilian Personnel Data System (MDCPDS) during August of 2001, both the USU government service/wage grade (GS/WG) and the USU administratively determined (AD) employees must be manually reported pending the revision of computer software scheduled for October of 2002). It was agreed that the Human Resource Services Center (HRSC) of Washington Headquarters Services (WHS) would continue to service the University for its personnel requirements; upon completion of all software requirements, a determination will be made on the eventual movement to Navy for personnel services and payroll. An inclusive review of the USU personnel instructions for compliance with the Navy personnel instructions was completed by USU during 2000; and, a Navy-conducted review and evaluation of the USU Civilian Human Resources Directorate was conducted on January 14-15, 2002. The Navy review team found that the USU Civilian Human Resources Directorate was "in compliance with the self-assessment requirements of SECNAV Instruction 12273.1 of March 16, 1999," with "no corrective actions required."

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A Strengthened Relationship Between USU and DoD. The evolving relationship between the USU and DoD from 1991 through 2001 has proven beneficial to the University. This new relationship has clarified and strengthened the position of the University within the entire DoD structure. The expansion of the oversight role of the Executive Committee (the three military Surgeons General) over USU has proven to be quite positive in terms of strategically identifying the ever-changing requirements of the MHS and evaluating how USU is currently meeting the needs of its primary customers, the Surgeons General. One example of the successful relationship of USU with the Surgeons General and OSD was evidenced by the presentation of the Joint Meritorious Unit Award by **the Honorable William S. Cohen, the Secretary of Defense,** to the University on December 11, 2000. In addition, on March 22, 2001, **the Honorable Donald**

Rumsfeld, the current Secretary of Defense, wrote the following to the Chair of the USU Board of Regents: **"The Department takes great pride in the fact that the USUHS graduates have become the backbone for our Military Health System. The training they receive in combat and peacetime medicine is essential to providing superior force health protection, and improving the quality of life for our service members, retirees, and families. All of us in the Office of the Secretary of Defense place great emphasis on the retention of quality physicians in the military. The USUHS ensures those goals are met. I look forward to continued excellence from the University."**

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USU BOARD OF REGENTS.

Our University's major strength continues to be the graduation of medical officers dedicated to long-term service. Currently in the Armed Forces, 90 percent of all of your USU graduates continue to practice military medicine. Today, one in five military physicians are our graduates and a disproportionately high number have attained leadership positions. And, two graduates attained flag rank last year. This combination of retention and leadership is the primary objective that our University was designed to achieve - long-term military medical leadership. Needless to say, we are intensely proud of the academic record achieved by our students and faculty and are dedicated to maintaining the highest possible standards for our Institution. In the academic realm, accreditation is the lifeblood of a university and we are pleased to report that our University has attained the highest possible assessment from the national accreditation bodies that evaluate our Institution.

- USU Board of Regents Annual Report to the Secretary of Defense, dated June 30, 2001.

Membership of the Board of Regents. The USU Board of Regents (BOR) is an advisory committee governed by the Federal Advisory Committee Act, the General Services Administration Final Rule (41 C.F.R. Part 101-6), and Department of Defense Directive 5105.45. The nine members of the Board are distinguished academics, educators, health care providers and public servants; they are Presidential appointees confirmed by the United States Senate: **the Honorable Everett Alvarez, Jr., J.D., Chair; the Honorable Robert E. Anderson, M.D., Vice Chair; the Honorable Lonnie R. Bristow, M.D.; the Honorable John E. Connolly, M.D.; the Honorable Ikram U. Khan, M.D.**; and, **the Honorable W. Douglas Skelton, M.D.**. Three remaining member positions are currently vacant.

Recently Appointed Chair. **The Honorable Everett Alvarez, Jr., J.D.**, member of the USU BOR, was designated by the **President of the United States George W. Bush** to be Chair of the Board of Regents; he assumed that position in November of 2001. First appointed to the USU BOR in 1988, Mr. Alvarez has served continuously to the present; he was previously designated and served as the Chair of the BOR from 1992 to 1996. Following his retirement from the U.S. Navy in 1980, with numerous decorations reflecting his nationally recognized service in Vietnam, Mr. Alvarez occupied several executive positions within the Federal Government. He served as Deputy Director of the Peace Corps from 1981 to 1982, and as the Deputy Administrator of the Department of Veterans' Affairs from 1982 to 1986. In 1987, Mr. Alvarez formed his own consulting company, CONWAL Incorporated. Currently, he is also a member of the President's Task Force to Improve Health Care Delivery to Our Nation's Veterans. **The Honorable Lonnie R. Bristow, M.D.**, former Chair, remains on the BOR as a member.

Ex Officio Members of the Board. In addition to the nine White House appointed members, the Board also has six ex officio members. These include 1) the Assistant Secretary of Defense for Health Affairs, **the Honorable William Winkenwerder, Jr., M.D. M.B.A.,**; 2) the Surgeon General (Acting) of the United States, **Rear Admiral Kenneth P. Moritsugu, M.D., United States Public Health Service;**

3) the Surgeon General of the Army, **Lieutenant General James B. Peake**; 4) the Surgeon General of the Navy, **Vice Admiral Michael L. Cowan**; 5) the Surgeon General of the Air Force, **Lieutenant General Paul K. Carlton, Jr.**; and, 6) the President of USU, **James A. Zimble, M.D.**, who serves as a non-voting member.

There are eight advisors to the Board: 1) the Dean, School of Medicine (SOM); 2) the Dean, Graduate School of Nursing (GSN); 3 - 6) the Commanders of the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, and the Wilford Hall Air Force Medical Center; 7) the Director of the Defense Medical Readiness Training Institute in San Antonio, Texas; and, 8) the former Assistant Commandant of the Marine Corps, **General Thomas Morgan**, United States Marine Corps (Retired) who continues to serve as the military advisor to the Board.

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The Board's Significant Role in Academic Affairs. The BOR has continuously played a prominent role in academic affairs at the University, to include the final review of candidates for the USU President prior to the Secretary of Defense's selection.

University Presidents:

Anthony R. Curreri, M.D., was appointed by **President Nixon** in 1974 and retired in 1976;

The Honorable David Packard, Acting President, served from November 1976 until May 29, 1981;

Jay P. Sanford, M.D., served from May 1981 through 1990; and,

James A. Zimble, M.D., has served since July 1991 to the present.

The BOR also reviews the final selections for the Deans of the SOM and GSN prior to their selection by the USU President:

School of Medicine Deans:

Jay P. Sanford, M.D., was appointed as the first Dean, SOM, in May 1975 and served through 1990;

Harry C. Holloway, M.D. served as the Deputy Dean from 1990 through June 1992;

Nancy E. Gary, M.D. was appointed as Dean on June 28, 1992, and served through mid-1995; and,

Val G. Hemming, M.D. was appointed as Interim Dean on July 2, 1995, and has served as Dean from May 3, 1996 to present.

Graduate School of Nursing Dean:

Faye G. Abdellah, Ed.D., Sc.D., RN, served as Acting Dean following the establishment of the GSN in 1993; and was selected as Founding Dean, GSN, serving from May 17, 1996, to the present.

Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well-being of the University are all included in the definition of "academic affairs" as provided by DoD 5105.45. The Directive clarifies it is DoD policy that **"...consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences education, the Department of Defense recognizes the unique role of the USU Board of Regents in advising the Secretary of Defense. The Assistant Secretary of Defense for Health Affairs, the USU Executive Committee, and the President of the USU will be guided by the advice of the USU Board of Regents on academic affairs."**

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The Board's Mission and Responsibilities. The Board's principal mission is to assure compliance with the University's accreditation authorities. The Regents approve academic titles, as appropriate, for military and civilian members of the faculty. Additionally, upon the recommendation of the University's faculty and Deans, the Regents approve the granting of appropriate academic degrees to successful candidates. The BOR recommends the establishment of postdoctoral, postgraduate and technological institutes, and programs in continuing medical education for military members of the health professions; and, the Regents also recommend reciprocal education and research programs with foreign military medical schools. Additionally, the BOR is significantly involved with the University's strategic planning process. On April 4, 1999, the BOR's Charter, which outlines the mission, membership, duties and responsibilities of the BOR, was revised and approved by the Office of the Secretary of Defense (OSD). The most current edition of the BOR's Charter is dated April 4, 2001. In addition, on February 6, 2001, the BOR Bylaws were updated and approved. (Copies of BOR Charter and Bylaws are at Appendix A.)

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The Board's Fifth Report to the Secretary of Defense. In the BOR's fifth annual report to the Secretary of Defense, the Regents listed numerous examples from among the University's many accomplishments during 2001; some of those accomplishments are described below.

USU Graduates Continue as Major Strength. The University's major strength continues to be the graduation of its 3,101 uniformed physician officers and 157 advanced practice nurses (totals effective as of April 2002) who ensure continuity and leadership for the MHS; the 2,465 USU physicians on active duty in the Army, Navy and Air Force currently represent twenty-one percent of the 11,833 physicians on active duty in the Armed Forces (in addition, 96 USU SOM graduates continue on active duty in the United States Public Health Service). The overall retention rate for USU SOM graduates from its first graduating class in 1980 to present is 85 percent; of the USU SOM alumni who have completed their residency training, approximately one out of every two USU graduates holds an operational or leadership position. Thus, the combination of the USU Alumni's career service, unique expertise, and leadership skills validates the primary objective for the establishment of USU - continuity and leadership for the MHS.

USU Maintains Full Accreditation from Fourteen Accrediting Organizations. The University continues to receive full accreditation from its fourteen accrediting entities. Following the submission of a comprehensive self-study, the Graduate School of Nursing (GSN) was visited by a National League for Nursing Accrediting Commission (NLNAC) site team. The visit took place from October 30 through November 1, 2001; since that time, the GSN has received final notification from the NLNAC that full accreditation has been granted to the GSN for the maximum term of eight years. The NLNAC's final report included testimony from the Federal Nursing Chiefs: "We are excited to see the quality of the students who graduate from this program...they are exceptional leaders. We are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions." The NLNAC rationale for its provision of full accreditation was based on the fact that the "Uniformed Services University of the Health Sciences Graduate School of Nursing has met and exceeds all criteria for continuing accreditation. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations. This program is on the cutting edge of effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve an a model to advance nursing education, practice and scholarship as nursing moves into care of the global community."

USU Achievements in Information Technology. Significant accomplishments have been achieved in the area of information technology: the redesign, replacement, and improved management of the computer network; a six-fold increase in Internet communications capabilities and a new dial-up capability for off-site users; the implementation of a program utilizing hand-held computers for communication with students on and off the campus, and the automated collection of educational data on student educational experiences; the establishment of an enterprise database and implementation of the first phase of a new computerized system for student applications, selection, and record maintenance; and, the provision by the USU Learning Resource Center (LRC) of 90 full-text books and over 5,000 journal titles; all of which are available on-line, and in full-text, to assist its users (faculty, staff, students, and alumni); these LRC capabilities have now been extended to a number of DoD medical and research facilities.

USU Institutional Review Board Obtains Federal-Wide Assurance of Compliance from the Department of Health and Human Services. The USU Program for the Protection of Human Participants in Research and the USU Institutional Review Board (IRB) jointly ensure the protection of human volunteers for research for both the University and its affiliates. The Programs's administrative staff, which functions as a part of the USU Office of Research, reviews each protocol conducted at the University to ensure compliance with all policies and regulations of DoD and other Federal organizations. During 2001, the IRB reviewed and approved: 211 initial proposals for human-subject research; 120 amendments to protocols already underway; and, 119 annual or semiannual reviews of previously approved projects. Also During 2001, in addition to the Assurance of Compliance previously received from DoD, USU obtained Federal-Wide Assurance from the Department of Health and Human Services. A separate IRB for the United States Military Cancer Institute was formally approved at a signing ceremony on January 14, 2002. Attending the ceremony were the President of USU, the Commander of the National Naval Medical Center, and the Commanding Officer of the Malcolm Grow Medical Center. The newly established Military Cancer Institute IRB will draw its members from these three institutions and will ensure compliance with Federal regulations and accepted ethical standards of scientific conduct.

Two University Programs Are Added to USU's Financial Base. Funding for the National Capital Area Medical Simulation Center, the USU's cutting-edge teaching initiative, and the USU Military Training Network, described in Section VI of this report, has been included in the University's financial base. Through

coordination with, and the support of, the USU Executive Committee, these two USU programs are now permanently resourced as part of the DoD budget process.

The GSN's Imaginative and Successful Partnership with the Department of Veterans' Affairs. During 2001, the USU Graduate School of Nursing (GSN) continued its imaginative and highly successful partnership with the Department of Veterans' Affairs (VA) to provide a twenty-month distance learning program for currently employed, masters-prepared VA nurses to complete a certificate program as adult nurse practitioners. The initial class of students were located at eight VA medical centers across the United States. In May of 1999, the first class of 26 students graduated in a virtual advanced graduation ceremony; a second class of students, located at ten VA medical centers, graduated in May of 2001 for a total of 60 graduates; a third class is currently underway. The program is cost-effective because it utilizes existing technology throughout the VA medical centers and permits the VA employees to maintain their positions at the medical centers while they study to earn an advanced certificate in a critically required specialty.

USU Continues to Serve as the Academic Health Center for the MHS. USU also serves as an Academic Health Center for its 2,647 off-campus, uniformed faculty located throughout the MHS. During 2001, the University sponsored conferences and seminars significant to military medicine; some examples include: The 15th Conference on Military Medicine, A Challenge to Readiness: Maintaining Currency in Military Medical Education; Planning for Biological Events: Responses to Terrorism and Infectious Disease Outbreaks; Pre-Conference Seminar at the 59th Annual Conference of the United States - Mexico Border Health Association; and, the 5th International Conference on Tactical Emergency Medical Support, "TEMS 2001."

All of these accomplishments are described in detail in Sections I, II, and III of this report.

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STRATEGIC PLANNING

A Perpetual Work-In-Progress. The USU Strategic Plan has been continuously evolving to reflect the changing requirements of the Strategic Plan of the Military Health System, which, in turn, is also linked with the Strategic Plans of the University's primary customers, the Surgeons General of the Army, Navy, and Air Force.

All Proposals for Funding Must Tie Into the USU Strategic Plan. Beginning with the USU Strategic Planning Process initiated during 1991, an increasingly systematic approach has been developed for setting the University's priorities and allocating resources based upon relevance to the USU Strategic Plan. USU activity leaders must show a direct relationship with the overall USU Strategic Plan when submitting their requests for future budgets. Thus, a formal process has evolved for identifying program needs and for submitting increased budget requests. Involvement of USU administration, faculty, and staff at both the formal and informal levels of the decision-making process assists in the equitable allocation of resources throughout the University's wide range of activities. The USU Strategic Plan is also used to develop the University's annual Program Objective Memorandum (POM) submission. The POM request, covering a five to six year timeframe, is submitted to the Department of Defense, through the Office of the Navy Surgeon General, in order to gain the necessary funds for the USU budget.

Recent Strategic Planning Initiatives. During 1998, the University updated the basic objectives under each of the goals of its Strategic Plan. Then, during 1999 through 2000, metrics or performance measurements were established and monitored for each objective. Next, in order to ensure that the USU Strategic Plan was accurately reflecting the evolving requirements of the MHS, on April 25-27, 2001, the senior staff of USU, representatives from the teaching hospitals, the Chair of the BOR, and senior staff from the offices of the Surgeons General met to participate in a three-day strategic planning session. The purpose of the retreat was to review and update the goals and objectives of the USU Strategic Plan so that they appropriately reflect the current requirements of the MHS. The session was facilitated by two officers from the Navy Medicine Center for Organization Development. Reference materials included the Service Strategic Plans, the USU Strategic Plan, and survey results as they were recorded during the initial group discussions.

A Significant Review and Evaluation of Goals and Objectives. Through group interaction, the attendees of the 2001 retreat reviewed USU's internal and external customers and stakeholders. Then, the concerns of those stakeholders were identified, discussed, and weighted during an analysis of the strengths, weaknesses, opportunities, and challenges existing within USU's current environment. Following those discussions, seven strategic issues were identified: marketing; resources; people; USU as a strong advocate for the MHS direct care mission; education/research/partnerships; strategic thinking; and, communication. Those seven strategic issues were carefully developed into the seven strategic goals of the current USU Strategic Plan. Next, 16 of the most significant objectives were prioritized for initial implementation and action. Some of the most critical objectives included: staff and faculty are satisfied and productive; military and civilian leadership recognize USU's role in military medicine and the preparation for operational missions; educational programs promote military medical readiness, public health, and force protection; the public understands the unique roles and values of USU; USU serves as a think tank to address new issues; USU is an active and valued participant in professional academic and military organizations; USU strongly advocates for the Direct Care Component of the MHS; tools are available and utilized for off-site communication; and, a robust array of communication mechanisms is maintained.

Learning to Care for Those in Harm's Way. Goal Champions were appointed to oversee the development and implementation of the actions required to accomplish the objectives and ultimate realization of each goal. Finally, the attendees designated 11 Team Leaders to develop action plans for accomplishing one, or more, of the 16 prioritized objectives. At the conclusion of the 2001 strategic planning session, the current mission statement was reviewed to identify a shorter and more accurate reflection of the University's purpose and future; the attendees agreed on the following: Learning to Care for Those in Harm's Way. (A copy of the USU Strategic Plan is at Appendix B.)

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Progress Toward Achieving the University's Seven Strategic Goals in 2001. As the strategic planning process evolved during 2001, the USU community incorporated its newly revised plan (which now includes seven strategic goals and 41 objectives) into its on-going efforts to meet its mission and respond to the requirements of the MHS. The following are examples of selected issues and accomplishments reported during 2001 which respond to the University's revised strategic goals (additional information on each of the listed accomplishments is also provided throughout the 2001 Edition of the USU Journal).

GOAL 1: We will enhance the reputation of USU as a premier health sciences academic institution with a unique global and military perspective.

USU SOM Faculty Participate at Conference with Premier Medical Schools. USU SOM faculty were selected to join faculty from ten premier medical schools: 1) Baylor College of Medicine; 2) UCLA School of Medicine; 3) University of California, San Francisco; 4) Duke University School of Medicine; 5) Harvard Medical School; 6) University of Iowa; 7) Mayo Medical School; 8) MCP Hahnemann University School of Medicine; 9) Mount Sinai School of Medicine; and, 10) the University of Rochester School of Medicine) at the Millennium Conference on the Clinical Education of Medical Students co-sponsored by the Shapiro Institute for Education and Research and the Association of American Medical Colleges (AAMC). In making the selection of USU as a conference participant, the sponsors reviewed a spectrum of critical themes in clinical education, including faculty development and reward, assessment of student performance, the fourth-year curriculum, and the use of technology to enhance clinical teaching. The selection committee was impressed by: USU's extensive and innovative uses of technology in the training and evaluation of not only medical students, but also postgraduate trainees and nursing students; the University's commitment to using its educational system as a laboratory for measuring outcomes for curricular revision and for educational interventions; and, its understanding of the importance of recognizing and rewarding faculty who focus their academic endeavors on medical education. USU's on-going efforts and plans for the near future contributed to the work completed at the Millennium Conference which was held from April 28 through May 1, 2001. The focus of the conference was on the future of medical education and the development of strategies for improving the quality of the clinical education of medical students; strategies that could guide the conference participants in their efforts to implement changes in the clinical curricula at their individual schools.

Common themes from the conference included: **What to Teach** - Conference participants uniformly agreed it is critical that the clinical and basic sciences be integrated, along with longitudinal themes and cross-disciplinary topics, across the 4-year curriculum. Graduation competencies should be

established, and evaluation must be linked to prescribed competencies. To ensure that objectives are being met by each student, competency-based assessments must be conducted at regular intervals (e.g., at the end of Year I, at the transition between the preclinical and the clinical curriculum, and at the end of Year III). In addition, individual learning requirements for students should be developed at the end of Year II based on a comprehensive assessment; **How to Teach** - Centralizing the administration of the clinical curriculum within the medical school emerged as a strong consensus. Participants also agreed that clinical experiences should begin early, in the latter months of Year II. The traditional clerkships should be modified to facilitate a shift from team-centered learning to patient-centered learning for students. Clinical learning modules with core faculty should be created. Mentoring and opportunities for longitudinal faculty/student relationships should be expanded throughout the clinical curriculum. The final year of medical school should be revised to include advanced experiences that build on the scientific clinical foundation begun in the earlier years of medical school and prepare students for the first year of post-graduate training. A course focused on the transition to internship might include topics ranging from managing common emergencies to teaching skills; and, **Who Teaches** - Perhaps the strongest consensus that emerged from the conference is the need to establish organized structures for supporting faculty who teach in the form of core faculties, communities of scholars, or academies of medical education. The role of clerkship directors must be enhanced, and expectations for clerkship directors must be defined. Clerkship directors should also: engage in medical education research; participate in formal evaluation sessions; assist in faculty development; and, be provided the time and resources to accomplish these tasks. The education faculty should be empowered as change agents. They should have opportunities for leadership development and faculty development focused on education. Internal grants could provide protected time to pursue research questions with defined outcomes that can be published. Strategies for dynamic curricular revision must be developed. Think tanks should be established to develop a long-term vision for the curriculum and provide feedback to curriculum committees. Lastly, mechanisms for recognizing and rewarding teachers will be critical to ensure excellence in medical education in the new Century. Education faculty must be rewarded, especially academically, but also financially. Mission-based management and budgeting for medical education should be instituted and endowments supporting teaching should also be raised. Funding for education research from internal as well as external sources should be made available for faculty to pursue academic interests in medical education.

The participants of the Millennium Conference developed these broad recommendations in hopes that they will benefit the medical education community at large, in addition to, the school-specific plans presented for discussion which may be executed at the individual schools of the participants. USU representatives included: **CAPT Richard Hawkins, MC, USN, Assistant Dean, Simulation Education, CAPT Joseph Loprieato, MC, USN, SOM Department of Pediatrics, John Pierce, M.D., SOM Department of Pediatrics**, and **Louis Pangaro, M.D., SOM Department of Medicine.**

Graduate School of Nursing Earns Continued Full Accreditation. Following the submission of an inclusive, 191 page Self-Study by the GSN faculty and staff, the National League for Nursing Accrediting Commission (NLNAC) conducted a site visit and review of the GSN programs on October 30 through November 1, 2001. In January of 2001, the USU was notified that accreditation had been granted by the NLN for the maximum term of eight years; the final NLN Program Evaluation Report provided the following as exceptional strengths: **"The congruence of the mission of the GSN within the Uniformed Services University of the Health Sciences is unique. This program prepares graduates to function immediately after completing the program as Advanced Practice Nurses in their respective Branch of the Services. Dr. Abdellah's exemplary leadership and expertise in numerous areas of nursing and public health provide an exceptional base of support for the creation of this unique and very high quality program... and serve to elevate the status of this program in the University and the national and**

international nursing community. Her list of awards and the positions of leadership she has held support the development of the collaborative relationships that are key to the ongoing interdisciplinary development of the School." During September through early October of 2001, an additional, 262 page Self-Study was also completed by the GSN faculty and staff for the Commission on Collegiate Nursing Education (CCNE). The CCNE site visit took place in November of 2001. Preliminary reports indicated that full accreditation would be granted to the GSN when the CCNE formally met on the granting of accreditation during the Spring of 2002; following that meeting, the University was notified that maximum accreditation had been granted to the GSN through June of 2012.

Academic Center for Military Medicine. During 2001, the University continued to serve as the Academic Center for Military Medicine for the 2,647 active duty, off-campus USU faculty who are located throughout the MHS. Through its continuing medical education programs and academic centers, the University presented military-relevant conferences and continued its collaborative efforts for the Uniformed Services. Some examples are provided below.

1) The Fifteenth Conference on Military Medicine, "A Challenge to Readiness: Maintaining Currency in Military Medical Education," was held on June 4-7, 2001. The attendees focused on predicting the changes that will impact military medical practice over the next twenty to thirty years and providing recommendations regarding the changes needed in military health care education to prepare today's uniformed medical students to practice in the future. Experts in military and contingency medicine contributed their expertise, experience, knowledge, opinions, predictions and, most importantly, their recommendations for the planning and implementation of future military medical education and training. There were four principal topic areas: a) new technologies, both medical and non-medical, that are likely to influence the practice of military medicine over the next 20 to 30 years; b) changes in the Services' missions and doctrines that will impact future health care delivery and the practice of military medicine; c) emerging threats, new emerging, or re-emerging, diseases, and new weapons or new weapon technologies; and, d) changes in ethics, mores, and societal expectations that will impact the future practice of military medicine. The Sixteenth Conference on Military Medicine is planned for mid-2002; the attendees will help to determine which metrics should be used to measure whether the changes proposed during the preceding conference have achieved their desired effect.

2) The Center for the Study of Traumatic Stress of the USU SOM Department of Psychiatry organized and sponsored a three-day conference with the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, Department of Health and Human Services, "Planning for Biological Events: Responses to Terrorism and Infectious Disease Outbreaks," on October 19-21, 2001. Attendees included internationally known scientists, public health and mental health leaders from the state and local levels, and representatives from the state executive branches. The conference was organized to: examine how communities perceive their needs for behavioral and mental health response preparedness in anticipation of bioterrorism and infectious disease outbreaks in the wake of training provided by the Departments of Defense and Justice; develop recommendations for behaviorally and psychologically informed interventions to maintain or restore community function; provide recommendations on health communication and risk appraisal to state and local community leaders and others in order to respond more effectively to the mental health consequences of terrorist attacks; and, develop recommendations for education, training, and resource requirements to assist state and local officials to prepare for the mental health aspects of infectious disease outbreaks.

3) The USU Casualty Care Research Center (CCRC) hosted the Fifth International Conference on Tactical Emergency Medical Support, "TEMS 2002," on June 8-10, 2001, in Arlington, Virginia.

The conference received full attendance and positive responses from all attendees. The Keynote Address was presented by **Colonel David Mitchell, Superintendent of the Maryland State Police.** There was also a presentation on the development of a Tactical Medicine Program in Littleton, Colorado. This program was established following the shootings at the Columbine High School in 1999.

4) The USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) of the USU Department of Military and Emergency Medicine, hosted a three-day, pre-conference symposium for community emergency first-responders, civil authorities, border health workers, and military personnel of the United States and Mexican Armed Forces as part of the 59th Annual Conference of the United States - Mexico Border Health Association (USMBHA). The pre-conference focused on the fact that while global medical communities have a growing understanding, capacity, and capability to provide life-saving care following natural disasters, the unique challenges of man-made disasters, which range from accidents to terrorism, and from hazardous materials exposures to emerging infections, pose new challenges to science, medicine, and international partnerships. Over 75 participants shared experiences and lessons learned during the symposium in order to gain an understanding of "first principles" that may be common across events and cultures.

GOAL 2: We will anticipate changes in society, medicine and the military to meet the academic and unique needs of health care delivery in the MHS.

The National Capital Area Medical Simulation Center. The National Capital Area Medical Simulation Center, a collaborative project between USU and the Surgeons General, officially began operations on April 21, 2000. The Simulation Center, located at the Walter Reed Army Medical Center annex in Forest Glen, Maryland, uses virtual reality technology, life-like mannequins and actor "patients" to support not only the USU programs but the other military medical centers in the Washington, D.C. area. The USU Simulation Center is unique among the limited simulation centers currently found at civilian medical schools because five state-of-the-art components are included under one roof: 1) standardized patients (patient "actors"); 2) multi-media, interactive, clinical case presentations on LAN or web-based CD-ROMS; 3) virtual reality software applications; 4) medical simulators (computerized mannequin simulators); and, 5) video-teleconferencing/distance education. The importance of simulation technologies, particularly in training, is that the simulators allow "virtual" training before the actual provision of medical treatment; thus, students are able to develop clinical skills without the risk of harming a patient. The Simulation Center also generates cost-avoidance for the MHS through the provision of training and distance learning for SOM and GSN students, graduate medical education, medical readiness, and research.

The recent changes in the military health care environment such as the redistribution of resources, military down-sizing, the shift to outpatient from inpatient care, and privatization issues with TRICARE have all had an impact on medical education. Most of the clinical faculty at the military "teaching hospitals" are requested to accept increased clinical, operational, and administrative responsibilities at their respective clinical sites as well as multiple academic tasks. This directly impacts the faculty's availability for the instruction of medical students. During 1999, the Simulation Center served as the site for the Introduction to Clinical Medicine I, a course that teaches medical interviewing skills. In 2000, the Simulation Center proved to be essential for USU to support the Introduction to Clinical Medicine III Course; and, during 2001, USU continued to focus on current clerkship issues, to include careful analyses of current trends and the Simulation Center's future role in addressing related areas of concern.

During the past 22 months, the Simulation Center has supported 54 educational activities: 16 School of Medicine; 12 Graduate School of Nursing; 14 Graduate Medical Education; 5 Medical Readiness; and, 7 Research Training activities. These educational activities, in turn, supported over 7,500 student encounters.

Hand-Held Computers for Students. By November of 2000, the USU SOM Biomedical Informatics Department was formally established and began the implementation of a Hand-Held Computer Program for the SOM students during 2001. Hand-held computers were provided by the University to the second year medical school class. These computers provided common paths of communication as School of Medicine (SOM) students entered their rotation cycles. Surveys have documented that the hand-held computers are a superb educational tool; the provision of these computers will be continued in 2002.

GOAL 3: We will optimize resources to efficiently and effectively implement USU core capabilities.

Optimization of USU Resources Generated $23.3 Million of Cost Avoidance for the MHS during 2001. Continuous accreditation by 14 accrediting entities has enabled USU to support and generate cost avoidance for the MHS through its multiple educational programs and activities. In addition to 3,258 USU Alumni (3,101 uniformed physician officers and 157 advanced practice nurses as of April 2002), the Office of the Secretary of Defense (OSD) has officially recognized the many cost-effective products of USU: (**Accredited Programs:** i.e., Graduate Education; Graduate Medical Education; Continuing Education for Health Professionals; the VA/DoD Distance Learning Program; and, the Military Training Network; **Centers of Unique Expertise for:** i.e., the Study of Traumatic Stress; Preventive Medicine and Public Health; Casualty Care Research; Disaster and Humanitarian Assistance Medicine; Prostate Disease Research; Pediatric Molecular Medicine; and, Space Medicine; and, **Institutes for:** Armed Forces Radiobiology Research and Cancer Research).

University Adapts Business Planning Tools. In response to strategic planning efforts, a need was identified for business planning tools to assist the USU family in planning for, and requesting, resources for new initiatives. To meet this goal, two levels of business planning aids have been developed. The first is a Business Planning Checklist to be used with most new initiatives which will assist in reviewing the total impact on people, facilities, and resources. The checklist ensures that the requestor has considered the full range of requirements for a new initiative. For example, items on the checklist include installation and maintenance costs, as well as purchase costs for new equipment, new employee salary and benefits packages, office space, and, communication tools. A more comprehensive and detailed Business Planning Form has also been developed for major projects. Both tools are currently in the process of being made electronically available to users.

Financial Management Activities. Due to an aggressive Travel Card Program implemented by the USU Financial Management Division Travel Pay Office, the USU Travel Card Manager, and the USU senior management, the University continued to be recognized by the DoD throughout 2001 for consistently maintaining the lowest travel card delinquency rate in the DoD. Beginning during the past Fiscal Year, USU also entered into a partnership with the Navy Bureau of Medicine and Surgery (BUMED) to jointly manage the funding levels of USU's procurement account in order to maximize benefits for both USU and the DHP. Under this agreement, USU is responsible for executing the University's procurement program and requesting and justifying any long-term capital equipment requirements; BUMED assists in the management of the appropriation process, facilitating the matching of funds with the timing of procurement actions. Also during 2001, there was new emphasis on shared problem solving of budgetary issues with all USU activity heads.

Grants Management Activities. During 2000, the University established the Grants Management Office and Grants Officer Position to provide administrative management services in support of the University's research community for grant or cooperative agreements; this included providing fiscal management and guidance to grant recipients and investigators. During 2001, the Grants Management Office awarded seven new grant agreements worth more than $6,700,000; and, it completed 125 grant modifications. Currently, there are 110 active USU awarded grant agreements ranging from $5,000 to $48,000,000 managed by the Grants Office; the total award value is approximately $253,000,000. The University has 75 principal investigators conducting research on projects awarded to some 12 grant recipients. Currently, there are 33 agencies providing funding support. The USU Grants Office also provides oversight support for the TriService Nursing Research Program which has more than 70 grants.

Resource Management Information Activities. During 2001, the Resource Management Information Office developed, maintained and administered the University's resource management information systems and worked on the following special initiatives: 1) the establishment of the Resource Management Information System Search Committee which was appointed to find a suitable replacement for the University's principal resource management information system, the College and University Financial System (CUFS). The committee must effectively evaluate the available options for the appropriate system and, following its selection, propose a recommended implementation plan; 2) a web page was developed for the Contracting Directorate to help disseminate guidance to the University and vendor communities on various acquisition issues such as policies and regulations, solicitations, proposals, the Government Purchase Card, and other procurement guidelines; and, 3) due to a Defense Finance and Accounting Service (DFAS) realignment mandate, the disbursements (vendor pay) function was transferred from Omaha to the DFAS Center in Denver, Colorado; this transfer necessitated an extensive modification of the automated disbursement program in CUFS to accommodate the unique coding characteristics used at the Denver Center. All of these requirements were cost-effectively accomplished by USU staff.

GOAL 4: We will build a sustaining financial base.

Two Programs Are Added to the University's Financial Base. Permanent funding for the National Capital Area Medical Simulation Center and the USU Military Training Network has been incorporated into the University's financial base to support health professional education and training throughout the MHS. This was accommodated through the support and approval of the USU Executive Committee. During 2002, USU will focus on resource acquisition to build a sustaining financial base, and resource stewardship to effectively and efficiently support USU's core missions in teaching, research, service, and medical readiness.

USU Research Programs Increase Funding Levels. Growth in research funding at USU has continued to increase over the past few years. For example, in 1998, research funding granted to the USU researchers totalled some $44 million; by the end of 2001, research funding had increased significantly. Of note, funding from the National Institutes of Health has steadily increased ($7 million in 1998; $10 million in 2000; and, $16.4 million in 2001). During the past year, the USU Office of Research continued to establish baselines for research funding from both extramural and intramural sources in order to assess progress and growth potentials. In addition, research plans were developed which will allow USU investigators to request funding for multi-investigator grants from the National Institutes of Health.

The USU Office of Research (REA) provides service primarily to three communities: the University as an institution; USU faculty and student investigators; and, the more than 80 funding agencies which support research at the University. The Office of Research also oversees six multi-site, Congressionally-funded research programs whose Fiscal Year 2001 funding totaled $30,000,000: the TriService Nursing Research Program; the Center for Prostate Disease Research; the Defense Brain and Head Injury Program; the Coronary Artery Disease Reversal Program; the Clinical Breast Care Program; and, the new Post-Polio Research Program. All together, these programs support approximately 100 individual research projects conducted at USU and elsewhere.

Extramurally funded research at USU included 330 projects supported by Federal agencies such as the National Institutes of Health, the National Science Foundation, the Department of Energy, the U.S. Army Medical Research and Material Command, and the Office of Navy Research.

GOAL 5: We will optimize our role in military and federal medical education and research.

USU Research Studies Critical Issues for the Military. In 2001, the USU intramural program consisted of 80 militarily relevant protocols, 61 clinical research awards, and eight projects in areas of educational research. Standard awards by USU for militarily relevant research were typically 90 percent of the applicant's budget request; clinical research projects were usually supported by the University at 80 percent. A wide array of research protocols at USU investigate specific disease threats faced by the Armed Forces during peacetime and deployment. These research projects support the military mission by advancing the understanding of both the transmission and the internal mechanisms of a spectrum of pernicious and/or common diseases that may be faced by warfighters. These protocols are expected to provide important applications in support of the growing requirements for Homeland Defense. The knowledge gleaned by USU researchers should open new avenues to better control, diagnose, and provide treatment when responding to both natural and man-made biological threats.

USU studies also support the critical requirements of combat casualty care by: exploring the pain-control mechanisms which underlie established treatments; providing the groundwork for effective strategies to limit nerve damage and encourage nerve regeneration; and, identifying life-threatening complications caused by the combination of exertion and injury under combat conditions. In the area of operational medicine, USU researchers are analyzing the ability to manipulate the physiological mechanisms of stress and immunity, human sleep and seasonal cycles, and the neurological changes necessary to short- and long-term memory. The goal of such research is to enable the Military Health System to: allow deployed forces to stay awake longer with less impact on performance; develop better strategies for enhancing and preserving memory; ultimately prevent and treat neuropsychotic illnesses such as depression and post traumatic stress disorder; and, assist deployed troops and their families to better prepare for, and contend with, the significant stressors associated with military operations.

USU Continues the Development of Exportable Packages for Distance Learning for the Medical Response to Weapons of Mass Destruction. During Hearings held by the House Committee on Veterans' Affairs, Subcommittee on Oversight and Investigation (November 14, 2001), and the House Committee on Government Reform, Subcommittee on National Security (November 7, 2001), the President of the Association of American Medical Colleges; the Chair-Elect of the American Medical Association Board of Trustees; the Deputy Under Secretary for Health, Department of Veterans' Affairs; and, the Assistant Secretary of

Defense for Health Affairs all testified that "USUHS, in providing a cadre of career physicians, has developed curricula to enable its students (medical, graduate medical education (GME), advanced practice nursing, graduate education, and continuing health professional education) to prepare thoroughly to deal with the medical aspects of chemical, biological, radiological, nuclear terrorism and has developed exportable packages for distance learning in those arenas as well as in disaster medicine in the broadest sense."

GOAL 6: We will create a powerful, committed and energized University family.

USU Community Sessions. During the past year, the USU Office of Equal Employment Opportunity (EEO) continued to present USU Community Sessions to reinforce both the understanding of, and the appreciation for, the cultural diversity which exists throughout the University. To celebrate the birthday of Dr. Martin Luther King Jr., on January 29, 2001, **Admiral David Satcher, the Surgeon General of the United States**, presented the Keynote Address to over 300 faculty, staff, and students from the USU community. Also, in response to the emotional stress following the events of September 11th, a USU Family Day Presentation, "Coping with the Effects of Terrorism," was held on October 18, 2001. **Michael Feuerstein, Ph.D., Professor, USU Department of Medical and Clinical Psychology**, reviewed five topic areas in a lecture room filled with members of the USU community: defining terrorist attacks and why they are so frightening; the reaction to such events; coping with the present; what has worked in assisting the community to cope with stress; and, the available sources of support and counseling. In addition, a USU Memorial Service for the Victims of September 11, 2001, was coordinated by the Office of the USU Brigade Chaplain. Also during 2001, the Offices of University Recruitment and Diversity Affairs (RDO), Student Affairs, EEO, Equal Opportunity (EO), the USU Brigade Commander, and the Civilian Human Resources Directorate collaborated to ensure: 1) the communication of equal opportunity principles throughout the University; 2) the timely sharing of information; and, 3) training in personal development, supervisory skills, and the appreciation of diverse cultures. In addition, the Women in Medicine and Science Group, sponsored by RDO, met monthly throughout 2001 to discuss issues affecting women in medicine.

USU Orientation Program. Since October of 2000, the USU Civilian Human Resources Directorate, with the assistance of the senior leadership of USU, has provided formal sessions of the USU Orientation Program to 137 new, civilian and uniformed members of the University community: 45 in 2000; and, 92 during two sessions held in 2001. The purpose of the program is to present the philosophy, goals, policies, and leadership principles of the University. Orientation packets with key facts and other selected information are provided for review and future reference. For example, in February of 2000, the SOM Office of Faculty Affairs issued a faculty handbook on the USU web which describes the organization and functions of the various components of the University; the handbook serves as a quick guide for the delegation of responsibilities at USU and where to seek information, guidance, or other faculty-related requirements; new faculty are introduced to the USU web site and encouraged to utilize the information. In addition, the USU Environmental Health and Occupational Safety (EHS) Department briefs the new employees on its initiatives to raise the safety consciousness of the USU researchers and the general community. The USU Orientation Program continues to successfully promote a positive experience for the new employees and also allows them to meet the senior management of USU. Similar sessions will continue during 2002.

Development and Recognition Programs. During 2001, extensive efforts were made to present opportunities for the personal development and recognition of the USU community: 1) the USU Institutional Animal Care and Use Committee and Laboratory Animal Management (LAM) continued to provide its self-developed Protocol Writing Workshop for USU investigators who utilize animals in research and education; 2) a renewed emphasis was placed by the Civilian Human Resources (CHR) Directorate on Individual Development Plans for the civilian workforce; the initial goal of ten percent participation was achieved during 2001; 3) CHR used 175 training vouchers and 60 on-line training subscriptions for computer-related training for the Microsoft Office Suite throughout 2001. Additionally, CHR processed 250 individual training requests and trained 163 USU employees during on-site classes; 4) the Department of Family Medicine, in coordination with the SOM Office of Faculty Affairs, offered numerous courses and seminars which strongly supported faculty development throughout the USU community; during 2001, more than 250 attendees from the USU faculty earned over 300 hours of continuing education credit; 5) to date, the University President has personally presented service awards to 80 USU civilian employees; during the same timeframe, the USU Brigade Office of Military Personnel approved and processed 118 awards for the uniformed members of USU; 6) under CHR coordination, 100 percent of all USU civilian employees (faculty, staff, and administration) received performance evaluations during 2001; and, 7) the University continued its sponsorship of both the USU Toastmasters (25 active members) and the USU Mentoring Programs (34 participants).

Provision of Formal and Informal Counseling. The USU Offices of Equal Employment Opportunity (EEO), Equal Opportunity (EO), Recruitment and Diversity Affairs (RDO), and Student Affairs (OSA) continued to provide formal and informal counseling throughout 2001. The EO Office did not have to provide formal counseling sessions to the uniformed members of USU during 2001; the EEO Office provided one formal and ten informal counseling sessions to the USU civilian staff during the past year; and, the Offices of RDO and OSA continuously provided counseling sessions to the USU uniformed students throughout 2001. The success of these counseling sessions is evidenced by the ever increasing appreciation and respect shared among the individual members of the University. Also, the EO representatives for the USU Brigade provided EO training for all uniformed members of the University during 2001; the training addressed diversity, acceptance of others, management of difficult situations, and the identification of harassment in both the work place and in the academic setting.

Recruitment Strategies. The on-going recruitment strategies implemented or maintained during 2001 by the Office of University Recruitment and Diversity Affairs (RDO), in coordination with the Offices of Student Affairs, University Affairs, Graduate Education, and the USU Brigade Commander, document the University's commitment to increase the matriculation of underrepresented minorities. Some of the major efforts during 2001 included: 1) the USU Liaison Program supported and coordinated USU Alumni visits to universities, colleges, recruitment fairs, Reserve Officer Training Corps (ROTC), and Junior ROTC units throughout 2001; 2) The Office of RDO ensured that the more than 6,000 packets of recruitment materials previously mailed to ROTC units, military bases (installations and hospital commanders, chief enlisted advisors and education offices), pre-medical advisors at the military service academies, and undergraduate institutions nationwide were replenished and updated as required. Additionally, written advertisements in various undergraduate marketing venues were produced; 3) the initiation of a joint venture between USU and the Health Professional Scholarship Program (HPSP) recruitment offices took place to enhance the numbers of qualified applicants for both USU and the HPSP Program; 4) the agreements in the Memorandum of Understanding between USU and the University of Maryland Eastern Shore (UMES), one of America's Historically Black Colleges and Universities, to allow UMES students and faculty members to

perform research in USU laboratories was also continued during the past year; 5) the use of the USU web page for electronic recruitment information increased during 2001; 6) a Military Medical Invitational Shadow Program was established through a Memorandum of Agreement between USU and Franklin and Marshall College (F&M) to allow prospective pre-medical students from F&M to participate in a shadowing program at the USU SOM and the local teaching hospitals; 7) numerous tour groups and visits to USU were conducted whenever requested throughout 2001. In addition, over the past ten years, the National Youth Leadership Forum (NYLF) has sponsored numerous visits to the University. During 2001, the NYLF Presidential Classroom Forum, consisting of 40 students, toured the University and received a moulage demonstration from the SOM Department of Military and Emergency Medicine; 8) the USU hosted over 1,000 students in the first-ever National Student Leadership Conference visit during the Summer of 2001; and, 9) the USU Preparatory Program, established in 1998 as a trial program, was modeled after current civilian post-baccalaureate programs while maintaining compliance with federal laws and restrictions and simulating service academy preparatory schools. The program's goal is to increase representation at USU of economically or educationally disadvantaged students and to include current active duty enlisted and/or uniformed officers. During the Fall of 2000, three students entered the program. To date, 100 percent of the students from this program have been accepted into the SOM. During the Spring of 2002, the first students will complete the Preparatory Program and will take the United States Medical Licensing Examination Part I; the resulting data will allow USU to further examine the program.

The Helping Hands Project. During 2001, through their participation in the USU Helping Hands Project, USU students (medical and advanced practice nursing) and physicians provided assistance to the poor and homeless at clinics in three Maryland communities: the KenGar First Baptist Church in Kensington; the Shepherds Table at the First Baptist Church of Silver Spring; and, the Adventist Community Center in Takoma Park. The USU students and participating faculty members of the USU SOM Department of Family Medicine became acquainted with available community resources and learned about the health care needs of their patients. The patients were treated for chronic problems such as hypertension, depression, arthritis, and diabetes. Depending upon the clinic, students saw from six to fifteen patients during their three-hour shifts. This on-going Project has provided USU students and faculty the opportunity to work with patients from diverse backgrounds who have unique life experiences.

GOAL 7: We will effectively communicate the right information to the right people at the right time.

Response on September 11, 2001. Within hours of the terrorist attacks in New York and at the Pentagon, the USU Center for the Study of Traumatic Stress provided: 1) immediate, on-going consultation to the hospitals, medical care planners and elected leaders of New York City, the State of New York's Response Management Team, the Pentagon's Response Planning Team, and Arlington Hospital (42 casualties were received from the Pentagon) on staff stress/interventions; 2) continuous manning for the Stress Support Office at the White House/Executive Office Building; 3) on-going provision of resources and information packets for the USNS COMFORT deployment teams for stress related to body handling, concern over families, and terrorist activities; 4) a Disaster Care Resources site on the USU Trauma Center Web Page; 5) following OSD coordination, immediate responses to requests for consultation and expertise from Newsweek, ABC News, The Washington Post, and, The New York Times; 6) information packets to the Body Recovery Teams in both New York and Washington, D.C.; and, 7) membership on the Secretary of Defense's 12 member Task Force, "RED NUFF."

The USU Casualty Care Research Center (CCRC) has also played a significant role since the terrorist attacks. CCRC staff members were among the first medical personnel to arrive at the Pentagon on September 11th. That morning, CCRC was providing its specialized emergency medical training to members of the United States Park Police when they heard the explosion at the Pentagon. Within moments, two CCRC providers were on board two Park Police helicopters headed for the Pentagon. The USU CCRC staff worked with on-site military and civilian personnel to set up a triage and treatment system. Minutes after their initial landing, CCRC staff were back on board a helicopter and treating two DoD civilians as they were transported to the hospital. In addition, the CCRC has served as a lifeline to many teams deployed to the New York World Trade Center during the aftermath of the attacks. Beginning on September 12th, CCRC staff were on "ground zero" for weeks providing on-going medical aid to rescue personnel. The CCRC staff has been providing assistance and consultation in the Washington D.C. area for continuity of government activities, in addition to, providing critical training to emergency medical responders across the Nation. The CCRC shares the unique experience and knowledge of its staff throughout its data-driven curriculum. It is a one-of-a-kind program in the DoD. **Mr. Joshua Vayer, Director of the USU CCRC**, has also been appointed by the USU President to serve as the Chair of the USU Homeland Defense Committee.

High-Speed Network Link to Internet-2. Through collaboration with the National Library of Medicine, an ultra, high-speed network link to Internet-2 was arranged for the main USU campus and the Simulation Center. This network link will enhance the University's teaching programs through the use of virtual reality methodologies and distance learning and was installed during 2001.

External and Internal Communication. During 2001, the on-going efforts of the Center for Informatics in Medicine, the Educational Technology with Computers Special Interest Group, the Office of University Affairs, the Civilian Human Resources Directorate, the Office of Research Administration, the publication of the USUHS Journal and the USU Quarterly Magazine, and the USU Information Services Management Center all combined to: facilitate awareness of the current activities of the University; provide electronic programs to enhance computer orientation courses, existing educational programs, and new educational services; and, create web pages for general information (including instructions, procedures, and evaluation processes) for the entire USU community. The sharing of the USUHS Journal with USU customers during both 2000 and 2001, has resulted in letters of acknowledgement and accolades from the Secretary of State, the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, the Chief of Naval Operations, the Commandant of the Marine Corps, the Army Chief of Staff, the Secretary of the Air Force, Members of the United States Senate and House of Representatives, military associations, the American Medical Association, and many others.

Expanded Library Services to the Military Services. The USU Learning Resources Center (LRC), in collaboration with the USU Executive Committee and the Services, continued its attempts to extend its electronic library services (e.g., 90 full-text books and over 5,000 journals) to the Service libraries and DoD health professionals during 2000 and 2001.

Communication Services of the USU Information Services Management Center. The USU Information Services Management Center (UIS) continued throughout 2001 to implement projects for improving both technology and customer service at USU. **Customer Support -**UIS provided support and coordination services for 3,000 information systems users accessing e-mail, remote dial-in accounts, Internet Protocol connections, satellite, and software applications; 1,500 dial-in users; 2,750 telephone and fax lines; and 1,200 Voicemail Systems. As the owner of a Class B Internet License, UIS acts as the Internet Service

Provider and supports areas on and off the USU campus, such as the National Naval Medical Center, 12 off-site DoD locations, and various non-DoD facilities. **Desktop Computers -** In accordance with guidance from Health Affairs, a plan to lease desktop computers by the University has been implemented since 1998 through 2001. During 2001, 800 desktop computers were in four, three-year technology refreshment cycles. The replacement of 300 leased computers will take place in 2002. **Helpdesk -** The selection of a single set of desktop tools greatly simplified user support and improved helpdesk response from 1999 through 2001. The total calls assigned and resolved by the Helpdesk in 2001 totaled 2,124; of this number, 182 tickets were dial-up requests and 120 tickets were in response to computer viruses. Other projects during 2001 included: data base maintenance; test and deployment of new software products; deployment and replacement of leased machines; and, the management of UIS supported products. The helpdesk staff continued to participate in on-campus training on standard operating procedures and in off-site training to acquire professional certification, all of which contributed to a reduction in calls and an increase in user productivity.

8th Faculty Senate Research Day 2001. The 8th Annual Graduate Student Colloquium and Research Day 2001 were held at USU on April 10-11, 2001. This year's theme was "Emerging Research Technologies." The two-day event brought approximately 250 individuals to the USU campus, including researchers from affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, and the Walter Reed Army Institute of Research. A total of 34 panelists and 144 posters made up a full, two-day program. Researchers were represented from a wide range of Washington-area institutions on seven different panels and nine concurrent poster sessions. Topics included infectious diseases, operational medicine, combat casualty care, space medicine, cancer research, neurology, endocrinology, cardiovascular research, behavioral research, and health promotion and education. This year's event included the addition of three well-attended, pre-meeting workshops on issues related to: conducting biomedical research at USU; emerging questions on the transfer of technology from research to licenses and patents; compliance with the evolving Federal regulations on human and animal research; and, career development strategies for students graduating in the 21st Century. The Graduate Student Colloquium featured six oral presentations by USU doctoral graduate students; also, poster presentations of many other students were available for viewing. The John W. Bullard Colloquium Lecture was presented by **Roy Curtiss III, George William and Irene Koechig Freiberg Professor of Biology, Washington University, St. Louis, Missouri**; the lecture was entitled "Salmonella: Our enemy and, in some forms, our friend." Prior to the afternoon sessions, graduate students were invited to join Dr. Curtiss for lunch and discussion. The keynote speaker for the 2001 USU Faculty Senate Research Day was **Olli-P Kallioniemi, M.D., Ph.D., Chief of the Cancer Genetics Branch, National Human Genome Research Institute, National Institutes of Health.** His presentation was entitled "Biochip Technologies for High-Throughput Cancer Research in the Post-Genome Era."

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RELEVANCE - MISSION ACCOMPLISHMENT

USU Graduates Provide Continuity and Leadership and Ensure Medical Readiness

The School of Medicine. Continuity and leadership ensure both readiness and the preservation of lessons learned during combat and casualty care; these were significant factors that motivated the Congress of the United States and the Executive Office of the President to recommend and approve the establishment of USU and the Health Professions Scholarship Program (HPSP) as complementary sources of accession for uniformed physicians. In 1972, Public Law 92-426, the Uniformed Services Health Professions Revitalization Act, established the HPSP to be a flexible source for the quantity of physicians required by the Armed Forces. USU was established to provide a cadre of military medical officers who would serve a career as active duty physicians and effectively ensure continuity and leadership for the MHS.

Continuity. With the graduation of the 22nd SOM Class in May of 2001, 3,101 uniformed officers have been granted Medical Degrees. Currently, the 2,465 USU physicians on active duty in the Armed Forces represent twenty-one percent (one out of every five) of the 11,833 physicians on active duty in the Army, Navy and Air Force; the congressional founders had hoped for a representation of ten percent. (In addition, there are 96 USU SOM alumni on active duty in the United States Public Health Service.)

Leadership. The overall retention for USU graduates from the Class of 1980 to the present (22 SOM classes) is 85 percent; the Congress had originally envisioned retention rates close to 70 percent. In accordance with this extraordinary retention, recent reviews have documented that one, out of every two SOM alumni, who has completed his/her residency training is in a significant operational or leadership position. Without a doubt, the continuity and leadership provided by the USU SOM alumni ensure readiness and the preservation of lessons learned for the MHS.

Medical Readiness. USU is the Nation's only University dedicated to ensure readiness for the MHS. In 1998, the Association of American Medical Colleges (AAMC) Reporter recognized USU as the "one place where the physicians of tomorrow do get thorough preparation to deal with the medical aspects of chemical and biological terrorism. USU students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of a suspected exposure - from detection to decontamination and medical countermeasures." The MHS must provide quality health care during humanitarian, civic assistance, or operational contingencies. This critical medical response requires that physicians in the MHS be provided a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. USU students are provided with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum. In addition, the multi-Service environment of USU facilitates the students' understanding of the cultures and vocabularies of the Army, Navy, Air Force, and the Public Health Service, which ensures two of the essential components of readiness: flexibility and continuity during joint service operational contingencies. And, the USU SOM has implemented innovative efforts to meet the evolving requirements of medical readiness: the newly established National Capital Area Medical Simulation Center and the USU Patient Simulation Laboratory; the SOM Department of Biomedical Informatics; and, the newly established interdisciplinary graduate program, Emerging Infectious Diseases (see Section II for a detailed description of these SOM programs). In December of 2001, following the terrorist attacks of September 11th, the AAMC Reporter once more featured USUHS and reconfirmed its earlier article. "Large-scale terrorist attacks and biological intimidation campaigns on American soil have sent shockwaves of change rippling through every layer of society. Each unexpected new challenge requires an adjustment in preconceptions and contains a practical lesson for the future. **But at USUHS, it is learning as usual. Students have been explicitly trained to**

provide a medical response to terrorism scenarios like the ones that are playing out in the United States and abroad today."

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The Graduate School of Nursing. In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners to meet the needs of the Uniformed Services. In the short time since its establishment, the USU Graduate School of Nursing (GSN) has 1) recruited a qualified faculty; 2) successfully established curricula for two programs; 3) identified accredited clinical practice sites and completed memoranda of understanding with 19 military treatment facilities; 4) submitted self-studies and received accreditation for its two programs from three professional accrediting entities; 5) received formal approval on February 26, 1996, from Health Affairs, Office of the Secretary of Defense; 6) initiated, implemented, and continuously reviewed the outcomes evaluation process for both academic programs; and, 7) awarded 157 Masters of Science in Nursing Degrees to advanced practice nurse graduates through its Nurse Practitioner and Certified Registered Nurse Anesthesia Programs (as of April 2002); all GSN graduates have passed their certification examinations; and, 97 percent, or 152, of the GSN graduates remain on active duty. The GSN is the first advanced nursing school in the United States to serve the Uniformed Services with a clear mission of "Learning to Care for Those in Harm's Way."

Advanced Degrees Earned Through Distance Learning. In 1999, the collaborative efforts of the GSN with the Department of Veterans Affairs (VA) in the area of distance learning successfully demonstrated a cost-effective form of advanced education where nursing students received advanced training in critically-required specialty areas while maintaining their current positions at the medical centers. Twenty-six students, through a "virtual commencement exercise," graduated from the VA/DoD Distance Learning Program on May 18, 1999; the virtual graduation was broadcast from USU and linked with eight VA Medical Centers located across the United States. All graduates were eligible to sit for the American Nurses Association Credentialing Examination for Adult Nurse Practitioners. This graduation marked the first virtual advanced-level graduation for either the VA or DoD. A second class, with students located in ten VA Medical Centers, graduated in May of 2001, for a total of 60 distance learning graduates. A third class is on-going. The experience gained by both the GSN and the VA will allow future projects in distance learning to benefit from the lessons learned and the technologies tested during the twenty-month program. In addition, a detailed analysis of the on-going effort is reported in the following publication: VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program - From Concept to Graduation, Graduate School of Nursing, USUHS, November 2000. (See Section III for a detailed description of this GSN program.)

National League for Nursing Accreditation Commission Recognizes GSN Students. The National League for Nursing Accrediting Commission (NLNAC) granted full accreditation to the USU GSN following a site visit on October 30 through November 1, 2001. The NLNAC recognized the readiness essential aspects and unique skills of the GSN curricula in its final report: **"This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community."**

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ACCREDITATION

The Middle States Association of Colleges and Schools. The University is accredited by the Middle States Association of Colleges and Schools Commission on Higher Education (MSA/CHE). The MSA/CHE is an institutional accrediting agency recognized by the United States Secretary of Education and the Commission on Recognition of Postsecondary Accreditation. Following its establishment in 1972, USU received "candidate for accreditation status" from the MSA/CHE in 1977, and has retained accreditation since 1984. In order to maintain the accreditation of the educational programs within the School of Medicine and the Graduate School of Nursing, the University must receive accreditation from the MSA/CHE. Accreditation by the MSA/CHE is an expression of confidence in an institution's mission and goals, its performance, and its resources. Based upon the results of an institutional self-study and an evaluation by a team of peers and colleagues assigned by the MSA/CHE, accreditation attests to the judgment of the MSA/CHE that an institution has met the following criteria: it is guided by well-defined and appropriate goals; it has established conditions and procedures under which its goals can be realized; it is accomplishing its goals substantially; and, it meets the standards of the MSA/CHE.

In 1993, the University underwent a successful institutional self-study and a reaccreditation site visit by the MSA/CHE. As requested by the MSA/CHE, a Periodic Report was submitted by USU to the MSA/CHE in June of 1998. In July of 1998, the MSA/CHE reported that the USU Periodic Report was ..."to be applauded for its serious and candid review of the areas of concerns pointed out by the Middle States Evaluation Team in 1993." The MSA/CHE correspondence further emphasized that **"it is clear that USUHS is responding to its internal and external environments and preparing aggressively for the future**... The move toward distance education is taking hold in education today... The Graduate School of Nursing is using this strategy to reach out to nurses... The Dean (SOM) has already begun to integrate duplicate programs, develop new ambulatory care sites and revise the medical curriculum." On December 1, 1998, the USUHS President was notified by the MSA/CHE that the University had been granted full accreditation, with no follow-up required.

The next evaluation visit by the MSA/CHE is scheduled for the Spring of 2003. The MSA/CHE does not prescribe a particular institutional planning process. However, it does strongly suggest that planning be conducted within the context of the institution's goals, priorities, resources, and commitments. This means, at a minimum, that the institution has: carried out a thorough examination of its mission; reviewed its internal and external environments to form preliminary estimates of its strengths, weaknesses, opportunities, and threats; developed and implemented a formal system for setting priorities and for developing budgets, strategies, activities, and timetables; and, devised an evaluation procedure for systematically reviewing self-study planning, the self-study process, and self-study findings and recommendations. A steering committee must be established which is responsible for providing leadership to the entire self-study process, to include: determining the key issues for the self-study; preparing the design; developing charges to the subcommittees and coordinating their work on the various issues studied; ensuring that the timetable is implemented as planned; arranging for one or more campus hearings to review drafts of the self-study; and, overseeing the completion of the final self-study report. In accordance with the above, the USU President established a steering committee to draft a self-study design proposal; the design proposal was submitted to the MSA/CHE staff liaison in April of 2001 for review and approval. The MSA/CHE liaison visited the USU campus on May 18, 2001, and met with members of the USU administration, the Board of Regents, and students and faculty; the outcome of the visit was quite positive, with only one recommendation for USU on the inclusion of information on how outcomes assessment will be integrated into the self-study document. The self-study design was revised to include the MSA/CHE liaison's recommendation and

received approval in August of 2001. During September of 2001, the University established fifteen self-study subcommittees. Draft reports were scheduled for submission to the steering committee beginning in early February of 2002; subcommittee final reports are due to the steering committee in May of 2002. The steering committee will review and merge the subcommittee reports into one comprehensive report for the MSA/CHE. A draft of the comprehensive report will be circulated to the University for review and comment. Revisions will be incorporated, as appropriate, into the draft document by the steering committee prior to the final review by the Office of the USU President; copies will then be submitted to the MSA/CHE. Submission of all required documents to the MSA/CHE will be completed by February of 2003.

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Fourteen Accrediting Entities Ensure that Educational Standards Are Met by the University. In addition to the MSA/CHE accreditation, the following thirteen professional organizations continue to authorize accreditation for the University's schools and programs:

SOM: 1) the Liaison Committee on Medical Education (LCME); 2) the Accreditation Council for Graduate Medical Education (ACGME); 3) the American Psychological Association Committee on Accreditation; 4) the Council on Education for Public Health;

GSN: (5) the National League for Nursing Accrediting Commission (NLNAC); 6) the Council on Accreditation of Nurse Anesthesia Programs (COA); 7) the American Association of Colleges of Nursing Commission on Collegiate Nursing Education (AACN/CCNE);

University: 8) the Nuclear Regulatory Commission (NRC); 9) the American Association for the Accreditation of Laboratory Animal Care (AAALAC); 10) the Accreditation Council for Continuing Medical Education (ACCME); 11) the American Nurses Credentialing Center's Commission on Accreditation; 12) the American College of Healthcare Executives (ACHE); and, 13) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners.

Individual discussions on the accreditation of the School of Medicine, the Graduate School of Nursing, the Graduate Education Programs, the Graduate Medical Education Program, and the Office of Continuing Education for Health Professionals are provided at sections II, III, IV, V, and VI of this report.

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OPTIMIZATION - OSD RECOGNITION OF USU's MULTIPLE PRODUCTS THE JOINT MERITORIOUS UNIT AWARD THE GENERATION OF COST-AVOIDANCE

I just received a copy of the Joint Meritorious Unit Award citation for USUHS. Congratulations! The entire staff can be justifiably proud. USUHS provides an invaluable service to the Armed Forces and to America. Nowhere else will you find a similar quality of research and medical training with the specific goal of meeting the demands of military medicine. And the price is right! As the citation points out, you are actually saving money for the government and the taxpayers.

- Letter from **the Honorable F. Whitten Peters, Secretary of the Air Force, Department of Defense**, dated January 20, 2001.

OSD-Conducted Surveys Recognize USU's Academic Certification and Faculty Credentials. In mid-1997, Management Reform Memorandum 3, Office of the Secretary of Defense (OSD), called for a study of the educational and professional development programs sponsored by OSD. That study and the efforts of the Defense Reform Task Force led to the Defense Reform Initiative's decision to establish an Office of the Chancellor for Education and Professional Development. Throughout 1997 and 1998, USU participated in intensive surveys on streamlining education throughout DoD. The University provided inclusive responses to the Office of the Deputy Assistant Secretary for Civilian Personnel Policy; those responses included all of the services and products resourced by USU as part of its operating cost. **The OSD-conducted surveys mark the first official OSD recognition of the multiple products of USU in addition to its medical school graduates.** As a result of those surveys, and based on the average course length of the continuing education efforts of the University, OSD analysts identified approximately 188 student man years in addition to the 820 (SOM - 660; GSN - 70; Graduate Education - 90) uniformed students who are traditionally credited to the University.

During 1998, in response to DoD's Defense Reform Initiative Directive 41, a two-part survey on faculty credentials was conducted for use in the development of a blueprint for the Office of the Chancellor to be established within OSD. **The Office of the Deputy Assistant Secretary for Civilian Personnel Policy concluded, as in August of 1997, that USU has the strongest academic certification and faculty credentials among all activities surveyed.**

The Office of the Chancellor for Education and Professional Development. **Jerome F. Smith, Jr., Ph.D.**, was named as the first Chancellor for Education and Professional Development by the Secretary of Defense; he was sworn in by the Deputy Secretary of Defense on October 2, 1998. In this position, he continues to serve as the principal advocate for the quality and cost effectiveness of education for civilian personnel in the Department of Defense. Since its establishment, the Office of the Chancellor for Education and Professional Development has maintained an open line of communication with the University. The Chancellor has participated in DoD's first two virtual graduation ceremonies at the USU GSN which were both held in May during 1999 and 2001. As a result, the DoD/Veterans Administration Distance Learning Program has celebrated the advanced graduation of a total of 60 "virtual" students. The Chancellor's Office also sponsored the Second Department of Defense Conference on Civilian Education and Professional Development, Quality Initiatives for the 21st Century: Continuing the Dialogue, at the USU complex on

August 8-9, 2000. Some 65 DoD organizations were represented. The Third Conference on Civilian Education and Professional Development: Making Excellence a Standard was scheduled for June 26-27, 2001, at the Joint Military Intelligence College.

As part of an on-going process for sharing information, the following University-wide faculty totals were included within a comprehensive report provided to the Office of the Chancellor of Education and Professional Development on October 31, 2001:

Full Time Faculty Assigned to USU - 322

- 204 civilians and 118 uniformed officers

Adjunct Faculty - 3,777

- 1,130 civilians and 2,647 uniformed officers.

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Joint Meritorious Unit Award. On December 11, 2000, the Secretary of Defense awarded the Joint Meritorious Unit Award to the University. **This significant award documents OSD's recognition of the essential mission, exceptional service over the past decade, and the multiple cost-effective programs of USU.** Public Law 92-426, the Uniformed Services Health Professions Revitalization Act of 1972, mandated that the University should meet the special needs of the Military Health System (MHS) through the provision of uniquely trained, career physician officers who would ensure continuity and leadership for the MHS. As validated by the Secretary of Defense in the citation for the award, the University has exceeded the goals set by the early visionaries who established USU.

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Multiple Products and Services Generate Cost-Avoidance for the Military Health System. Critical to the University's efforts for optimization, the Middle States Association of Colleges and Schools Commission on Higher Education (MSA/CHE) has granted full accreditation to USU since 1984. This essential accreditation has enabled the University to support and generate cost avoidance for the MHS through its multiple educational programs, all of which are fully accredited by a total of thirteen independent accrediting entities, in addition to the MSA/CHE. In meeting the mandates of its establishing legislation and the standards for accreditation as an academic institution, USU provides the following services and products for the Military Health System (MHS), all of which are recognized by the Office of the Secretary of Defense:

1) The principal product of USU continues to be its 3,101 USU SOM uniquely trained, career-oriented physicians who are prepared to practice military medicine in the multi-Service environment of USU (totals are effective through April of 2002); the 2,465 USU SOM alumni on active duty in the Armed Forces represent twenty-one percent of the 11,833 physicians on active duty in the MHS (Army - 4,149; Navy - 4,100; Air Force - 3,584). In addition, 96 USU SOM alumni

continue to serve on active duty in the United States Public Health Service, for a total of 2,561 USU SOM alumni who continue to serve their Nation in the Uniformed Services; the overall retention for USU SOM graduates from the first graduating Class of 1980 through April of 2002, is 85 percent; and, of the USU SOM alumni who have completed their residency training, almost one out of every two USU graduates holds an operational or leadership position;

2) The fully accredited USU Graduate School of Nursing (GSN) has provided 157 Masters of Science in Nursing Degrees to advanced practice nurse graduates through its Family Nurse Practitioner and Certified Registered Nurse Anesthesia Programs (as of April 2002);

3) In 2001, during their course of teaching, the USU faculty provided over 134,990 hours of clinical care at the Army, Navy, and Air Force Medical Treatment Facilities (MTFs) in the National Capital Area; **the annual, manpower cost avoidance generated by the USU faculty through this clinical support is estimated at $9,289,913;**

4) As of April 2002, the SOM Graduate Degree Programs have conferred a total of 678 Basic Science Degrees; **the annual cost avoidance generated by the USU SOM Graduate Education Programs for the MHS during 2001 was estimated at $750,000;**

5) The USU Office of Graduate Medical Education (GME) provides cost-effective support for the MHS in that it serves as the Administrative Office for the National Capital Consortium (NCC); collects and evaluates data on DoD GME programs to ensure academic and scientific excellence; and, oversees the integration of DoD GME programs to ensure that accreditation is not jeopardized. As of December 31, 2001, the NCC sponsors 55 of 62 integrated medical training programs;

6) The USU Office of Continuing Education for Health Professionals (CHE), to include the Military Training Network (MTN), provides significant, cost-effective support for the MHS by facilitating the continued professional growth of health care professionals throughout the MHS; **because CHE and MTN bring training to the military health care providers, an annual, estimated cost-avoidance of $13,283,174 was generated during 2001 for the MHS);**

7) USU serves as the Academic Center for academic and research activities for 2,647 active-duty, off-campus USU faculty located throughout the MHS; USU on-site faculty have sponsored, hosted, or participated in the major conferences held by the MHS; in addition, military relevant consultation is continuously provided to the MHS and other federal agencies by the internationally recognized experts within the University's multiple centers, departments, and institutes; and,

8) The USU GSN Distance Learning Program, a collaborative effort with the Department of Veterans Affairs (VA), graduated its second class on May 15, 2001, for a total of 60 graduates; the experience gained by both the GSN and the VA, to include their collaborative report, From Concept to Graduation, will allow future, cost-effective DoD projects utilizing distance learning to benefit from the lessons learned and the technologies tested during this twice-completed twenty-month program.

All of these products and services are resourced as part of the operating cost of the University and are discussed throughout this report.

In summary, the strengthened relationship of the University with OSD and OSD's recognition of the numerous cost-effective programs of USU is documented by the following: 1) the OSD surveys of 1997 and 1998 which officially recognize the multiple products, academic certification, and faculty credentials of USU; 2) the USU Board of Regents' Reports to the Secretary of Defense which serve as direct and successful lines of communication with the Secretary of Defense; 3) the awarding of the Joint Meritorious Unit Award to USU by the Secretary of Defense which specifically recognizes the multiple, cost-effective programs of USU; and, 4) the letter from the Secretary of Defense dated March 21, 2001, cited on page four of this report, which recognizes USU as the "backbone" of the Military Health System.

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ACADEMIC CENTER FOR THE MILITARY HEALTH SYSTEM

Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical, nursing, and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, the American Association of Medical Colleges, and the American Medical Association to accomplish these important and timely educational goals. Finally, the University will be a major contributor in the American Association of Medical Colleges Health Education Coalition on Bioterrorism Conference later this month.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, November 7, 2001.

Active-Duty, Off-Campus USU Faculty Total 2,647. Multiple USU academic and research activities contribute to the medical knowledge and technology base available to the MHS. During 2001, 2,647 active-duty, off-campus USU faculty members throughout the MHS collaborated with the University through academic and research efforts. Through these collaborative efforts, USU serves as the Academic Center for those military medical officers and health care providers who seek to advance their military careers and their knowledge of uniformed health care. For their valuable service to the University, these active duty, off-campus faculty members are awarded appropriate academic rank. **This section provides selected examples of military relevant conferences or academic activities sponsored by, or collaborated with, the University; all of which document why USU is serving as the Academic Center for Military Medicine.**

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15th Conference on Military Medicine - A Challenge to Readiness: Maintaining Currency in Military Medical Education, June 4-7, 2001, USU Campus. The University continued to serve as the Academic Center for Military Medicine through the planning and presentation of the 15th Conference on Military Medicine - "A Challenge to Readiness: Maintaining Currency in Military Medical Education," which was held on the USU campus from June 4-7, 2001, with 74 attendees. The military medicine conferences are annual continuing education activities which focus specifically on current challenges facing military medicine. The 2001 Conference on Military Medicine addressed a relevant and most significant area of concern for military readiness, that of maintaining currency in health care education. Of the 74 participants who attended the 15th Conference on Military Medicine, specialty groups largely included physicians (39) and nurses (22); however, 13 members of the medical service corps and other interested individuals were also in attendance. Presenters during the opening plenary session included: **Rear Admiral (Retired) William Rowley, M.D.**, a prominent futurist; **Colonel (Retired) Craig H. Llewellyn, M.D., MPH, MS, Professor and former Chair of the USU SOM Department of Military and Emergency Medicine; David P. Stevens, M.D., Vice President for Medical School Standards and Assessment, Association of American Medical Colleges (AAMC)**; and, **Rear Admiral Richard A. Mayo, USN, Deputy Director, Medical Readiness Directorate, J4-MRD, Office of the Joint Chiefs of Staff**. Briefings were also provided by the Service Medical Departments.

Continuing Medical and Nursing Education. USU is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The USU Office of Continuing Education for Health Professionals (CHE) took responsibility for the content, quality, and scientific integrity of the 15th Conference on Military Medicine. USU CHE designated this educational activity for a maximum of 25.50 hours in Category 1 credit towards the American Medical Association Physician's Recognition Award. USU is also accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation; the 2001 Conference on Military Medicine was recognized for 30.7 contact hours by the USU Office of CHE.

Conference Focus. The Uniformed Services University of the Health Sciences is committed to ensuring that its students are prepared to provide health care for the MHS in a rapidly changing world. The focus of the conference was on predicting the changes that will impact the provision of military health care and on recommending the new educational objectives for properly preparing military health care practitioners for the next twenty to thirty years. During the conference, it was clearly evident to the attendees that changes in both the content and structure of medical education and military medical education were already underway throughout the USU SOM.

Discussion Topics. Experts in military and contingency medicine contributed their expertise, experience, opinions, predictions, and, most importantly, their recommendations for the planning and implementation of military medical education and training by the DoD over the next thirty years. The conference began with a plenary session during which selected experts reviewed current military medicine educational and training programs and offered their predictions in four principal topic areas: 1) new technologies, both medical and non-medical, that are likely to significantly influence the practice of military medicine over the next twenty to thirty years; 2) changes in the Service's missions and doctrines that will impact future health care delivery and the practice of military medicine; 3) emerging threats - new emerging or re-emerging diseases, and new weapons or new weapon technologies; and, 4) changes in ethics, mores, and societal expectations that may affect the future practice of military medicine. The opening plenary session provided background information and defined the deliverables for each of the working panels.

Four Working Panels. Following the plenary session, each of the four working panels developed and then presented their predictions and recommendations for educational objectives that, if met, would prepare today's students for medical practice in twenty to thirty years. While it is impossible to precisely predict the future, the panels concentrated on those aspects which could reasonably be determined and where human nature remains fairly constant, regardless of how technology evolves. Despite unprecedented changes in the technology of war, the participants were confident that a considerable portion of the current and newly designated military medicine educational objectives discussed and developed during the conference would remain relevant for the forseeable future.

Summary of Educational Recommendations. In the context of an evolving future that is difficult to predict, 27 educational recommendations were made by the participants of the 15th Conference on Military Medicine. The conference participants agreed that students of medicine should demonstrate the following:

1) Ability to recognize and treat emerging diseases and other threats, and to demonstrate an understanding of the battlefield force-protection issues related to these new threats; also, the ability to recognize syndromes and symptom "sets" and to utilize advances in immunology, molecular biology, vaccinology, and genetics to diagnose and treat the "new" or re-emerging disease threats and emerging weapons technologies;

2) Expertise in managing emerging diseases and injuries deriving from new and emerging weapons technologies;

3) Working knowledge of basic public health skills in outbreak investigation and associated immunology, molecular biology, vaccinology, genetics, and risk communication;

4) Ability to provide leadership in complex and changing strategic and tactical scenarios;

5) A high level of competence in emergency and operational medical skills, as the likelihood is good that military medicine will be provided from dispersed or isolated medical treatment facilities on the modern battlefield;

6) Working knowledge of simulated tactical situations which require the simultaneous application and integration of force protection, population health, varied medical capabilities, and people; and, knowledge of the multiple evacuation options in both a networked high-technology and low-technology battlefield, in either a low or high tempo environment;

7) Comprehensive understanding of the full range of force protection threats, both medical and non-medical;

8) Ability to simultaneously address or provide force protection, life-saving and life-sustaining medical care, and force enhancement for a dispersed military force across the spectrum of prevention and physical, social, and spiritual interventions with sensitivity to cultural, demographic, economic, and political differences;

9) Ability to function in multi-Service, multi-national, and non-governmental organizations, often in changing operational settings;

10) Team work and decision-making skills in changing environments that include individuals with differing skill-sets, medical and non-medical, with diverse, even international, backgrounds and organizations;

11) Competence in disaster planning and medical "consequence" management in diverse and evolving tactical environments, including military support of adverse civil events;

12) Ability to demonstrate consequence-management skills (ability to deal with environmental and population needs and risks as a consequence of a toxic exposure) as well as medical intervention in toxic events and environments, including pertinent physiological events, molecular biology, genetics, and risk communication;

13) Ability to apply systems-critical thinking to the conduct of military medical planning and medical logistics with special emphasis on functioning in diverse, joint, coalition, and non-government agency medical organizations;

14) Ability to make sound decisions during the "fog of war" and in the absence of complete and/or accurate information;

15) Ability to help develop and use military medical mission-support systems in response to differing military options;

16) Familiarity with all of the advances in militarily-relevant medical technologies in genomics and proteomics, particularly those that may apply to selection and force enhancement;

17) Ability to perform integrated medical decision-making that combines the scope of basic and advanced informatics from biosensors, genomics, artificial intelligence, digitization, virtual reality, and nano- and biotechnologies;

18) Expertise in the application of both medical and medically-related information technologies;

19) Ability to develop and appropriately apply customized therapies that can be used both in high and low technology environments;

20) Ability to take advantage of medical informatics, both in peace and in war, including the use of biosensors and automated tools of intervention;

21) A basic understanding of applied neuroscience as a tool for education;

22) An understanding of society's view of military medicine and its expectations of the military and medicine in the overall health care environment of the United States;

23) Competency in the principles of justice and confidentiality and the ability to properly allocate limited resources to diverse populations in ambiguous clinical situations and diverse environments, while involving patients in the management of their health;

24) Ability to keep patient expectations in line with probable outcomes, while involving the patient in medical decision-making;

25) Ability to clearly communicate risk and benefit information to patients and assist them in making appropriate medical decisions which are consistent with, and complementary to, the other aspects of their lives; also, to support a patient's decision-making process, with more than a superficial understanding of statistics, disease risk, and population health;

26) A basic understanding of modern finance and business models that may be applicable to the future military medical environment; and,

27) Acquisition of life-long learning skills through self-initiated education via a wide range of educational modalities.

The Sixteenth Conference on Military Medicine will be held in mid-2002; the attendees will help to determine which metrics should be used to measure whether the changes recommended during the preceding conference have achieved their desired effect.

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Planning for Biological Events: Responses to Terrorism and Infectious Disease Outbreaks - A Three-Day Conference. The Center for the Study of Traumatic Stress of the USU SOM Department of Psychiatry organized and sponsored a three-day conference with the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, Department of Health and Human Services. The conference, "Planning for Biological Events: Responses to Terrorism and Infectious Disease Outbreaks," was held on October 19-21, 2001. The thirty-two attendees included internationally known scientists, public health and mental health leaders from the state and local levels and representatives from the state executive branches. The essential nature of the conference was significant as it was held within the immediate timeframe following the initial bioterrorist anthrax attacks in New York City and Washington, D.C.

Background. Bioterrorism differs from natural disasters in a number of fundamental ways. The microbial world is invisible, mysterious, frightening, and unknown to many, including national leaders, members of the media, and the general public. Bioterrorism is an act of human malice intended to injure and kill civilians and is associated with a higher rate of psychiatric morbidity than are "acts of God." A hurricane is usually an isolated event with subsequent consequences. **Bioterrorism**, in contrast, due to the incubation period of microorganisms, and evolving echoes of exposure, fear, and possible spread of contagion, **is a process trauma with consequences spread widely over time**. In addition, there is the threat of further attacks, announced or covert. Bioterrorism is unbounded by time and space. Global travel can spread infected, asymptomatic individuals widely and quickly. The agents responsible for infectious diseases cannot be discerned by our unaided senses which creates uncertainty and a sense of vulnerability and fear.

Bioterrorism causes unfamiliar diseases which are diagnostic and treatment challenges. Today's medical community has limited experience with the diseases produced by bioterrorism agents such as anthrax and smallpox. Naturally occurring outbreaks of infection may be difficult to distinguish from intentional attacks. Patient presentations and the at-risk populations differ in a terrorist attack from naturally occurring outbreaks because of the different routes of dissemination and possibly altered microorganisms. In contrast to a natural disaster, bioterrorism does not produce a readily apparent disaster scene. The "first responders" to bioterrorism are not the traditional fire and police groups; command-and-control teams for bioterrorism consequence management are different than those in other disasters. Following bioterrorist events, public health, medical institutions, and law enforcement have lead roles. The intelligence and law enforcement communities are essential to preventive efforts. Because bioterrorist attacks are decentralized, they require multiple levels of intervention and create additional challenges by inspiring copycats and hoaxes.

Terrorism's primary goal is to destabilize trust in public institutions; biological terrorism, in particular, can strike at the public's faith in its institutions and jeopardize the continuity of society. In the case of contagious agents, neighbors may be perceived as in desperate need and at the same time as a potential source of infection. Although experience with other disasters indicates that most individuals will act with altruism, some will maximize their personal safety. While some individuals may desert the infected, others will expose themselves needlessly to carry out acts of kindness. All of these responses may result in disappointed expectations and unnecessary injury and community disruption. **Carefully constructed plans for community guidance and information can organize post-disaster behavior; the absence of such plans invites chaos.** Institutions, which must respond to the sudden surge of need following a bioterrorist event, are particularly vulnerable to disorganization and breakdown. Although in general, panic is rare in disasters, these groups and institutions, which may be overwhelmed by mass casualties and massive demands, are at some risk of panic. **An untrained, uneducated, and unprepared staff may also be at risk to panic. Planning and pre-disaster exercises are critical to the prevention of these responses.**

Conference Focus. Biological agents are the "atomic concern" for the New Millennium. Agents such as bacteria, viruses, and prions can create chaos and national disruption. Future management of bioterrorism requires a multidisciplinary approach to understanding the effects of these agents on nations, communities, families, and individuals. The conference was organized to: 1) examine how communities perceive their needs for behavioral and mental health response preparedness in anticipation of bioterrorism and infectious disease outbreaks (in the wake of training provided by the Departments of Defense and Justice); 2) develop recommendations for behaviorally and psychologically informed interventions to maintain and/or restore community function; 3) provide recommendations on health communication and risk appraisal to state and local community leaders and others in order to respond more effectively to the mental health consequences of terrorist attacks; and, 4) develop recommendations for the essential education, training, and resource needs that would be required when assisting state and local officials in preparing for the mental health aspects of infectious disease outbreaks.

Conference Topics. The conference included four major presentations: 1) Learning from the Past: The 1918 Influenza Pandemic; 2) Biological Agents of Terror & Community Response; 3) State and Local Response Plans; and, 4) The New York City Experience. In early 2002, a comprehensive summary entitled, From the Conference, Planning for Biological Events: Responses to Terrorism & Infectious Disease Outbreaks, was published by the USU Center for the Study of Traumatic Stress.

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5th International Conference on Tactical Emergency Medical Support, "TEMS 2001: A Medical Odyssey." The USU Casualty Care Research Center (CCRC) conducted the 5th International Conference on Tactical Emergency Medical Support, "TEMS 2001: A Medical Odyssey," on June 8-10, 2001. An international audience of more than 200 participants attended the conference to address issues facing the tactical medical provider in the new Century. This year, the conference offered attendees the opportunity to participate in two pre-conference workshops during the first day. The two sessions: "Defensive Tactics for the Tactical Medic" and "Enhanced Skills for Maintaining the Health of the Tactical Team," were quite well received and maximum attendance was achieved for both sessions.

Background. The USU Casualty Care Research Center (CCRC) was established in July of 1989 under the USU SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research. The Center's efforts provide research, education and consultative/operational support to USU, the Uniformed Services, and other federal, state, and local elements. When fully funded, the Center has operated entirely on extramural funding, employing 11 full time personnel; the CCRC staff is supplemented by 19 part-time volunteers and military officers loaned on an intermittent basis by their parent commands. The location of the CCRC within the multi-Service environment of USU is critical to the development and sustainment of the CCRC's ability to maintain its core competency - the capability to provide military-unique, medical expertise and experience as required by both uniformed and civilian emergency responders to WMD-related and other national security contingencies. Since 1989, the CCRC programs have successfully served as a bridge between DoD and civilian emergency responders for the coordination and sharing of critical, military-unique medical knowledge, technology, and expertise.

Conference Focus. The conference curriculum focused on issues such as pain management and field surgery for the tactical medic, as well as important preventive medicine issues such as fatigue and sleep deprivation, nutrition and orthopedic injuries in the tactical environment. Additionally, there were opportunities to review various administrative issues which are paramount to the success of a tactical medical program. Such issues included TEMS insurance problems, TEMS protocols, and TEMS integration with trauma centers. The "Dundalk, Maryland Stand-Off" and the "Texas-Seven Apprehension" were two of the case studies presented at the 2001 conference in which tactical medics played a major role. Also of great interest was a review of the Littleton, Colorado, CO TEMS Unit's development and progress since the Columbine High School Incident and the tactical/medical approach to crowd control. The David L. Rasumoff Award for Heroism was presented to Deputy U.S. Marshal Christopher Daniels for the rescue of his partner who was wounded during a warrant service which evolved into a "stand-off." The award was presented to Deputy Daniels by Louis McKinney, Acting Director, U.S. Marshals Service, and Mr. Joshua Vayer, Director, CCRC.

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USU Center Sponsors Three-Day Pre-Conference Symposium at the 59th Annual Conference of the United States - Mexico Border Health Association. The USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) of the USU Department of Military and Emergency Medicine, hosted a three-day, pre-conference symposium for community emergency first-responders, civil authorities, border health workers, and military personnel of the United States and Mexican Armed Forces as part of the 59th Annual Conference of the United States - Mexico Border Health Association (USMBHA).

Symposium Focus. The pre-conference focused on the fact that while global medical communities have a growing understanding, capacity, and capability to provide life-saving care following natural disasters, the unique challenges of man-made disasters, which range from accidents to terrorism, and from hazardous materials exposures to emerging infections, pose new challenges to science, medicine, and international partnerships. Over 75 participants shared experiences and lessons learned during the symposium in order to gain an understanding of "first principles" that may be common across events and cultures.

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ORGANIZATIONAL CULTURE

This goal deals with organizational culture, which has a responsibility for sensitivity to all social patterns of work, interaction, and thought typical for our community in contemporary time. This leads to thinking of processes like opportunity, personal growth, atmosphere, image, engagement, bonding, sense of worthfulness, and the final common pathway of this goal - interdependency. No matter what is assigned to this goal, it must pass through the kind of window just described. If it does not have meaning for the community of the whole, then it is not organizational culture.

- Philosophy of Goal 6, USU Strategic Plan: We will create a powerful, committed, and energized University family.

Continuous Efforts to Ensure a Diverse Community that Is Powerful, Committed, and Energized. A common challenge for most educational institutions is the goal to recruit and retain highly qualified students, faculty, and staff. As USU works to achieve that goal, it must also strive to reflect the diversity which exists in both the Services and our Nation. The five USU Offices of University Recruitment and Diversity Affairs (RDO), Student Affairs (OSA), Civilian Equal Employment Opportunity (EEO), Military Equal Opportunity (EO), and the Brigade Commander (BDE) and the Civilian Human Resources (CHR) Directorate collaborated during 2001 to ensure that the University continued to promote respect, appreciation, and understanding throughout its multi-Service activities. During 2001, the University's emphasis was on encouraging cooperation, development, diversity, communication, and collegiality by: 1) the identification and encouragement of equal opportunity principles and diverse cultures through numerous university forums, individual counseling sessions, recruitment strategies, and community service activities; 2) the timely sharing of relevant information through continuing orientation programs, on-going USU publications, educational web sites, and advanced technology; and, 3) the provision of extensive development and recognition programs for the civilian and military members of the USU family.

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Communicating Equal Opportunity Principles and Appreciation of Diversity.

530 USU Personnel Attend Three Community Sessions. The January 2001, Dr. Martin Luther King Birthday Celebration: "Living the Dream, Let Freedom Ring," featured **Admiral David Satcher, M.D., Ph.D., U.S. Assistant Secretary for Health and Surgeon General of the United States** . The USU Office of EEO coordinated this event which was attended by over 300 USU faculty, staff, and students. Then, in response to the emotional stress following the events of September 11th, a USU Family Day Presentation, "Coping with the Effects of Terrorism," was held on October 18, 2001. With 80 USU community members in attendance, **Michael Feuerstein, Ph.D., Professor, USU Department of Medical and Clinical Psychology**, discussed five topic areas: defining terrorist attacks and why they are so frightening; the reaction to such events; coping with the present; what has worked in assisting the community to cope with stress; and, the available sources of support and counseling. In addition, a USU Memorial Service for the Victims of September 11, 2001, was coordinated by the Office of the USU Brigade Chaplain. One hundred and fifty members of the USU family gathered to share concerns, words of assurance, and renewed dedication to our Nation.

Student Professional Activities and Meetings. The coordinating efforts of the USU Office of Recruitment and Diversity Affairs, members of the USU Student National Medical Association (SNMA) Chapter, and Women in Medicine and Science (WIMS) resulted in the successful sponsoring of numerous meetings and activities throughout 2001. Dinner socials provided SNMA and WIMS members with an opportunity to socialize and network with faculty and physicians in a relaxed atmosphere; and, opportunities were provided for discussing important issues such as residency selections, physician and patient expectations, professional demands in the military setting, effective time management, and societal minority and gender issues.

Also during 2001, the USU medical students continued weekly and/or monthly trips to public schools to discuss medicine, science, research, and the medical profession with young students through a community outreach program entitled the Youth Science Enrichment Program (YSEP). The YSEP is designed to motivate America's youth toward medical, scientific, and military careers. The USU students familiarized the young students with such areas as the human skeleton, first aid care with bandaging and braces, and medical triage based on the severity of injuries and potential scenarios. In addition, the Youth Science Enrichment Program (YSEP) Committee, under the leadership of the USU SNMA, continued its coordination of on-going USU community support for the Washington, D.C. public schools through visits and seminar presentations.

Provision of Formal and Informal Counseling. The USU Offices of Equal Employment Opportunity (EEO), Equal Opportunity (EO), Recruitment and Diversity Affairs (RDO), and Student Affairs (OSA) continued to provide formal and informal counseling throughout the Year 2001. The EO Office (military) did not have to provide formal counseling sessions to the uniformed members of USU during 2001; the EEO Office provided one formal and ten informal counseling sessions to the civilian staff during the past year. Beginning in September, OSA conducted well over 300 formal interview and counseling sessions for the first and third year medical students; in addition, RDO also provided individual counseling sessions for numerous uniformed students. The success of these counseling sessions is evidenced by the ever increasing appreciation and respect shared among the individual members of the University. In addition, the EO representatives for the USU Brigade provided EO training for all uniformed members of the University during 2001; the training sessions addressed diversity, acceptance of others, management of difficult situations, and the identification of harassment in both the work place and in an academic setting.

Faculty Senate Outreach Program for Working Mothers. In response to recommendations of the USU faculty and the President of the Faculty Senate, the Office of Administration and Management coordinated the construction and establishment of a Mother's Lactation Room to assist working mothers who wish to continue breast-feeding their babies after returning to work. The room provides for privacy and is equipped with appropriate furniture, electrical outlets, and a refrigerator for the storage of expressed milk. At the time of its establishment during 2000, USU was the only DoD entity to provide such a facility. The program continued throughout 2001.

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Timely Sharing of Information.

The USU Web Is Used to Provide Information Throughout the USU Community. During 2001, the Center for Informatics in Medicine continued to provide computer orientation courses for faculty and students. The Center maintains about 100 web sites which support the educational mission of the University. Additional web sites provide on-line, self-assessment tools for USU students and on-line quizzes and exams for both on-site and distance learning students. The Education Through Technology Special Interest Group, monitored by the Office of the Vice President for Teaching and Research Support, provided electronic programs to enhance existing educational programs and new educational services. Regularly scheduled meetings between faculty representatives, staff, and executive management included the electronic distribution of meeting summaries.

The 2000 Edition of the USU Journal. To ensure that information was shared with both internal and external customers, the University published and distributed more than 800 copies of the 2000 Edition of the USU Journal. This document provides an inclusive background on the history and development of the University; it also describes the achievements of the past year and any changes which may have taken place throughout USU's educational programs, centers, and institutes. The Journal serves as a source document for the University's responses to congressional, executive, and general requests for information throughout the current year. This annual report documents how relevance, readiness, and optimization are successfully emphasized throughout the University's programs and activities. Numerous letters of acknowledgement and accolades were received by the University following its initial distribution; selected examples include: the Deputy Secretary of Defense, the Secretary of the Air Force, the Chairman of the Joint Chiefs of Staff, the Chief of Naval Operations, the Commandant of the Marine Corps, the American Medical Association, and the current Secretary of State.

USU Orientation Program. From October of 2000 through 2001, the USU Civilian Human Resources Directorate, with the participation of the senior leadership at USU, has sponsored formal sessions of the USU Faculty and Staff Orientation Program for 137 civilian and uniformed members of the University community: 45 in 2000; and, 92 during two sessions held in 2001. Initially coordinated by the USU Civilian Human Resources Directorate, the Military Personnel Office, and the Associate Dean of the Graduate School of Nursing, the purpose of the on-going program is to present the newly-hired members of the USU community with the philosophy, goals, policies, and leadership principles of USU. Orientation packets with key facts and other selected information are provided for review and future reference. The orientation process has promoted a positive initial employment experience and has successfully initiated the socialization of 137 new employees with the USU organizational culture.

USU Web Presents Faculty Handbook. Since February of 2000 through 2001, the SOM Office of Faculty Affairs has provided a faculty handbook through the USU Web; the handbook describes the organization and functions of the various components of the University. It is also designed to orient the new USU faculty members to the structure and history of the University, the School of Medicine, and the Graduate School of Nursing; and, the handbook serves as a quick guide for the delegation of responsibilities at the University and where to seek information, guidance, or other faculty-related requirements.

USU Development Program. The Vice President for Executive Affairs presented the newly established USU Development Program to the USU Board of Regents in August of 1999. Initially, consultants at the Mayo Clinic and Harvard University mentored the new Program. The USU Development Program was established to be compliant with federal law, which prohibits USU from soliciting funding. The Program continues its development in cooperation with the Henry M. Jackson Foundation where non-federal funding was identified to be used in hiring the initial staff. A marketing video and CD-ROM were also completed during 1999. Since the establishment of the Program, the Packard Foundation has notified the University that it has approved $1 million for a Packard Chair in the Department of Surgery. Under the supervision of the USU Vice President for Executive Affairs, **Mrs. Helaine C. Ahern**, was hired by the Henry M. Jackson Foundation to serve as the Assistant Vice President for Development. Mrs. Ahern continued and expanded the existing development programs, to include the addition of a short-term business plan which outlines the resources and activities required to address the current list of priorities defined by the University (for example, the procurement of endowments for interdepartmental programs or institutes). During 2000, through the Henry M. Jackson Foundation, the Development Program successfully inaugurated the first annual appeal to the USU Alumni which resulted in numerous positive responses; during 2001, a second mailing resulted in responses from 150 USU alumni. Also during 2001, Mrs. Ahern drafted USU's first, "case for support," a document focusing on the University's (and military medicine's) evolution, program strengths, accomplishments, and selected strategic funding requirements. This effort was complemented by the University's renewed strategic planning process; Mrs. Ahern was designated to lead the strategic planning team focused on the identification of increased funding sources for USU. In coordination with the University President, the focus of this strategic planning team will be on infectious diseases, healing and rehabilitation, stress, and travelers' health. In addition, during 2001, this Program took the lead in developing a semi-annual publication for use in increasing the visibility and external relations of USU; it will be directed toward alumni, potential donors, and other medical schools. In coordination with **Mrs. Sharon Willis, USU Alumni Affairs,** and the Office of University Affairs, the first issue, published in March of 2002, was thematically devoted to the USU community's response to September 11th. At this time, the Development Program continues its work to establish a small board of committed volunteers who will provide critical support to sustain the activities of the USU Development Program.

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Personal Development and Retention.

Individual Recognition. Throughout 2001, the USU community worked to build and strengthen cooperation, integrity, trust, and collegiality as well as to reward individual members for their contributions. An on-going performance evaluation process developed by the Civilian Human Resources Division (CHR) and the Brigade Command ensured that each employee received an annual rating and appropriate recognition for his/her accomplishments. During 2001, CHR continued its procedures for tracking individual employee's years of service. The University President personally presented service awards to designated employees at their work sites. To date, 80 civilian service awards have been presented; the program has been well received. At the same time, the Office of Military Personnel approved, processed, and presented 118 awards for the USU military personnel: 42 Joint Service Achievement Medals; 31 Joint Service Commendation Medals; 39 Defense Meritorious Service Medals; 2 Army Achievement Medals; and, 4 Army Commendation Medals.

Outstanding Employee with Disabilities. During 2001, USU also participated in the Department of Defense 21st Annual Disability Awards Ceremony for the National Disability Employment Awareness Month through the nomination and selection of **Mr. Roosevelt A. McCoy** for the Outstanding USU Employee with Disabilities; Mr. McCoy also received a certificate during the DoD Disability Awards Ceremony on December 11, 2001. Mr. McCoy is an Animal Caretaker Leader at the USU Center for Laboratory Medicine where he is responsible for the care of over 300 research animals. A 17-year employee of USU, he has been in his current position for 13 years. His concern for the animals is evident; and, he sets a standard of excellence, not only for himself, but for others. A creative problem solver, he manages an impressive and ever-increasing workload. In an effort to make work more efficient for himself and his co-workers, he has streamlined many of the operations in his area. His work in support of teaching and research activities is of great importance to researchers at USU. Mr. McCoy is hearing impaired and uses sign language to communicate. Most people in his department do not know how to sign, but several of his direct supervisors have learned basic sign language to make day-to-day communication easier. Mr. McCoy has taken a special interest in other USU employees with hearing impairments in his department; he is credited with helping many of them to excel on the job. Mr. McCoy is particularly interested in the Internet and encourages others to gain proficiency with computers as a means of communication. The certificate presented to Mr. McCoy during the DoD Annual Disability Awards Ceremony recognized him as an outstanding employee who brings skills and creativity to the USU/DoD workforce.

Communication of Accomplishments. Presentations of accomplishments by individuals, teams, and departments were also scheduled throughout the year. For example, the University faculty supporting the Advanced Technology Training Telepresence Surgery System, the Anesthesia Patient Simulator, and Military and Emergency Telemedicine Training gave demonstrations for the general University community as well as for the media and external contacts of the University throughout 2001.

Training Opportunities Provided to USU Employees. During 2001, the USU Offices of Civilian Human Resources (CHR), Medical Education (MEE), Faculty Affairs (ADF), Research Administration (REA), the Brigade Command (BDE), University Recruitment and Diversity Affairs (RDO), Equal Employment Opportunity (EEO), and Equal Opportunity (EO) provided programs and support to assist the University community in its self-development and training requirements. Civilian Human Resources (CHR) continued to expand the USU Mentor Program by sponsoring 34 participants; both the participants and their mentors received on-going training and guidance throughout 2001. CHR also sponsored the establishment of a University Toastmasters International Club in 1999; active participation continued during 2001 with 25 members. In addition, numerous training opportunities were provided by CHR to the USU civilian workforce which were linked closely with the establishment and expansion of Individual Development Plans. CHR used 175 training vouchers during 2001 and 60 on-line subscriptions for computer-related training for the Microsoft Office Suite. Through the use of vouchers, USU faculty and staff were provided opportunities to attend off-site computer classes through CompUSA and New Horizons. USU employees were also provided an on-line computer training option through a USU contract with Element University; on-line training allows the student to complete assignments through the Internet while at home or at work. A total of 163 employees were trained on-site, in addition to Ethics Training Classes conducted by the Office of the USU General Counsel. On-Site Classes provided by CHR included: Coping & Stress Management (18 participants); Time Management (32 participants); Forklift Operator Safety Training (20 participants); Retirement Planning (24 participants); Proofreading & Grammar Skills (24 participants); and, Speed Reading (45 participants).

USU Faculty Attend Development Courses and Seminars. The Department of Family Medicine, in coordination with the SOM Office of Faculty Affairs, offered numerous courses and seminars which strongly supported faculty development at the University. **During 2001, 250 attendees earned over 300 hours of continuing education.** The following are selected examples of the successful activities during 2001 which led to the enhancement of the professional skills of the USU faculty members: Use of PDA's in Clinical Environments; Moving into Administrative Roles; Medical Anthropology and Clinical Medicine; Preparing Teaching Materials; Teaching the Difficult Learner; Evaluation of Complementary and Alternative Medicine; Negotiation; the Adult Learner; and, Stress Reduction. In addition, a Colloquium was held to describe current research related to human/animal interactions and associated human health benefits. Speakers from six premier Universities presented their current research to the USU faculty, staff from the Offices of the Joint Nursing Chiefs, and representatives from the National Institutes of Health.

OSD Confirmation of USU Title 10 Authority. During Fiscal Years 1997 and 1998, there had been a one year suspension on the inclusion of allowances in the calculation of retirement benefits for the USU Administratively Determined (AD) employees (faculty and staff) who are covered under TIAA-CREF, Fidelity, or any other retirement system not established under Title 5 U.S.C. This issue, which involved USU's Title 10 authority, was resolved with OSD through the coordinated efforts of the OSD Office of the Deputy Assistant Secretary for Civilian Personnel Policy, Washington Headquarters Services, the USU President, and the USU Vice President for Administration and Management. As a result, the inclusion of allowances in the calculation of benefits for USU AD employees was reinstated by OSD for Fiscal Year 1999 and has been continued through the present; 2001 and current, OSD-approved, AD salary schedules include footnote references which confirm the reinstatement of this benefit.

Legislative Language Removes the Limits of Executive Level IV for the Annual Rate of Basic Pay. Previously, the annual rate of basic pay for USU AD employees was limited to be no more than the rate set for Executive Level IV. In many cases, this limitation resulted in the need for allowances to bring the total pay up to the limits established by OSD in the USU salary schedules. During the last quarter of Fiscal Year 1998, the OSD Office of the General Counsel, at the request of the Deputy Assistant Secretary for Civilian Personnel Policy, recommended the legislative change contained in Section 1108 of the Conference Report for the National Defense Authorization Act for Fiscal Year 2000. As a result, when the Authorization Bill for Fiscal Year 2000 was signed, it effectively removed the limitations of Level IV for the USU AD employees; as appropriate, the upper pay limits of the USU AD salary schedules are now limited to the rate set for Executive Level I. Implementation actions for the reduction of allowances were initiated and implemented during 2000 by CHR and were continued during 2001 to the present.

USU Administratively Determined Salary Schedules Are Approved. Previously, the USU salary schedules for the Administratively Determined (AD) employees had remained the same from 1993 through 1997. To address this concern, a Memorandum of Understanding signed by the OSD Office of Civilian Personnel Management Services (CPMS), the Navy Bureau of Medicine, and the USU President has successfully resulted in the implementation of annual comparability studies by CPMS. These comparability studies serve as a critical component in the on-going review, updating, and implementation process for the USU AD salary schedules. As an example of the implementation procedures, when the Principal Deputy Assistant Secretary of Defense (Force Management Policy) approved salary schedules for the USUHS AD employees on August 25, 1999, an increase in base pay was automatically provided for any AD employees whose base pay was lower than the minimum limits of the new salary scales. Updated salary schedules have

been continuously approved during 1998, 1999 and 2000. The approved AD salary schedules, effective in July of 2001, raised the lower pay limits for all salary ranges. And, on April 2, 2002, OSD approval was granted for the most recent USU AD salary schedules; these schedules will be effective from January 2002 until the next schedules are approved; as appropriate, the current AD salary schedules raise the upper pay limits to Executive Level I and provide greater flexibility in paying bonuses and retention allowances.

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University Recruitment and Diversity Affairs.

Implement a comprehensive plan for the recruitment and retention of qualified citizens to become uniformed personnel who will serve our diverse Nation as successful leaders, ready to respond to the Nation's medical and scientific needs during peace and war.

- Mission Statement for the Office of University Recruitment and Diversity Affairs, developed during 2001.

Office of University Recruitment and Diversity Affairs. The USU Office of Minority Affairs was established in 1991 with a mission to increase the participation and advancement of traditionally underrepresented minority and women students, faculty, and staff at the University. The Office of Minority Affairs, under the initial leadership of **Jeannette E. South-Paul, COL, MC, U.S., Vice President for Minority Affairs**, established numerous programs to especially increase the recruitment and retention of underrepresented minorities at the University. Following COL South-Paul's selection to serve as Chair, SOM Department of Family Medicine, **Charles W. Campbell, Jr., Col (Sel), USAF, MC, FS,** served as the second USU Vice President for Minority Affairs. In April of 1999, **Carolyn L. Miller, LtCol, USAF, BSC,** was selected as the third USU Vice President for Minority Affairs and she continues to serve in that capacity. During 1999, following extensive discussions with the USU President and the Board of Regents, the University's Strategic Plan specifically addressed University recruitment and diversity affairs. Subsequently, during 1999, the Office of Minority Affairs was renamed as the Office of University Recruitment and Minority Affairs; during 2000, strategy sessions to enhance the recruitment efforts of the University resulted in a decision to further modify the office title to the Office of Recruitment and Diversity Affairs (ORD). Today, the USU Strategic Plan retains strategies for both marketing the University and targeting the increased recruitment of women and underrepresented minorities. The Office of Recruitment and Diversity Affairs (ORD) remains committed to increasing the general public's awareness of the University; thus, ORD continues to market the University and introduce military medicine, USU, and the U.S. Public Health Service to prospective applicants. By the end of 2001, the following areas were included among the numerous program responsibilities of ORD: on-going recruitment efforts; retention and student support activities; community service; and, the USU Preparatory Program.

Institutional Role Model for Minority Recruitment and Retention. Also of note during 2001, was the successful nomination of USU as an institutional role model for minority recruitment and retention. The University was nominated by ORD based on its aggressive recruitment efforts and its extensive actions for the retention of underrepresented medical students. ORD documented that USU remains committed to the education and training of minority leaders, physicians, advanced nurses, and scientists in voluntary public service in the United States. In addition, ORD provided specific examples to validate that USU has established grants, cooperative research agreements, research endeavors, community service initiatives, and an office of recruitment and retention all of which target the underrepresented sector of the population to ensure that all citizens are aware of the opportunities provided by USU. Following a briefing by ORD during the Second Annual Minority Role Models Conference in Washington, D.C., the USU was approved as a minority role model institution. The conference was hosted by Minority Access, Inc., a non-profit educational organization which supports individuals, institutions, federal, state and local government agencies, and corporations in the diversification of their campuses and work sites by improving the recruitment, retention, and enhancement of minorities. The University will be presented the award during the next conference in 2002. USU initiatives and current practices documented by ORD will be published and shared with other institutions as "best practices."

USU Liaison Program. USU Alumni participation in the USU Liaison Program continued to evolve and grow during 2001. The USU Liaison Program involves the recruitment of medical school applicants by USU SOM alumni; these USU alumni serve as superb spokespersons for the University. As part of the Liaison Program during 2001, USU alumni made over 30 visits to universities, colleges, recruitment fairs, and reserve Officer Training Corps (ROTC) and Junior ROTC units. These efforts have resulted in the expansion of USU marketing efforts, the identification of new recruitment opportunities, and an increase in potential applicants. An aggressive recruitment initiative has also been formulated which targets USU alumni and links them with ROTC units in their areas of assignment. The alumni liaisons provide guidance and information to potential applicants. To date, USU alumni liaisons have attended recruitment fairs at all colleges and universities from which invitations have been received. Recruitment opportunities are especially sought at historically black colleges and other well known institutions with diverse student bodies.

Provision of USU Recruitment Materials. During 2001, ORD, as the centralized office for USU's recruitment efforts, responded to over 500 requests for the continued replenishment of USU materials initially provided in more than 6,000 packets of recruiting materials which were mailed to: Reserve Officer Training Corps (ROTC) Units; military bases (installations and hospital commanders, chief enlisted advisors and education offices); and, pre-medical advisors at the military Service Academies and undergraduate institutions nationwide. Additionally, ORD placed advertisements on USU programs in various undergraduate marketing venues; and, members of the USU community (e.g., faculty, staff, the Board of Regents, external contacts, etc.) were provided, upon request, with recruitment packets (USU recruitment video, CD-ROM, and USU brochures) for presentations at their hometown educational institutions, professional society meetings, or at various geographical sites while on travel. Throughout 2001, ORD staff responded to continuous inquiries from prospective applicants reference USU's various program requirements.

Joint Recruitment Venture with HPSP Recruiters. A significant initiative launched during 2001 was centered on a joint venture between USU and the recruitment staffs for the Health Professions Scholarship Program (HPSP). USU representatives attended the October 2001 HPSP TriService Conference; as a result, three initiatives were agreed upon: a proposed application form which includes both the USU and the HPSP Programs; the referral of USU applicants to the HPSP Program once the USU slots have been filled; and, HPSP links have been added to the USU recruitment web page. One example of the success of this new partnership occurred during the 2001 ORD staff visit to the Annual ROTC Basic Camp Branch Orientation at Fort Knox, Kentucky. USU was invited to join the U.S. Army and regional HPSP recruitment teams in presenting science and medical career opportunities to more than 1,700 cadets who attended the event. The continued sharing of resources between USU and the HPSP recruitment offices will be expanded throughout 2002.

Participation in USU Biomedical Research, Medical Education, and Clinical Operations. During 1999, USU and the University of Maryland Eastern Shore (UMES) began a collaborative effort to increase participation by minority students in biomedical research. USU and UMES have agreed to undertake initiatives to: increase the number of UMES undergraduate honor students enrolled in programs leading to a doctorate in the biomedical sciences; aid in the development of a research training infrastructure at UMES; foster the exchange of visiting faculties to conduct graduate seminars at each institution; and, increase the number of minority students enrolled in the graduate programs at USU. The USU Office of the Dean sponsored six students from UMES during the Summer of 2000. Those six students and one faculty member from UMES were able to participate in on-going research projects in various USU laboratories; the experience was a positive one for both the UMES personnel and USU. The program continued throughout 2001; the USU and UMES faculties and students shared collaborative research experiences, some of which resulted in scientific publications.

During October of 2001, an academic affiliation agreement was completed between USU and Franklin & Marshall (F&M) College. The agreement allows F&M pre-med students to participate in a "shadowing" program at USU and the local teaching hospitals. Under the agreement, USU will give F&M students access to USU faculty members, facilities, and medical student training and instruction. They will also observe clinical operations at the National Naval Medical Center, the Walter Reed Army Medical Center, and the Malcolm Grow U.S. Air Force Medical Center at Andrews Air Force Base. There is no monetary compensation or logistical support responsibility requirement for USU or the medical centers; the students will be registered as hospital volunteers. This agreement will allow USU to more effectively market the SOM to prospective applicants and increase awareness about the University. It will also increase familiarity and appreciation for military medicine, while exposing the University to a broader population of medical school applicants.

Electronic Recruitment. The USU recruitment web page continued to evolve during 2001. As part of the HPSP recruitment venture, HPSP links for each of the Uniformed Services have been added to the USU recruitment page. The USU web site lists federal, national, and some regional summer experiences for medical school applicants. Also, a map of the United States has been added to the web site which includes USU SOM student photos and biographies, designates their respective states, and references their undergraduate institutions.

USU Preparatory Program. The University began its one-year Preparatory Program on August 9, 1999; the new Program successfully completed its second year during 2000. Three individuals were accepted into the Program during 2001. The Preparatory Program is modeled after current civilian post-baccalaureate programs, while maintaining compliance with federal laws and restrictions. The Program is much like those presented in the Service Academy Preparatory Schools. Through the Preparatory Program, USU identifies students who would benefit from a year of medical school curriculum; if the Preparatory Program students excel in the selected first-year medical school courses which are taken along with the first year USU SOM students, they are then allowed to reapply for admission to the medical school. Students considered for the Preparatory Program must meet the same admissions criteria and physical and security standards required of all USU medical students prior to matriculation. The goal of the Preparatory Program is to increase representation at USU of economically or educationally disadvantaged students and to especially include current active duty enlisted and commissioned officers. The two students who entered the Preparatory Program during 1999 were fully accepted by the USU SOM and are now in their second year of medical school. Both are performing quite well academically with a graduation date of 2004; they were also the first U.S. Public Health Service students to enter the USU SOM since 1995. The Office of ORD prepared documentation to justify the Program as a permanent USU program, to include manpower billets and funding; the documentation was submitted to the USU Executive Committee for review during 2001.

Community Involvement and Student Support Programs. Members of the USU Student National Medical Association (SNMA) Chapter and Women in Medicine and Science (WIMS) sponsored meetings and activities throughout 2001. Dinner socials provided SNMA and WIMS members with an opportunity to socialize and network with faculty and physicians in a relaxed atmosphere and to discuss significant issues such as residency selections, physician and patient expectations, professional demands in the military setting, effective time management, stress management, and societal minority and gender issues.

Also during 2001, the USU medical students continued weekly and/or monthly trips to public schools to discuss medicine and the medical profession with the public school students through a community outreach program entitled the Youth Science Enrichment Program (YSEP) which is designed to motivate American youth toward medical, scientific, and military careers. The objective of the visits by the USU students is to strengthen the educational pipeline between public schools and advanced education, and to especially encourage careers in uniformed medicine. The USU students familiarized the public school students with such topics as the human skeleton, first aid care, to include bandaging and braces, and medical triage based on the severity of injuries and potential scenarios. The students are divided into teams of two, and each team prepares a classroom presentation. During 2001, specific topics included health maintenance (brushing teeth, etc.), personal safety (wearing seat belts and bike helmets), preventative measures (hazards of smoking and drug abuse), and environmental awareness (insects and reptiles). Additionally, the Youth Science Enrichment Program (YSEP) Committee, under the leadership of the USU SNMA, is coordinating community support for the Washington, D.C. public schools through visits and seminar presentations. The USU YSEP is committed to serving as a role model for young Americans and to establishing a lasting and positive impact on the young, public school students within the neighboring communities.

The Helping Hands Project.

Four days a week, USU medical students and USU physicians continue to find time to provide family health care to low-income families in the Washington metropolitan area, citizens who would not otherwise have access to medical treatment.

- Office of University Recruitment and Diversity Affairs update on community support activities, dated February 2002.

Each week, USU medical students, USU physicians, and USU Graduate School of Nursing students find time to serve in the free clinics and to help provide medical care to low-income families in the Washington metropolitan area. These are citizens who would not otherwise have access to medical treatment. This community free medical care occurs through the student led "Helping Hands Project" volunteer program. The Project includes three clinics located in Maryland and run by the Mobile Medical Care, Inc. The clinics are located at the KenGar First Baptist Church in Kensington; the Shepherds Table at the First Baptist Church of Silver Spring; and, the Adventist Community Center in Takoma Park. The three clinics provide services such as physical examinations, laboratory analysis, the management of acute and chronic diseases, mental health problems, general health concerns, and referrals for X-ray examinations and specialty and secondary care.

The mission of the Project is to ensure that people receive stable family health care when they would otherwise be unable to afford it. No one is turned away. The USU students become acquainted with available community resources and learn of the health care needs of a diverse population of patients. USU students take patient histories and present them to physicians; they assist in examinations, and, in general, observe the attending doctors. The patients are treated for chronic problems such as hypertension, depression, arthritis, and diabetes; the students also observe the care provided to acute-care patients. Depending on the clinic, students assist with six to fifteen patients during their three-hour shifts. Mobile Medical Care Inc. has been so pleased with the performance of the USU students, that a request was made for the students to volunteer four, as opposed to two, days per week. Student volunteers are exposed to people from different backgrounds who have varying requirements, with limited ability to pay for services. The Helping Hands Project developed into the current program largely due to the vision of a student organizer, **Raymond J. Legenza**, a 1996 USU SOM graduate. The Office of Recruitment and Diversity Affairs takes great pride in sponsoring this program; the essential physician support is volunteered by the exceptional faculty of the USU SOM Department of Family Medicine. Helping Hands has become a significant USU program: it encourages a meaningful contribution of essential health care by USU faculty and students to their neighboring communities; and, it provides a tremendous experience for the USU students.

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The Office of the Brigade Commander. The USU Brigade Commander is recognized as the "senior active duty officer" of the University and reports directly to the President of USU. It is the responsibility of the Brigade Commander to ensure that the uniformed personnel assigned to the University adhere to the appropriate service specific standards set by their parent services. In addition, the Brigade Commander assures that the interests of the military members assigned to the University are addressed and that they remain competitive for promotion with their service peers. Under the leadership of the Brigade Commander, the uniformed students, faculty, and staff assigned and reporting to the School of Medicine (SOM), the Graduate School of Nursing (GSN), the Graduate Education Programs, or other USU activities, programs or divisions must participate in all activities and events as they would in any other command of the Uniformed Services. Regular formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed and rated; and, uniformed personnel are trained in the appropriate uniformed programs and customs.

A Multi-Service Environment. The USU Brigade provides a clear chain of command for all uniformed members, thus allowing individuals to rapidly assimilate into their new units and the multi-service environment of USU. The Brigade Command structure includes a Commandant for both the SOM and the GSN. The SOM has three company commanders representing the Army, Navy, and the Air Force; they are specifically assigned to USU to provide for military training in officership and leadership. A United States Public Health Service officer is also responsible for providing this special training to the Public Health Service students. The company commanders are mentors for the students and they deploy with them during each of the University's field training exercises. The USU uniformed faculty and staff also conduct service-unique and combined inspections and military formations. Similar to the Service Academies, each student class also has its own military command leadership structure. The students rotate positions among the class members, which increases individual exposure in the management of specific assignments, duties, and "command" roles. Tactical senior medical non-commissioned officers are also assigned to each student company to provide mentorship and to assist the company commanders with officership training.

Establishment of the Office of the USU Chaplain. In July of 1999, the Navy Surgeon General approved the resourcing of billets for a Navy chaplain and an enlisted assistant at the DoD joint command of USU. The arrival of the chaplain and his assistant as the first permanently assigned ministry team at USU filled a void in pastoral care that existed since the foundation of the University. Following the establishment of the Office of the USU Chaplain within the Brigade Command, essential counseling and guidance is now available and provided to the USU students and assigned staff.

The mission of the Office of the USU Chaplain is to support and enhance the quality of life of the USU military personnel, to include their families, through spiritual development, as needs are identified and requested. The Office facilitates the free exercise of religion for USU military personnel and their families. Chaplain ministry is needs-based, performed cooperatively, and executed within a pluralistic environment. Faith-specific Student Associations are formed as needs are identified. USU Faculty and staff are encouraged to participate in the Student Association of their choice and to support and/or mentor the students in their spiritual formation in a similar manner as guidance is provided for the development of academic skills. Within regulations under the University President and the Brigade Commander, and administered by the Office of the Chaplain, the Student Associations are self-governed to meet the specific needs and interests of their constituents. The areas of Ministry are: 1) Pastoral Care (to include prayer, scriptures, insight, listening, encouragement, and support); 2) Pastoral Counseling (provision of individual, marriage and family counseling on moral, ethical, emotional, spiritual, or faith issues); 3) Pastoral Visitation (ministry of

presence at the University, visitation of the hospitalized and confined, pre-operative prayer or counseling, as requested); 4) Spiritual Direction (integration and guidance provided to an individual for spiritual development); 5) Observance of Religious Rites (religious observances, command functions, memorial services and social activities); 6) Classes and Seminars (discussions in the areas of value formation, ethical decision-making, bioethics, and faith related topics); 7) Literature Ministry (provision of devotional, inspirational, and self-help literature); 8) E-Mail (communication of the thought for the day and weekly inspirational thoughts); 9) Referral Service (assistance in locating a place of worship, military or civilian, and counseling referrals for requested guidance outside of the Chaplain's expertise); and, 10) Field Exercises (provide worship services, training, and ministry in the field environment for students and staff).

Development of International Relationships. During 2000, the USU Brigade Commander initiated a dialogue with the Commander, German Armed Forces Command USA and Canada, which resulted in the USU students and faculty being provided the opportunity to compete for the prestigious German Troop Duty Proficiency Badge. Upon completion of the demanding psychological and physical requirements that must be met in order to earn the Proficiency Badge, USU students are authorized to wear this award on their service dress uniforms. Although U.S. Servicemembers can earn the badge while stationed in Germany, this is the first time U.S. Forces were able to earn and wear the badge in the United States. During 2001, after three months of preparation and testing, 54 USU students and two USU faculty members were awarded the German Troop Duty Proficiency Badge on April 11, 2001, in a ceremony presided over by **German Brigadier General Hans-Georg Atzinger**. This was the first time a U.S. Armed Forces Medical Unit has been awarded this prestigious German award which recognizes excellence in physical fitness and readiness. In order to earn the badge, individuals had to achieve significant performances in the following areas: shotput; long jump; sprint; swimming; marksmanship; distance running; and, a 20-30 kilometer road march.

Assurance of Operational Skills. The Brigade's Operations Department provides the planning, coordination, and logistical support for the USU military field training exercises for the first and fourth year medical students. The development of plans continued during 2001 for the major exercises at the University: 1) January 22-26, 2001 - **Operation Bushmaster III-01** at Camp Bullis, Texas; 2) June 28 - July 1, 2001 - **Operation Kirkesner** at Marine Corps Base Quantico, Virginia; 3) September 17-21, 2001 - **Operation Bushmaster I-02** at Bethesda, Maryland; and, 4) November 12-16, 2001 - **Operation Bushmaster II-02** at Camp Bullis, Texas. The first Operation Bushmaster of the 2001-2002 Academic Year was of particular note. It was originally scheduled to begin the week following the terrorist attacks on The Pentagon and the World Trade Center. Despite a large portion of all USU Operations personnel having already traveled to Camp Bullis as an advance party and another portion of the USU SOM Department of Military and Emergency Medicine deployed in response to the attacks, the entire Bushmaster scenario was rewritten to conform to available space on the USU campus; all necessary logistical support was reconfigured with local assets to begin, as scheduled, just six days after September 11, 2001. Through training such as Operations Kirkesner and Bushmaster, USU encourages each uniformed student to develop and maintain the special skills required to earn a leadership position in military medicine (these events are further described in Section II).

During the Summer of 2001, the USU Brigade Commander reported that the second year medical students had participated in the following activities: **Army** - U.S. Army Airborne School; Mountain Warfare

School; clerkships at the Army Surgeon General's Office; Operational Emergency Medical Skills Course; Expert Field Medical Badge; and, USA Operational Units (e.g., Fort Bragg, Fort McCoy, Fort Carson, Fort Riley, and Vicenza, Italy); **Navy** - Diving School; Aerospace Medicine (USS Roosevelt); USN SEALS; Top Gun; Mountain Warfare Training; Amphibious Warfare School; Neuroanatomy Computing; USNS Mercy Hospital Ship; the USN Special Warfare Detachment; Tropical Medicine Course, Brazil; and, Sigonella, Italy; **Air Force** - Operational Emergency Medical Skills; Top Knife; Expert Field Medical Badge; Mountain Warfare School; and, USAF Hospitals and Research. From qualifying for the Expert Field Medical Badge to conducting undersea medical research with the U.S. Navy SEALS, USU students are developing and maintaining the special skills required to assume leadership positions in uniformed medicine. Additionally, the diverse and exciting training USU students complete during summer training helps the University to accomplish Strategy 6.4.2 of the USU Strategic Plan: "USU faculty, staff, students, and alumni, both on-site and off-site, will be provided information relevant to their career enhancement, mission, and interests."

The Brigade Headquarters Company is the enlisted Brigade Command support element for USU. In addition to the performance of their military occupation specialties during normal duty hours, the enlisted members of the Headquarters Company ensure that equipment, supplies, transportation, and personnel are positioned to accomplish all major field exercises per year. The Brigade is responsible for ensuring that the enlisted personnel at USU are proficient in their operational support skills which enables them to remain competitive for promotion.

Orientation Responsibilities. Another responsibility of the Brigade, during the first quarter of each Academic Year, includes the in-processing requirements for all uniformed students, whether they are matriculating into the SOM, GSN, or the Graduate Education Programs in the SOM. In the case of the 165 first-year medical students for Academic Year 2001, Brigade letters were issued to the incoming students to include a detailed calendar of events outlining their in-processing week. This increased level of detail facilitates the orientation process and eliminates students' concerns over appropriate uniform, classroom, and Brigade requirements. The military aspects of the USU were stressed during the first week, as well as the students' responsibilities in their primary role as military officers.

Recruitment Efforts for Underrepresented Communities. The Brigade continued to reach out to the ROTC and underrepresented communities during 2001. The Brigade's recruitment efforts during 2001 included presentations on the value of a USU medical education at the following universities: the University of Arkansas at Little Rock and at Conway, Arkansas; the University of Missouri; and, the University of Mississippi. The membership of **Charles S. Serio, COL, MS, USA, USU Brigade Commander,** on the Medical Advisory Selection Committee at West Point continues to give USU exposure to some of the top military academy students in the country.

USU Color Guard. Formal ceremonies have continued to be an important element of military tradition since the earliest armies and navies entered combat. Whether at a retirement, change of command, or a unit stand-up, the military goes to great lengths to showcase its command, its people, and its pride in the Nation. Color guards have long been an important part of these ceremonies, and USU is carrying on that tradition, forming its own color guard in 1997. The USU Color Guard is comprised of enlisted members (E-5 and below) from the Army, Navy, and the Air Force. The first major performance of the USU Color Guard occurred at the 1997 USU Graduation; the colors were also presented during the USU Brigade Change of

Commander Ceremony in 1998. During the May graduations from 1998 through 2001, the USU Color Guard brought the colors on stage during the commencement ceremonies which were held at the National Society of Daughters of the American Revolution Constitution Hall in Washington, D.C. Also, during 2001, the Color Guard performed at the annual USU Dining-In and Dining-Out ceremonies.

Officer Indoctrination Training of USU Matriculants. Formal studies were initiated in 2001 to assess the value of conducting a basic officer indoctrination course on the USU campus for all Army, Navy, and Air Force matriculants to the USU SOM. At the present time, the Surgeons General spend approximately $500,000 per year to transport and house USU non-prior-service Navy and Air Force matriculants and all of the USU Army matriculants so that they can attend their service-specific officer indoctrination courses prior to their arrival at USU. Because of the time constraints which occur due to the timing of college graduation, the notice of final acceptance by USU Admissions, and the receipt of official military orders, some of the USU matriculants have been unable to attend these courses prior to their arrival at USU. Due to the USU requirements for military training during the Summer following the first year of medical school, it is almost impossible for those students who miss their indoctrination courses to make them up without impacting on their medical education requirements. The Brigade currently proposes to investigate the efficiency of having all USU matriculants attend a USU TriService Indoctrination Course to be held at USU during July and August prior to the Brigade orientation and class initiation activities. Topics which are applicable to all Services would be held in a large lecture room, while service-specific topics would be held in smaller USU classrooms. Faculty from USU could be augmented with temporarily assigned instructors as required by each of the present course coordinators. Incoming students would no longer be required to travel elsewhere prior to their arrival at USU which would accommodate the location of housing for themselves and their families prior to course commencement. Although cost-savings would be partially offset by temporary travel and housing for the visiting faculty, the overall savings would still be significant. In addition, each incoming class would have the opportunity to develop a strong sense of esprit de corps prior to the beginning of classes.

This effort would fall under Strategy 6.4.2. of the USU Strategic Plan since USU would be providing an additional level of military educational training specifically for the USU SOM students. Goal 3 of the USU Strategic Plan, "we will optimize resources to efficiently and effectively implement USU core capabilities," supports the proposed USU effort to coordinate with each of the Services to generate cost-effectiveness for the administrative and financial aspects of the current process for USU SOM student indoctrination.

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Goal 6 of the USU Strategic Plan includes a requirement for the University to establish an enhanced sense of intramural community. The Combined Federal Campaign is one event which crosses all boundaries within the University and unifies the entire USU community through a common goal of sharing with those who are in need, either in our own community or on a global scale.

USU Exceeds Established Goals for the Combined Federal Campaign. From 1997 through 2001, the University has reached its Combined Federal Campaign (CFC) goal due to the tremendous efforts and coordination of the Office of the USU Brigade Commander. Under the leadership of the USU

Campaign Managers, the total contributions reached over $167,823. Approximately 66.4 percent of the USU staff, students, and faculty contributed to the Year 2001 Campaign for worthy community, national, and world charities. **The Year 2001 marks the fifth consecutive year in which the University exceeded its goal.**

USU also earned the 2001 CFC Chairman's Award for attaining 100.5 % of its goal of $167,000. In doing so, USU had a total of 53 Eagle donors (42 single Eagles with contributions representing at least one percent of the employee's salary; and, 11 double Eagles). In addition, the University was awarded the Best Goal Poster Award in the 2001 CFC Communications Contest; **Ms. Sofia del Castillo, USU Audio Visual Center,** submitted the winning poster. The average gift during 2001 was $263.00. In all, the Department of Defense raised a record total of $12,429,513, exceeding its annual goal for 2001 by over one million dollars.

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The Year 2001 Curreri Award.

Background. Following his retirement as the University President in November of 1976, **Anthony R. Curreri, M.D.,** was awarded the Department of Defense (DoD) Distinguished Public Service Award. The DoD award, presented in 1977, cited Dr. Curreri for "collaborating with the military departments and for the development of the overall objectives and goals of the University to develop and implement an educational system of the highest quality to serve the physician manpower needs of the military services." The 1996 Graduating Class of the School of Medicine established the Curreri Award to both recognize exceptional contributions to the continuation and well being of the University and to memorialize the leadership of Dr. Curreri as USU's first President. Since the initial award in 1996, all of the graduating classes (SOM, GSN, and Graduate Education) have participated in selecting the recipients of this award.

Recipients of the Curreri Award:

1996 - Vorley M. (Mike) Rexroad, BG, U.S. Air Force, (Retired);

1997 - John Dressendorfer;

1998 - Lorraine B. Sanford;

1999 - Charles C. Partridge, COL, USA, (Retired);

2000 - Enrique Mendez, Jr., M.D.

2001 - Frederic G. Sanford, M.D., RADM, MC, USN, (Retired)

Frederic G. Sanford, M.D., RADM, MC, USN, (Retired) Receives the 2001 Curreri Award. On May 11, 2001, the USU graduating classes awarded the 2001 Curreri Award to **Frederic G. Sanford, M.D.** The award recognized Dr. Sanford for his tremendous and dedicated support for USU. Dr. Sanford has been

a long-time supporter of the University and has given much of his personal time and energy to advance its welfare. He continues to identify funding for the SOM students to travel to a variety of national meetings; and, he actively promotes the mission and accomplishments of the University through highly visible venues. Of particular note, is Dr. Sanford's coordination of a $100,000 donation from the Association of Military Surgeons of the United States (AMSUS) for the USU Simulation Center's Virtual Reality Laboratory. Dr. Sanford has more than 30 years of experience in military medicine. His military decorations include the Legion of Merit with five gold stars, the Meritorious Service Medal, the Combat Action Ribbon, and other campaign awards. He has served in command and senior staff positions, to include: Commanding Officer, Naval Hospital, Newport, Rhode Island; Commanding Officer, Naval Hospital, Long Beach, California; Naval Medical Inspector General; Medical Officer of the Marine Corps; and, Commander, Naval Medical Center, Oakland, California. Immediately prior to his second tour as the Navy Inspector General, Dr. Sanford served as the Assistant Chief, Operational Medicine and Fleet Support, Bureau of Medicine and Surgery, Washington, D.C. He is certified by the American Board of Radiology; and, in September of 1986, was inducted into the Fellowship in the American College of Radiology. The USU community considers it to be a reflection of great credit upon the University when an individual, such as Dr. Sanford, has demonstrated such on-going appreciation and support for the USU mission and educational programs.

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The 2001 Packard Lecture.

Background. The Packard Lecture Series was named in honor of **The Honorable David Packard** (September 7, 1912 - March 26, 1996), distinguished friend and supporter of the University. Mr. Packard was the Deputy Secretary of Defense when USU was created in 1972. He served as the first Chairman of the USU Board of Regents; and, he was the Acting President of the University from 1976 to 1981. Mr. Packard also served as the first Chair of the Council of Directors of the Henry M. Jackson Foundation for the Advancement of Military Medicine for over six years. The USU Faculty Senate established the Packard Lecture in 1985 to annually honor individuals who have made significant contributions to the military medical community; it is considered among the greatest honors bestowed by the USU faculty.

The David Packard Lecture Series:

1985 Enrique Mendez, M.D.	**"Teaching Humanism to Medical Students"**
1986 Joshua Lederberg, Ph.D.	**"The Complexity of Biological Systems"**
1987 C. Everett Koop, M.D.	**"The Fight Against AIDS"**
1988 Robert Petersdorf, M.D.	**"Some Issues in Graduate Medical Education"**
1989 ADM James Watkins, USN	**"AIDS, The Political, Ethical and Social Aspects"**
1990 Arnold Relman, M.D.	**"Scientific Misconduct"**
1991 VADM James A. Zimble, MC, USN	**"Navy Medicine Goes to War, A Time For Evaluation, Reflection and Discussion"**

1993	**Philip R. Lee, M.D.**	**"Re-Inventing Public Health"**
1995	**David A. Kessler, M.D.**	**"Accelerating Approval for Drugs for Serious and Life Threatening Diseases"**
1996	**Joseph A. Califano, Jr.**	**"Radical Surgery: What's Next for America's Health Care"**
1997	**Michael DeBakey, M.D.**	**"History, the Torch that Illuminates Lessons from Military Medicine"**
1998	**Francis D. Moore, M.D.**	**"New Kinds of War: New Kinds of Peace"**
1999	**Senator Nancy Kassenbaum Baker**	**"The Federal Advisory Committee on Gender Integration Training and Related Issues"**
2000	**David P. Stevens, M.D.**	**"The Future of Medical Education: Bytes, Ticks and Finding Your Way"**
2001	**Wayne T. Hockmeyer, Ph.D.**	**"Perspectives in Biotechnology"**

The 2001 David Packard Lecture Features Wayne Hockmeyer, Ph.D., COL, MSC, USA (Retired). The President of the USU Faculty Senate, **Richard M. Conran, COL, MC, USA, Professor, USU SOM Department of Pathology**, reported that one of the significant highlights of the Faculty Senate during 2001 was its sponsorship of the 2001 Packard Lecture which featured **Wayne Hockmeyer, Ph.D., COL, MSC, USA (Retired).** On June 28, 2001, 220 members of the USU faculty and staff attended the David Packard Lecture. Dr. Hockmeyer, founder and current Chairman of the Board of Directors of Medimmune, Inc., the fourth largest biotechnology company in the United States, delivered a lecture entitled "Perspectives in Biotechnology." The lecture presented a myriad of insights into the biotechnology field, to include the difficulties encountered in the process which follows discovery to the marketing of a product. The 2001 Packard Lecture was well received and considered to be most relevant by the USU community.

Dr. Hockmeyer earned his Bachelor's Degree from Purdue University and earned his Ph.D. from the University of Florida in 1972. He served as a commissioned officer in the United States Army from 1966 to 1986. From 1980 to 1986, he was the Chairman of the Department of Immunology at the Walter Reed Army Institute of Research. In 1986, Dr. Hockmeyer joined Praxis Biologics as the Vice President of Research and Development and was there until the founding of Medimmune, Inc. In 1988, Dr. Hockmeyer was recognized internationally for his research on malaria vaccines; he has authored more than 70 papers and articles in the fields of immunology and vaccine development.

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The 2001 USU Faculty Senate Research Day and 8th Graduate Student Colloquium - Emerging Research Technologies. The 8th Annual Graduate Student Colloquium and Research Day 2001 were held at USU on April 10 - 11, 2001. This year's theme was "Emerging Research Technologies." The two-day event brought approximately 250 individuals to the University; attendees included researchers from the Armed Forces Radiobiology Research Institute (AFRRI), the Center for Prostate Disease Research (CPDR), the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Walter Reed Army Institute of Research (WRAIR). A total of 34 panelists and 144 posters made up a full two-day program; researchers from numerous Washington, D.C. institutions served on seven panels; and, nine concurrent poster sessions were also held. Topics included infectious diseases, operational medicine, combat casualty care, space medicine, cancer research, neurology, endocrinology, cardiovascular research, behavioral research, and health promotion and education. The Year 2001 brought the addition of three pre-meeting workshops on issues related to: conducting biomedical research at USU; emerging questions on the transfer of technology from research to licenses and patents; compliance with the evolving Federal regulations on human and animal research; and, career development strategies for students graduating in the 21st Century. All three workshops drew sizeable audiences; similar workshops are planned for 2002.

The awards banquet, held on April 11, 2001, was attended by 245 individuals. The ceremony was opened with remarks by the President of the Faculty Senate, **Richard M. Conran, COL, MC, USA**, and included remarks from the USU President and the Deans of the School of Medicine and the Graduate School of Nursing. **Clifton Dalgard** was awarded a $100 U.S. Savings Bond for designing the Graduate School Colloquium and Research Day 2001 poster. **Rosanne Parsells Waterhouse** (USU SOM Department of Pathology) and **Thomas Ceremuga** (USU SOM Department of Neuroscience) were recognized for the best graduate student poster and platform presentations. Ms. Waterhouse also received the Emma L. Bockman Award, which is presented each year to the USU graduate student who most exemplifies Dr. Bockman's intelligence, generosity, and intellectual curiosity; **Brenda Elliot** (USU SOM Department of Medical and Clinical Psychology) received Honorable Mention. The John F. Maher Awards for Research Excellence, awarded annually to two junior members of the Department of Medicine, were presented to **Paul Hemmer, MAJ, USAF, MS** (Research), and **Thomas M. Herndon, Capt (P), MC, USA** (Teaching). Both Major Hemmer and Captain Herndon are Assistant Professors in the SOM Department of Medicine. Finally, in recognition of the University's appreciation for his extraordinary service as the Acting Vice-President for Research from April 2000 through February 2001, **Michael N. Sheridan, Ph.D., Associate Dean for Graduate Education**, was presented with the USU Distinguished Service Award. Dr. Sheridan, scheduled to retire in December of 2001, also received recognition during the Graduate Student Colloquium for his many years of dedication and superb service as a Professor of Anatomy and for his leadership as the USU Associate Dean for Graduate Education.

The keynote speaker was **Olli-P. Kallioniemi, M.D., Ph.D., Chief of the Cancer Genetics Branch, National Human Genome Research Institute, National Institutes of Health.** His presentation, "Biochip Technologies for High-Throughput Cancer Research in the Post-Genome Era," provided an informative discussion on the current technology for DNA analysis. Plenary lectures were presented by **David Jacobowitz, Ph.D., of the National Institute of Mental Health and USU SOM Department of Anatomy**, and, **P. Paul Liu, Ph.D., National Institutes of Health**; they addressed "Gene Discovery in Developing and Degenerating Brains" and "Genetic Analysis of Leukemogenesis and Hematopoiesis in Animal Models."

Roy Curtiss III, Ph.D., George William and Irene Koechig Freiberg Professor of Biology, Washington University, St. Louis, Missouri, Presents the 2001 John W. Bullard Lecture. The Graduate Student Colloquium consisted of oral presentations by six graduate students from Departments and Programs within the University. Following the platform portion of the Graduate Student Colloquium, **Dr. Roy Curtiss III, George William and Irene Koechig Frieberg Professor of Biology, Washington University, St. Louis, Missouri**, presented the John W. Bullard Colloquium Lecture entitled "Salmonella: Our Enemy And, In Some Forms, Our Friend." After Dr. Curtiss' presentation, students and faculty gathered for informal conversation and discussion, followed by a Plenary Session in the Sanford Auditorium.

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TEACHING AND RESEARCH SUPPORT

Re-Designation of Support Activities. The nine activities organized under the Office of the USU Vice President for Teaching and Research Support (TRS) were originally established as part of the School of Medicine (SOM). As the University's activities and programs expanded to include the Graduate School of Nursing, Continuing Education for Health Professionals, and the Armed Forces Radiobiology Research Institute, it became apparent that the central support functions of TRS were no longer limited to the SOM. As a result, the TRS activities were moved from responsibilities designated to an Associate Dean of the SOM, to that of a University Vice President. As this evolution occurred, it was also determined that these activities should be called Centers to more accurately reflect their missions as central resources for USU. The nine TRS Centers include: the Audio Visual Support Center; the Biomedical Instrumentation Center; the Center for Informatics in Medicine; the Center for Environmental Health and Occupational Safety; the Center for Laboratory Animal Medicine; the Learning Resource Center; the Center for Multidisciplinary Services; the Pharmaceutical Supply Center; and, the Information Services Management Center.

The Audio Visual Support Center.

Pictures, presented as a visual communications medium, make the abstract more concrete, show unique perspectives, form or alter opinions and attitudes, convey and invoke emotion, develop appreciation, awareness, and understanding, and motivate actions.

- Roy Paul Madsen, The Impact of Film: How Ideas Are Communicated Through Cinema and Television, MacMillian Publishing Company Inc., New York, New York, 1973.

The USU Audio Visual Center (AVC) functions as an essential teaching and research support resource for the USU faculty and staff; it provides support through computer graphics, still photography, video, multimedia products, and consultation services. The Medical Photography Branch provides professional photographic services to include: patient photography in a clinical setting; gross specimen photography for Pathology and Anatomy studies; documentation of research projects; and, coverage of University events and public affairs programs. Services provided by the Photographic Laboratory include: custom printing; film processing support; digital image enhancement; traditional slide duplication; flat art copy; small object studio subjects; and, portraiture services. The Computer Graphics Branch provides the following graphic art services: charts; graphs; text for medical/scientific information in journal publications; poster session displays; and, 35 mm slides for classroom presentation. Detailed original medical illustrations in full color or line drawings are prepared to supplement teaching programs, accompany articles for publication, or illustrate research displayed in poster sessions. Signs, forms, brochures, logos, book covers, folders, and flyers are also produced in support of academic and administrative functions. The Medical Television Branch provides studio and remote video tape recording and broadcast services. Extensive editing, titling, and duplication are provided in support of laboratory demonstrations, field exercise documentation, and classroom lectures. Multimedia and web page design services are also available to enhance course materials and the distribution of University information. Throughout 2001, the AVC has further streamlined its services to more efficiently support the USU mission. In doing so, AVC has eliminated all chemical photographic processing through the acquisition of additional digital cameras and printers; it has also

established contracts with the private sector for those remaining projects requiring chemically-based processing. All AVC Branches have supplemented their digital infrastructure through faster and more powerful digital production equipment and software. These modifications have enabled AVC to provide its USU customers with dynamic multimedia and interactive products.

Archive for Historical Images. Throughout 2001, TRS, in conjunction with several USU activities, has initiated the development of a digital archive of historical images for the University. An annotated database of USU's historical images has commenced with significant images related to the University's Board of Regents. As it is expanded, this database will provide a permanent record of those images which capture USU's historical events beginning with its establishment through the maturation of the University.

Center for Multidisciplinary Services.

On-Going Renovation and Upgrades in Support of the Teaching Mission. By 1996, the USU Center for Multidisciplinary Services (MDL), the USU Faculty Senate, the Offices of the Deans of the SOM and GSN, and the USU President were aware that the teaching tools available in the lecture halls and auditorium required major renovation. Based on surveys of students, faculty, and staff, an engineering design was commissioned to upgrade the equipment; the project was then expanded to include the replacement of both carpeting and seating. The Office of the Vice President for Teaching and Research Support and MDL successfully coordinated a major renovation of the Sanford Auditorium and the USU lecture halls during 1998 and 1999. Since then, during 2000 and 2001, subsequent upgrades of the teaching facilities have been on-going, to include a major purchase of tables and chairs for the teaching classrooms in September of 2001. All of these activities are in compliance with Goal 1 of the USU Strategic Plan. By upgrading the lecture halls, classrooms, and the auditorium, USU has enhanced its ability to: provide a quality educational environment for its students, faculty, and staff; conduct continuing medical education; and, sponsor military medical conferences for the MHS in a manner "that will enhance the reputation of USU as a premier health sciences academic institution."

Conformity of Design. All of the USU lecture halls have been designed with the same equipment and controls so that instructors and students can learn one system and move from one lecture room to the next without readjusting to unfamiliar teaching tools. The upgraded equipment provides the faculty with a broader range of teaching tools to present their material. On-going upgrades include: 1) the installation of upgraded audio and projection equipment; 2) the provision of computer capability and Internet access; 3) enhanced video capabilities in each room, to include in-house cameras for overflow viewing throughout the campus; and, 4) "smart" classroom capabilities in Lecture Room C, to include video-teleconferencing and a state-of-the-art audience response system. A majority of the upgrades took place during the summer of 1998; equipment installation occurred around class schedules throughout 1998 and 1999. Similar upgrades were also planned for the Board of Regents Conference Room, selected conference rooms throughout the campus, and the Multidisciplinary Laboratories. In September of 2000, resources were identified to obtain computer and video projector equipment to upgrade the major USU conference rooms with systems similar to those available in the lecture halls; this upgrading process continued throughout 2001. All of the above described efforts are increasing interactive instruction throughout the University.

Renovation Efforts Are Completed in the Anatomical Teaching Laboratory. In 1998, it was identified that the working and storage areas and the freezers in support of the Anatomical Teaching Laboratory (ATL) required significant renovation. Following coordination with the Vice Presidents for Administration and Management, Resource Management, and Teaching and Research Support, funding was identified in September of 2001 for the renovation of the working and storage areas and the replacement of the ATL freezers. Following extensive consultation and planning by the USU Facilities Division, the Anatomical Curator, and the Navy Public Works Center, the renovation project began in December of 2001, and was successfully completed during 2002.

Computer Upgrades for the Teaching Laboratories. In the past, the University utilized oscilloscopes and chart recorders to facilitate the teaching of physiological changes due to disease and treatment in the first-year teaching laboratories. These units were failing and replacement equipment was becoming increasingly unavailable. Following the identification of the need to replace the twenty-five-year-old system, MDL planned, justified, secured funding for, purchased (during 2000), and installed (during 2001) a system of computer-based teaching workstations at each first-year laboratory table. Since the installation of the computers in the teaching laboratories, the USU SOM Department of Anatomy, Physiology and Genetics (APG) has utilized the new resource for laboratory exercises. The students learned to monitor their heart rates and to run a series of experiments studying the changes in heart rates. Once students had become familiar with the basic operation of the equipment, it was used in advanced cardiac physiology laboratory exercises. Both of these teaching laboratories were judged to be quite successful by the students and faculty. While the computers were purchased primarily to replace the physiological recorders mentioned above, they have become a source of greatly expanded, computer-assisted, teaching applications in a variety of disciplines. For example, because of the powerful nature and adaptability of these new tools, the MDL received requests from Biochemistry, APG, Neuroanatomy, Microbiology, Pharmacology, and Radiology for the expanded use of this equipment in their laboratory exercises. Through the utilization of the centralized and networked controls of this computer system, a wide variety of demonstrations, laboratory simulations, experimental exercises, and testing procedures are currently being used, or are under development for expanded use, by multiple SOM Departments. Additionally, this equipment is planned for use in computer-based testing applications. These demonstrations, simulations, exercises, and procedures have been found to provide cost-effective, true-to-life, experiences for students which were not formerly available; and, they have been so successful that plans have been made to duplicate the system throughout the second-year student laboratories.

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The Learning Resource Center - Globally Available.

A trip through the Learning Resource Center is likely to reveal an MS-I student reviewing Anatomic-Radiological correlation, an MS-II studying Pathology images or perusing the HyperPharm program, and an MS-III clerk accessing clinical information via university-provided 'MDConsult' or Medline search. SOM students are well-prepared to enter the new age of medical informatics.

- School of Medicine Self-Study, Section IV, page 5, submitted during 1999.

World-Wide Access for Health Sciences Information. The USU Learning Resource Center (LRC) continued, throughout the Year 2001, to ensure that its electronic resources were globally accessible over the Internet. The LRC assisted thousands of customers in making the best use of current, medically-related information. Unique gateway software enabled users to access on-line medical information from Kosovo, Japan, Korea, Iceland, Bosnia, Germany, Italy, Spain, the United Kingdom, Turkey, Greece, Saudi Arabia, on board ships traveling around the world, and sites located throughout the United States. The MD Consult System was accessed by nearly 6,000 registered users during 2001. Selected examples of the LRC customer base include: physicians; all four classes of USU medical students; USU alumni; Graduate School of Nursing students; distance learning students; USU faculty both on and off campus; residents, nurse practitioners, and registered nurses throughout the Military Health System (MHS); and, the Office of the Secretary of Defense. **During the Year 2001, those 6,000 users requested 3.5 million pages from the LRC Remote Services.** The LRC home page with its numerous information services is available over the Internet 24 hours a day, every day of the year.

Reliability and User-Friendly Access.

A variety of space is available for student study at the school. The LRC is a favored site because many different types of study space and equipment are convenient to the students. There are 10 study rooms for individual or group study in the LRC. In the Spring and Fall, students can also study at tables and benches located on the second and third floor patios of the LRC. Since the 1993 LCME self-study and site visit, the number of private study carrels in the LRC has been increased from 18 to 64. Almost 90 PC and Macintosh computers, with computer-based educational software programs developed either commercially or on-site, are now accessible in the LRC for students to use while learning, reviewing and self-testing information. A training classroom in the LRC with 40 computers can also be reserved for student testing and/or review.

- School of Medicine Self-Study, Section VI, page 6, submitted during 1999, updated in January of 2002.

Since its establishment, the LRC continues to diversify and update its resources to meet its customers' changing requirements. For example, before a new information resource is moved to the production Internet servers for customer access, thorough validation reviews are conducted to ensure reliability and

user-friendly access. The LRC has continuously succeeded in providing an outstanding learning environment and state-of-the-art educational tools for the USU students and faculty.

Internet Information Resources During 2001. During the past several years, the scope of the LRC Internet services was expanded to ensure the equivalent of a major medical library. Customers now have access to a one-stop information center, particularly those alumni located at remote sites where first-line patient care must be provided. The following examples reflect the LRC's continuously expanding services during Fiscal Year 2001:

1) **Books.** Electronic editions of standard textbooks were added as soon as they became available. Currently, there are more than 90 full-text books available through the LRC. These include such familiar titles as *Harrison's Principles of Internal Medicine, Scientific American Medicine, Cecil's Textbook of Medicine, Current Medical Diagnosis and Treatment, Sabiston's Textbook of Surgery, Conn's Current Therapy, Nelson's Textbook of Pediatrics, Merritts' Textbook of Neurology, Griffith's 5 Minute Clinical Consult, the Washington University Manual of Medical Therapeutics, the Harriet Lane Handbook, Campbell's Urology, and Danforth's Obstetrics and Gynecology.* During 2001, book titles from Ovid and Merck were available; these included the *Textbook of Internal Medicine, Oski's Pediatrics, the 5 Minute Emergency Medicine Consult, the Yamada Textbook of Gastroenterology, the Merck Manual of Geriatrics, the Merck Manual of Diagnosis and Therapy, and the Merck Manual of Medical Information.* Books are also available which cover all of the major medical specialties such as: allergy, cardiology, dermatology, emergency medicine, trauma, endocrinology & metabolism, family medicine, general medicine, gastroenterology, geriatrics, infectious diseases, internal medicine, nephrology, neurology, neurosurgery, obstetrics & gynecology, oncology, orthopedic surgery, pathology, pediatrics, pharmacology, psychiatry, pulmonary medicine, rheumatology, surgery, toxicology, and urology. All of these electronic editions are constantly updated and provide current information for the practice of contemporary health care;

2) **Journals.** Conversion to the electronic editions of health-related journals or periodicals continued throughout 2001. The LRC currently has 5,000 journal titles available on-line in full-text to assist its users. Numerous titles are continuously being added to the Internet production server for the LRC customers. Some examples of these additions include the following: more than 600 titles were added from the Kluwer Collection of on-line, full-text journals; all of the 130 titles published by Academic Press; 50 of the titles published through Highwire Press; the Ovid Journals collections which include 100 titles; journal titles from Adonis, Synergy, Catchword, Ingenta, and Karger publishers; and, the MD Consult which includes 48 titles. Specific titles include the *American Heart Journal, Pediatrics, Journal of Clinical Investigation, EMBO Journal, Blood, American Journal of Physiology, Proceedings of the National Academy of Sciences, Circulation, Circulation Research, American Journal of Emergency Medicine, Journal of Trauma, Neurology, Medicine, American Journal of Obstetrics and Gynecology, Annuals of Emergency Medicine, Annuals of Surgery, Chest, and Critical Care Medicine*, and *Medical Clinics of North America, Pediatric Clinics, Cardiology Clinics, Infectious Disease Clinics, Neurologic Clinics*, and *Surgical Clinics.* All of the Yearbooks covering the various medical specialties were also made available;

3) **Practice Guidelines.** With the addition of MD Consult, over 500 Clinical Practice Guidelines contributed by more than 50 medical societies and government agencies are now available through the LRC; during 2001, plans were coordinated for access to the new MD Consult Cardiology Program;

4) **Patient Education.** More than 2,500 patient education handouts, which can be personalized to include special instructions provided by the attending physician or staff, are available;

5) **Continuing Medical Education.** There are more than 300 Continuing Medical Education (CME) Modules; each offers 1.5 Category I credits, for a total of 450 hours of Category I credit, which can be applied toward the American Medical Association Physicians' Recognition Award. The collection provides practical topical updates across eleven specialties of medicine. Each CME test is enhanced with links to related information contained in the electronic books, journals, practice guidelines, and drug information as well as to other web sites with relevant information;

6) **Clinical Topic Tours.** A new Tour is provided each week which allows the user to explore current thought and accepted wisdom on consequential topics in medicine. Establishing a path through a focused collection of information from journal articles, books, drug information, practice guidelines, educational materials, and useful web sites allows the user to refresh his/her medical knowledge;

7) **Today in Medicine.** This module allows the health care professional to stay informed about the newest developments in medicine. The module provides current developments from all of the major journals, government agencies, and medical conferences. Also provided are concise clinical summaries and links to additional sources of information on the Internet; and,

8) **In This Weeks Journals.** The health care practitioner can keep up with all of the major weekly journals through this module. Key contents of the major clinical journals (Journal of the American Medical Association, the New England Journal of Medicine, the Archives of Internal Medicine, Lancet, etc.) are presented each week in an easy-to-scan format which includes concise article summaries.

Supplementing the Internet Resources. The registered number of users for the LRC remote Internet services continued to expand during 2001. A Reference Services Section is posted on the Internet production servers and currently contains an electronic request form for a mediated literature search as well as an electronic request form for an interlibrary loan for materials not owned by the LRC. During 1998, the LRC installed a flat-bed scanner fax machine to facilitate the transmission of any critical information needs from its printed sources. To facilitate color copying and printing, a full-color imaging system became fully operational during 1998 and was available for use throughout 2001. The LRC continuously works to incorporate the recommendations of its customers in its efforts to provide quality and timely service for the USU community.

Partnership for Peace Information Management Systems. The success of the global use of the LRC resulted in the initiation of a cooperative venture with the Partnership for Peace Information Management Systems (PIMS) during August of 1999. This test project enables access via the Internet to specific medical care information systems for the medical community in the Republic of Georgia; it officially opened for registered users on December 15, 1999. Health care professionals in the Republic of Georgia had access to a selection of clinical medicine journals, books, and databases such as Micromedex and MD Consult throughout 2001. The exchange of health care information is expected to be relevant to the unique preparation of the USU students for operational assignments; outcome assessments will be used in determining the future expansion of this project as resources are identified.

Support to Other Military Medical Libraries and Institutions. In 2001, the LRC entered into, or maintained, cooperative agreements with the Walter Reed Army Institute of Research (WRAIR), the Navy Medical Research Center (NMRC), the Portsmouth Naval Medical Center, the Department of State Medical Services, the Association of Military Surgeons of the United States (AMSUS), the Kadena Air Force Base, the Naval Operational Medicine Institute, and many others, to extend on-line services to health care professionals at a significant cost savings to the MHS.

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Informatics - An Expanding and Essential Component of Education in the Health Sciences.

Background. Efforts in computer-assisted instruction as a study aid for USU students have been ongoing since 1979 when a series of medical students developed, in Apple Pascal, the first drill and practice question bank within the SOM. Course directors provided questions entered into the University Board Review System. In succeeding years, several departments (Biochemistry, Pathology, Pharmacology, and Physiology) developed their own on-line examination archives or examination item databases. Over time, this type of material was delivered to students first on stand-alone computers, then on networked computers (HyperPharm, HyperRenal, and others) and most recently as world-wide web (WWW) based sites accessible both inside and outside of the SOM by the Departments of Biochemistry, Pathology, Pharmacology, and Physiology. Perhaps the most ambitious of these efforts is the Biochemistry question database of examination questions for testing which was developed between 1991 and 1996. This archive is available at *<http://bob.usuhs.mil/biochem/exams/exams-f.html>*.

Image-based study aids have also been developed by the USU faculty. The earliest of these efforts were Radiologic Anatomy, Neuroanatomy, and Chest Film Review laser disc programs developed and deployed between 1985 to 1995 by the Department of Radiology and Nuclear Medicine. In 1996 and 1997, this material was also made available to students as CD-ROMs; and, in 1997, the material was migrated on the WWW at *<http://rad.usuhs.mil>*. The Department of Radiology and Nuclear Medicine has established collaborative efforts with faculty at the Mayo Clinic Foundation and Emory University which provide USU medical students access to the Visible Human data set. Both SOM and GSN students utilize this resource. Another current effort encourages the students to draw correlates between anatomy, physical diagnosis, clinical neurology, and radiology.

MedPix, An Internet Teaching File for the Health Sciences. The USU MedPix System was developed to offer medical students, researchers, and clinicians a descriptive on-line data base housing medical case examples. The intent is to provide a fully-functional archive of clinical photographs and radiologic images, primarily of abnormal and disease conditions. The result has been a shared Internet teaching file filled with a variety of illustrated medical cases available to anyone interested in learning more about an affliction or in sharing information and images from cases they have seen. These cases are further complemented with posted summaries, reports and editorial comments. **James Smirniotopoulos, M.D., Professor and Chair, SOM Department of Radiology and Nuclear Medicine**, and third-year medical student **Ensign Henry Irvine** originated the USU program as a text-only data base with aspirations to develop it into a multi-level program. Instead of using only static web pages, it was decided to use a data base and dynamically generated pages. The intention was to allow its users, at remote sites, to add images and cases into the data base. The site began with a Radiology intent and has since branched off into the Dermatology and Pathology disciplines. Visitors to the site can also practice identifying ailments by selecting a "hide-text" feature. This allows the user the opportunity to take a self-quiz before the introduction to the actual illness. It has become an impressive site in terms of complexity and depth of resources. It is recognized as a powerful teaching tool for residents. In fact, during 2001, Radiology residents used MedPix data for teaching files at such hospitals as the Tripler Army Medical Center, the Naval Medical Center at San Diego, and throughout the National Capital Region. In 2002, the Naval Medical Center at Portsmouth is also expected to utilize this resource. One customer at the David Grant Medical Center, **Captain Jerry Cline, USAF, MC**, has found the site to be "a great resource for medical pictures (especially radiographs) which are easily

downloadable to be used in Powerpoint teaching rounds." Part of his job as a senior resident on the inpatient service was to give daily half-hour lectures to residents and staff. By using the information from MedPix, his "presentations became more interesting and clinically based." Material, organized by disease category, disease location (organ system), and by patient profiles, can be further investigated through multiple internal text search engines. Additionally, visitors may present search formulations which can be sent directly to PubMed, a service of the National Library of Medicine and the National Institutes of Health which provides access to more than 11 million citations from medical and life science journals. According to **Greg Petermann, Program Director, Diagnostic Radiology Program, Tripler Army Medical Center**: "It is a great military achievement to put this on the web. It shows how different parts of the country can work together, using the Internet, and create an outstanding learning resource and tool as our residents use it to look up cases and learn more about radiology imaging. It shows how progressive USU is, and how well we can interact within the military."

Compact Disc Provides Cost-Effective Assistance. The Department of Pathology has digitized its entire 2x2 slide collection, some 1,300 images, used in the MS-II Pathology Course; the images are available to students via the WWW. The Pathology Department has developed a compact disc of approximately 1,000 photographic images of pathological specimens. Directed to second-year medical students, the compact disc provides assistance for preparing for pathology laboratories and examinations; the disc provides a comprehensive collection of images covering all major organ systems. The department finds that the compact disc increases the accessibility of images to students and results in significant financial savings because duplication costs for lost or damaged 2x2 slides are eliminated. In addition to the image data bank, this WWW site archives old examinations and the SOM Pathology Laboratory Manual, and administers 14 quizzes to students during the course. Each year, USU students access the 14 on-line quizzes, which use photographic images, answer the quiz questions in an open book format, and submit their answers electronically to the department. A data bank of questions written by USU faculty are archived by computers and used in testing medical students. The use of archived questions allows the department to compare class performance from year to year and to evaluate the quality of the questions, which has reduced ambiguity in examinations. The Department of Pathology also uses Internet technology to provide a web page independent of the University's web site. This page enables students to access information regarding Pathology's educational activities, links them with other medical schools and pathology web sites, informs the public of USU departmental personnel and research activities, and advertises the department's Ph.D. Program in Pathology. In recognition of the need for the deployed military physician to have access to Continuing Medical Education (CME), the Pathology Department also uses computer technology to provide CME credit to these physicians. Through this web page, uniformed physicians can review cases written by the pathology faculty, answer a series of questions based on the specific case, and receive CME credit. More than 300 CME certificates have been issued by USU for this activity.

eMedicine.com - USU Faculty Help to Revolutionize Medical Textbook Publishing. During 2001, two USU department chairs and many other USU faculty played key roles in a publishing breakthrough which has redefined the way today's health care professionals can obtain timely and critical medical information (a skill which is essential to the medical students' future practice). The new "revolution" is called *eMedicine.com* and its impact is worldwide. *eMedicine.com*, the medical education network, which has developed the first and largest on-line, peer-reviewed medical reference library, is available to the entire world, free of charge, assuming Internet access. It consists of 59 on-line reference books covering every medical specialty. Radiographic images, photographs, audio and video clips relevant to each topic are incorporated. Each chapter features 1.5 hours of Category I American Medical Association (AMA) Physician's

Recognition Award continuing medical education (CME) credit. By the end of 2001, it was estimated thatthere would be 15,000 hours of CME credit. And, the textbook will soon be able to be downloaded to Palm Pilots and other hand-held computers, which will increase their portability. Authors and medical editors are volunteers and are not compensated in any way for their efforts. There is significant supervision of content, with several layers of medical and copy editors to assure accuracy and quality. Unlike traditional textbooks, which can be as much as six years out of date at the time of publication, the information in the *eMedicine.com* chapters is updated 24 hours a day, 365 days per year. If an important new study is published in a journal, the research is immediately included in the on-line textbook. The U.S. military is the largest user of the site to date. There are currently five million users per year, and that figure is rapidly increasing every six months. **Leonard Sperling, COL, MC, USA, Professor and Chair, USU SOM Department of Dermatology**, is one of the editors and authors of the Dermatology Textbook on eMedicine.com. And, **James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Nuclear Medicine**, is one of the editors-in-chief of the radiology textbook of eMedicine. Numerous USU faculty members also contribute to this web site.

Telegenetics Web Site Assists with Genetics Education and Services for the DoD. Computer assisted simulations are used as an integral part of several SOM courses. For several years, the Biochemistry Course (MS-I) has used a human genetics tutorial, developed by SOM faculty. This is supplemented in the clinical years by the internationally used Telegenetics web site *(http://www.usuhs.mil/genetics/)*. In response to the recognized need for genetic services, USU designed an Internet solution to assist with genetics education and services for the DoD. The Telegenetics web site was initially developed in 1996 with the assistance of the U.S. Navy Telemedicine Department and the Applied Physics Laboratory (APL) at Johns Hopkins University. The Telegenetics site was moved to USU in 1997 to focus on educational goals and to provide consultations in genetics to the DoD's deployed forces. The mission of the Telegenetics web site is to provide information and education about genetics to DoD primary care providers, specialist physicians, USU medical students, graduate students and researchers, and interns, residents, and fellows within the DoD Graduate Medical Education Programs. The web site acts as a centralized knowledge resource, providing its recipients with on-line genetics lectures, written information, instructional aids like On-line Mendelian Inheritance in Man (OMIM), and links to articles, laboratory services, and patient support groups. Through store and forward technology, the Telegenetics web site also enables consultations about genetic disorders. Health care providers have accessed this site from within the continental United States as well as from international locations, including Yokota, Misawa, and Okinawa in Japan. Costs for transporting patients to consultants in genetics may be decreased by providing information about genetics to patients and health care providers in remote locations via the World Wide Web. Initially, the USU team responsible for maintaining the Telegenetics web site planned to fulfill the following tasks: 1) incorporate video-teleconferencing capability to allow real-time consultations; 2) integrate on-line the Family Pedigree drawing program to improve genetic history intake; 3) integrate Tele-Maternal Fetal Medicine (Tele-MFM) capability to allow store and forward examination of ultrasound, MRI, and CT images from remote locations and to enhance diagnostic capabilities in all DoD medical facilities; 4) develop continuing medical education (CME) on the Web to enhance ongoing learning in genetics; 5) use the Simulation Center to provide computer-assisted education for USU medical students in genetics, including cases, dysmorphology, cancer genetics, and adult genetics; 6) use the Simulation Center to enhance learning in Obstetrical Ultrasound; and, 7) assist in the development of Critical Pathways for clinical services in genetics. During 2001, the web site was maintained and used for providing information to deployed personnel. In addition, educational information was also provided through the use of PowerPoint slides. And, as coordinated by **Charles J. Macri, CAPT, MC, USN, NNMC,** on February 12, 2002, during a Tele-MFM conference with Landstuhl, Germany, USU

has offered use of the web site for Genetics information to personnel in Germany and Italy (as per goal three listed above). Current plans include further development of the web site to provide information about new genetic services and tests as they become available.

Innovative Web-Based Teleconferencing Sessions and Exercises. USU uses interactive, real-time video teleconferencing to link five different sites for its six week clerkship in Obstetrics and Gynecology. In sessions that last from 60 to 150 minutes, site coordinators meet with the clerkship directors and administrative personnel to discuss such crucial issues as curricula, student problems and evaluation, and faculty development. Since the sessions began in May of 1998, USU has found that the sessions enable the standardization of curricula, facilitate the sharing of ideas, reduce administrative tasks through centralized support, and improve the meaning, consistency, and level of detail in student evaluations. The Physiology Course provides an acid/base game in which students diagnose an acid/base disorder from patient data on a Davenport diagram, treat it, and see what the treatment does to the patient. Other exercises include body fluid compartments and Yannet-Darrrow diagrams, and the control of glomerular filtration. These exercises are treated as a regular laboratory in the course. The Pharmacology Course has included a computer-based pharmacokinetic simulation exercise and a computer-based drug information exercise, available to SOM and GSN students as integral parts of the course; both were designed by USU faculty.

The USU Clinical Simulator and Patient Simulator Laboratory Present Scenarios Applicable to Combat Casualty Care, Anesthesia, Critical Care, Trauma, and Emergency Medicine. During 1997, the USU Departments of Anesthesiology, Anatomy and Cell Biology, and Physiology, in collaboration with the National Naval Medical Center's Department of Anesthesiology, developed the Clinical Simulator and Patient Simulator Laboratory (PSL) located in the USU Department of Anesthesiology. The PSL has evolved into a fully interactive clinical training laboratory, equipped as an operating room with standard monitoring equipment, instruments, life support system, defibrillator, and complete audio/video recording equipment. Throughout 2001, Numerous groups of students and medical personnel made regular use of the PSL both as a training facility and as a research resource: 1) **USU First Year Medical Students - Cardiovascular Physiology.** For these students, the simulator is used to complement a teaching laboratory which demonstrates the basic interactions of heart rate, blood pressure, cardiac output, stroke volume, and circulatory resistance; 2) **USU Third Year Medical Students - Two-Week Anesthesiology Rotation.** The simulator helps these students to learn the fundamentals of anesthesia; they practice connecting a patient to external life support. It also helps to ensure that all of the students are presented with a core learning experience; 3) **USU Graduate Students in Nurse Anesthesia in the MSN Degree Program.** USU Graduate School of Nursing (GSN) students undergo basic and advanced simulator training, during which they must handle unique cases with unexpected complications. Some nurse anesthesia students use the simulator as a laboratory instrument for their required Master Degree Thesis Project; 4) **Walter Reed Army Medical Center (WRAMC) Nurses - ICU Certificate Program.** These nurses are exposed to advanced patient care scenarios which include extensive equipment use and critical medical situation training; 5) **Uniformed Anesthesia Residents from Military Centers in the National Capital Region.** These resident physicians are challenged with complex, specifically tailored medical scenarios, designed to prepare them for dealing with critical, time-sensitive situations. For example, recent, incoming classes of anesthesia residents to WRAMC were given an extensive trauma training/evaluation with the simulator; 6) **Collaborative Efforts with the R. Adams Cowley Shock Trauma Center of Baltimore, Maryland.** In this area, the simulator is used as a test device to evaluate how experienced Emergency Room personnel make use of alarms during critical

medical emergencies; 7) **USAF Critical Care Air Transport Teams.** Once a month, USU hosts an Air Force Critical Care Air Transport Team (CCATT) session, during which the three-person team treats the simulator as a real case. Practicing nurses, physicians, and respiratory therapists are involved in the CCATT training scenarios. They receive a call that their services are required, gather their gear, leave their hospital (Malcolm Grow Medical Center), travel to the site of the patient (USU PSL), evaluate the patient's condition, and provide sufficient treatment to ensure successful transport of the patient back to a hospital. Once they leave the hospital, they can use only equipment and supplies that they carry with them.

The patient simulator offers many benefits to students and instructors. Without putting a life at risk, students can experience handling rare conditions such as malignant hyperthermia, learn to recognize a wide variety of problems, practice using instruments and equipment, develop decision-making skills, and accumulate first-hand experience with military-specific problems like combat trauma. Instructors can tailor each case to individual students, selecting the type, level of speed, and degree of severity according to the student's level of competence. If the instructor wants to give feedback or additional directions, the lesson can be paused and repeated as many times as necessary. Sessions are recorded and played back, enabling the students, with the instructors, to analyze their performance and to recognize their strengths and weaknesses. Because no life is at stake, instructors can purposely push students beyond their competency levels so they can learn and retain critical lessons. The patient simulator is a valuable addition to the USU curricula, one which will most surely play an expanded role in the future. The SOM will include patient simulators in basic science curricula during the first and second years of its medical program, thus lending a clinical context to classes in Physiology and Pharmacology. Offering the single simulator in the PSL to teach a class size of more than 165 students requires extraordinarily complex scheduling. During 2000, collaboration between the PSL, the Simulation Center at Forest Glen, and the patient simulation facility at the Naval School of Health Sciences (located on the NNMC base) made three simulators available to better accommodate the larger class sizes. Approximately ten percent of the 125 United States Medical Schools have patient simulators. The USU simulator is featured at the Patient Simulation Laboratory web site *(www.usuhs.mil/psl/)*.

A Multi-Disciplinary Approach for Teaching Responses to Weapons of Mass Destruction and Terrorism. Beginning in 2000 and throughout 2001, the USU Patient Simulation Laboratory has provided educational experiences for both clinicians and emergency operations personnel in Weapons of Mass Destruction and Terrorist (WMD/T) scenarios during a USU SOM Course, The Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror. The Course on WMD/T includes two modules: Part I, The Emerging Threat of Biological Weapons and Bioterrorism; and, Part II, Nuclear, Radiological, High Explosives, Chemical Agents, and Unusual Weapons. Simulated scenarios have been designed through the cooperation of experts in bioterrorism, chemical warfare, medical effects of radiation, and trauma. Students who take this course include senior military officers, physicians, nurses, lawyers, career politicians, administrators, and logistic personnel. Part I culminates in extensive simulated crisis events including inhalational anthrax, pneumonic plague, marine toxins, and other biological agents. Part II culminates in an intense simulated crisis event involving the terrorist use of chemical, radiological and explosive devices. Non-clinical students, functioning as staff in emergency operation commands, embassies, and/or hospital response centers, manage conflicting information from on-scene observers, other agencies, and media resources. Clinical students, functioning as staff in an emergency room, provide direct care of multiple patients presented by both mannequin-based simulators and human actors. Debriefing entails discussions about performance in: leadership and followership skills, team performance and dynamics, communication skills, data management, logistic support, resource allocation, emergency declaration, assessment and reevaluation of situation(s), medical triage, medical diagnosis, medical treatment, containment of outbreak(s) or agent(s), and appropriate notification of other officials. These simulated

presentations have received overwhelming approval from the participants as documented in the students' course critiques. Course instructors have requested continuation of past presentations as well as new scenarios. Crisis Management following a WMD/T attack can be taught using patient simulation as the foundation for the event; and, multi-disciplinary input has resulted in simulated events which are overwhelmingly accepted by students. This experience allows personnel who will fill positions involving the management of a WMD/T attack to have their "first time for real" through a simulated educational event.

Virtual Reality Telepresence Surgery System. The USU virtual reality Telepresence Surgery System (TeSS) has gained recognition as an exciting technology training tool. Two USU Class of 1982 graduates, who are also faculty members in the Department of Surgery, have been working with the system since July of 1997. Wearing three-dimensional glasses, students place their hands on a surgical instrument. Peering into a video screen, the Center's students will be able to "touch, tug, cut, or sew" the tissue displayed on the screen; they will actually "feel" the movement. The reach-in display table issues a report on how well the student performed during the procedure. During late 2001 and 2002, collaboration with the USU National Capital Area Medical Simulation Center has included plans to explore the feasibility of using Internet2 as a connection medium for remote telesurgery. Internet2 is a consortium of more than 190 universities, in partnership with industry and the government, to develop advanced network applications and technologies. The USU Simulation Center has been identified as a key user of Internet2 at USU; the necessary fiber links connecting the Simulation Center to Internet2 are in place should the University identify resources to move forward in using Internet2 as a medium for remote telesurgery.

Establishment of a Center for Informatics in Medicine. Biomedical data and the field of informatics continue to rapidly expand. Processes of knowledge retrieval and decision making are critical to the future health care provider. In light of technology's role in knowledge development, biomedical informatics has become an essential component of education in the Health Sciences. Following graduation, health care professionals must be able to use biomedical information to define, study, and solve problems.

In 1996, decisions were made to establish a Center for Informatics in Medicine to be placed under the Vice President for Teaching and Research Support (TRS) as an interim step toward the creation of an academic Department of Biomedical Informatics. Since that time, the Center for Informatics in Medicine has enhanced USU informatics research and education through introductory computer courses, a workshop on Internet applications in diagnostic pathology, and the development of such diverse areas as web sites on educational technology, military graduate education, and HIV in the military. During 2001, the Center continued to provide computer orientation courses for faculty and students. The Center maintains about 100 web sites which support the educational mission of the University. Additional web sites provide on-line, self-assessment tools for USU students and on-line quizzes and examinations for both on-site and distance learning students. The Education Through Technology Special Interest Group, monitored by the Office of the Vice President for Teaching and Research Support, provided electronic programs to enhance existing educational programs and new educational services throughout 2001.

From 1997 through 1999, a coalition of CIM, the LRC, and the appropriate Dean's Office (SOM or GSN), initiated steps to prepare incoming USU students for the expanded role of informatics in their studies and professional careers. It is recognized that if students are to fulfill the five key roles of health care providers - lifelong learner, clinician, educator/communicator, researcher, and manager - they must have the

benefits of a dedicated biomedical informatics program. In June of 1998, the Dean, SOM, appointed a committee to assist in creating the Department of Biomedical Informatics; during 1999, the USU Board of Regents approved the creation of the new academic department.

> **Informatics Education. The doctor is the most highly trained individual in the health care system, and as such it is the doctor who should be the final judge of the data entered into the electronic medical record. If the medical record is also a research tool, then this gives a new responsibility and value added to the physician. Educating medical students to do this well is a major challenge. Students who are not exposed to this type of thinking and practical training in medical school will be at a disadvantage when it becomes the norm, as it surely will.**
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> - Journal of Investigative Medicine, Volume 46, No. 8, October 1998, page 345.

The Department of Biomedical Informatics. The SOM's Department of Biomedical Informatics, approved by the Board of Regents during 1999, and provided space through the restructuring of the USU Logistics Division's Self Service Store, is recognized as a basic science department with three areas of specialization: bioinformatics, medical informatics, and education. It is conceived as a resource center to extend and enhance already strong curricula through departmental and interdisciplinary courses which will integrate basic sciences with clinical experiences, offer simulated clinical training experiences, continue current teaching efforts in introductory computing, and focus on student-centered learning with case-based, small-group sessions. It will also serve as a clearinghouse for USU informatics applications, and provide a testing facility for informatics research. **The new department, will help to ensure that all USU graduates have a foundation in informatics that will support them, as career professionals, in the Military Health System.** Specifically, the charter for the new department includes the following: 1) support for the curricula through educational technology; 2) extension of the curricula through biomedical informatics; and, 3) identification and research of innovative informatics applications for military health care.

During 2000 and 2001, the Department of Biomedical Informatics was charged to act as a resource center to support and extend the USU medical curriculum and to act as a focus for developmental and research activities in informatics. The current, university-wide operations of the Center for Informatics in Medicine will be retained as the new department's service-based component. Research computing will eventually be reassigned to the Department of Biomedical Informatics and it will no longer be considered a part of the Information Services Management Center (UIS). The Department of Biomedical Informatics will serve as the focal point for USU's academic computing support, spear-heading such activities as sequence analysis, statistical computing, and the student web page pilot project. It will also solve problems associated with the University's widely dispersed informatics initiatives. In the past, attempts to incorporate informatics into USU curricula have been handled by individual departments, leaving the efforts vulnerable to collapse if a key member of the department left or was reassigned. The Department of Biomedical Informatics will serve as a central resource into which all departmental informatics endeavors can be incorporated. Resources for this department will be gradually increased in accordance with the requirements of the SOM and the Military Health System.

Two projects supported by the Department of Biomedical Informatics during 2000 through 2001 involved innovative education applications for military health care. A collaboration with the University of California at San Diego (UCSD) brought the National Library of Medicine's Visual Human to the USU campus as part of an application developed at UCSD - **Anatomic VisualizeR.** This 3-D visualization tool for the Visible Human data set uses a high end Silicon Graphics workstation for stereoscopic rendering of the data set. Currently, this collaboration has developed five lessons specifically for the SOM and the GSN Anatomy Courses.

In August of 2000, the Dean of the SOM charged the Department of Biomedical Informatics to implement a USU Medical Portable Digital Assistant (PDA) Initiative. A working group of students, staff, and faculty devised a staged working plan to deploy the PDA to include: distribution and introduction of the PDA to the SOM students; usage training; communication deployment at USU; communication deployment to the Military Treatment Facilities (MTFs); and, evaluation and refinement of the initiative. **The PDA devices were provided to the USU second year medical students in December of 2000.** Studies have confirmed that physicians and medical students are able to successfully incorporate PDAs into their patient care workflow. With the use of a drug information data base, clinicians save time, improve knowledge for themselves and their patients, and possibly decrease preventable adverse drug effects. The goal of the USU Medical PDA Initiative is the integration of this technology into the clinical setting. The objectives of the USU PDA Initiative follow: 1) communication while students are at clinical sites (HandDBase and associated data bases); 2) clinical encounter log collection (CWebLog developed within the USU Departments of Biomedical Informatics and Medicine); 3) clinical reference material access (qRx(ePocrates) and 5-Minute Clinical Consult; and, 4) clinical calculator availability (MedMath). USU students are responsible for installing five applications and the CWebLog channel on their PDAs. During their clerkships, each student is expected to operationally maintain his or her PDA. The PDA serves as a significant option that the USU students have for maintaining a log of their clinical encounters. **During 2001, this educational tool was determined to be a complete success; and, distribution will be continued in the future.**

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National Capital Area Medical Simulation Center.

Just as the military has remained a driving force behind the evolution of flight simulation, the Uniformed Services University of the Health Sciences (USUHS) National Capital Area Medical Simulation Center, with its mission to establish a world-class, cutting-edge medical education facility, is definitively ahead of the curve in terms of the utilization of simulation to enhance medical education and readiness. The Center pushes medical simulation into the 21st Century.

- Military Medical Technology, "Locating the Cutting Edge," page 32, Volume 5, Issue 5, 2001.

Background. In response to new technologies, a requirement for standardization in assessment, and also the rapid downsizing of the inpatient teaching base, U.S. medical educators have developed a variety of new training and testing tools (trauma and anesthesia simulators, interactive computer based testing (CBT), distance learning, virtual reality applications, and clinical simulations using "standardized patient" actors (SPs). All of these innovations are being rapidly implemented throughout the United States and are being incorporated as new quality standards for medical education and testing. For example, the National Board of Medical Examiners scheduled the implementation of CBT in the U.S. Medical Licensing Examination (USMLE) for 1999; and, clinical testing utilizing standardized patients will be implemented as part of the USMLE Step 2 sometime between 2003 and 2005. Similar requirements are being discussed by the accrediting entities for advanced practice nurses.

These innovations in medical education conform with the 1995 DoD Medical Readiness Strategic Plan which states: "The use of modern technological advances such as computer simulations and virtual reality has the potential to provide realistic training in battlefield techniques and procedures, and should be pursued to enhance medical readiness training." In July of 1995, the Dean of the USU School of Medicine, and the Commander of the Walter Reed Army Medical Center (WRAMC) established a committee to plan for a model military medical simulation center for the 1) development and use of military medicine databases for education and training; 2) simulation, teaching, and measurement of patient interviewing, physical examinations, and diagnostic skills; 3) instruction, assessment, and documentation of readiness skills; and, 4) focused pre-deployment training. The Associate Dean for Clinical Affairs, SOM, was appointed chair of the planning committee and designated to coordinate the project for the University.

Upon the determination of space and personnel requirements by the planning committee, a building on the WRAMC annex at Forest Glen, Maryland, was identified and approved by the Commander of WRAMC as the location for the center. An initial design study, funded jointly by USU and WRAMC, was completed in September of 1996. Two subcommittees subsequently prepared recommendations on technology and annual cost estimates. In 1997, the concept was briefed to the Assistant Secretary of Defense for Health Affairs and the Surgeons General during a meeting of the TRICARE Readiness Executive Committee (TREC), who referred it to the Defense Medical Readiness Training and Education Council (DMRTEC). Following a briefing on September 25, 1997, the DMRTEC approved the concept and recommended that USU program for funding. In 1998, the President of USU allocated funds for the renovation of the Forest Glen space and the purchase of equipment. The one hundred percent design was completed on August 12, 1998. Funds for the renovation, furniture, and security were obligated on September 30, 1998. Program development and hiring of staff began late in Fiscal Year 1998 and continued throughout Fiscal Years 1999 and 2000. The construction for renovation was completed during 1999; in September of 1999, the simulation center began

training and testing military physicians, nurses, and medical students. On April 21, 2000, the 11,000 square foot National Capital Area Medical Simulation Center (SimCen) was officially opened at the Walter Reed Army Medical Center annex in Forest Glen, Maryland. The SimCen was the first single location to integrate the use of virtual-reality technology, computer-controlled mannequins, and human simulated patients under one roof.

Educational Activities. During 2001, the SimCen was instrumental in introducing medical simulation technology in support of numerous and distinct medical education programs. During its first 22 months of operation, the SimCen has supported 54 educational activities: 16 School of Medicine; 12 Graduate School of Nursing; 14 Graduate Medical Education; 5 medical readiness; and, 7 research training activities. These educational activities, in turn, supported over 7,500 student encounters. At present, the SimCen expects to support a similar number of programs and student encounters during 2002.

Over the past 22 months, the SimCen has conducted over 350 tours (35 foreign nations; 70 educational institutions; and, over 200 visits from military, professional, congressional, and private organizations). To date, the SimCen is currently serving as a template for more than 30 educational institutions which are attempting to employ similar simulation technology into their own medical education programs. As an example of the growing reputation of the SimCen, on February 21, 2001, the USU SimCen was included in the Discovery Channel series, "The Nature of Things." The segment of the program featuring the SimCen was entitled, "Surgeons of the Future."

Multi-Simulation Techniques Under One Roof. While an increasing amount of professional health care training uses simulation techniques, the SimCen is very likely the only place in the United States which combines multi-simulation techniques under one roof. This state-of-the-art teaching facility allows health professionals to augment their skills through patient simulations, virtual reality applications, and training with mannequin simulators. It uses technology and actors posing as patients to teach students about situations that they may encounter as practitioners but might not otherwise experience while training in hospital wards. It also allows for a safe transition between simulations in the classroom and real-life situations in the clinic for learning procedural and surgical skills, and for the interaction with patients in sensitive or difficult situations. Another use of the SimCen is the instruction of readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions.

The SimCen is divided into four functional areas: the Administrative Area; the Clinical Assessment Laboratory; the Computer Laboratory; and, the Surgical Simulation Laboratory. Each distinct area can sustain educational activities on its own; and, when necessary, integrate the operations of the entire SimCen for a more comprehensive approach. All of the functional areas have been designed to maximize students' access to clinical experience in a state-of-the-art learning environment. Thus, during 2001, the SimCen employed numerous simulation approaches which included: 1) standardized patients; 2) multi-media, interactive, clinical case presentations on LAN or web based CD-ROMSs; 3) virtual reality software applications; 4) medical simulators; and, 5) video-teleconferencing/distance education. Some examples of the specialized simulation equipment currently being used include: 1) CathSim AccuTouch: Immersion Medical; 2) Vascular Anastomosis Simulator: Boston Dynamics, Inc.; 3) Bronchoscopy Simulator: Immersion Medical; 4) Laparoscopy Simulator: Immersion Medical/Surgical Science; 5) Ultrasound Simulator:

MedSimEagle; 6) Human Patient Simulators: MedSimEagle; 7) SimMan Patient Simulator: Laerdal/Medical Plastics Laboratory; 8) Hand-Immersive Workstation: Cie-Med; 9) Head Mounted Display; and, 10) People-Shop Software: Boston Dynamics, Inc.

The Administrative Area. The Administrative Area serves as the hub for the SimCen; the area includes both the administrative offices as well as the Video Teleconference (VTC) Room. In addition to daily operational activities such as personnel, budgeting, and resource allocation, the Administrative Area houses the offices of the SimCen Director, Deputy Director, and Standardized Patient Trainer. The VTC Room is the SimCen's audio/video entry and exit point to the outside world. Equipped with state-of-the-art video teleconferencing equipment, any of the video signals throughout the SimCen can be routed through the VTC Room and sent to any connected site in the world. This capability allows individuals at remote sites to participate and to review many of the exercises which take place in the SimCen. The VTC Room is equipped with a "telecommuting" conference table, which allows up to twelve students, faculty, or visitors to connect their computer laptops to twelve local area network ports for high-speed Internet access. The table is also outfitted with sixteen headphone ports, allowing various audio exercises which permit instructors and students to simultaneously utilize the same audio files for review and discussion. As a standard conference room, it is also equipped with a slide-to-video converter, document camera, and VCR.

The Clinical Assessment Laboratory. The Clinical Assessment Laboratory is designed for teaching and evaluating students in the basic clinical skills of history taking, physical examination, communication, and interpersonal skills. Here, encounters with simulated patients provide an ideal transition from the classroom to real patient contact. The Clinical Assessment Laboratory also prepares medical students for the U.S. Medical Licensing Examination. The area consists of four sub-sections: the Orientation Room; the Clinical Examination Room area; the Monitoring Area; and, the Standardized Patient Lounge. The Orientation Room is used to brief the students. A ceiling-mounted, drop screen and LCD projector are used to display PowerPoint and/or video presentations for orientation, registration, and briefing students on specific event protocols. The students are registered for clinical events through a log-in process which tracks the students throughout their activities at the SimCen.

The Clinical Examination Room Area consists of 12 examination rooms which serve as the simulated clinical environment for the SimCen. There are ten typical (120 square feet) examination rooms and two large (220 square feet) rooms with hospital beds which can be used for inpatient and/or critical care simulation. The large rooms are also suited for trauma simulation and small group teaching events. In the Clinical Examination Area, students have the opportunity for encounters with live patients who simulate specific challenges in outpatient, inpatient, or critical care settings. Specifically, individuals, referred to as standardized patients, are hired and trained to simulate scripted clinical cases. These clinical cases may be simulated using performance, make-up, real conditions, or a combination of all three. Each Clinical Examination Room is equipped with two video cameras and microphones which permit encounters to be recorded for subsequent analysis. Each room is equipped with a computer for the patient; a wall-mounted computer is also located outside of each room for students to use for documentation before and after the encounter. Typically, clinical examinations are designed following a directive to achieve specific educational goals. The Standardized Patient Trainers and the Medical Director collaborate with faculty members to create projects which meet stated educational goals.

The Monitoring Area is located at the center of the Clinical Examination Area and allows the Standardized Patient Trainer and faculty instructors to monitor the progress of the clinical examinations. A specialized video router controls 24 videotape decks which track the students as they move from room to room. A touch screen control panel permits cameras to be positioned for optimal imaging. Faculty and students are able to view recorded tapes as if they were in the room, allowing for more detailed observation and more dynamic feedback. The Monitoring Area is also used for training simulated patients.

The Standardized Patient Lounge is a staging area for simulated and standardized patients to prepare for, and to relax following, activities at the Center. This area is required as "patients" often use theatrical make-up to simulate traumatic injuries or other conditions.

The Computer Laboratory. The Computer Laboratory has two sections: the Computer Laboratory itself and an adjacent Control Room. The Computer Laboratory has two primary functions. The first is to identify, develop, and/or use medical education software which contributes towards clinical or medical readiness skills. The second is to provide an environment in which computer-based, interactive clinical examinations can be administered. The Computer Laboratory consists of sixteen Internet accessible workstations which can run a variety of medical educational CD ROMs. Eight overhead cameras and a one-way mirror between the Computer Laboratory and the Computer Control Room ensure that examinations are properly monitored when the Computer Laboratory is being used for testing. Students use the Computer Laboratory to work with interactive software programs which may be linked to activities occurring in other functional areas of the SimCen. Additionally, students can prepare for the National Board of Medical Examiners (NBME) Examination by practicing test questions from several test preparatory software packages available in the SimCen. **Currently, the Computer Laboratory meets, or exceeds, the requirements set for an NBME testing site.** Students and faculty can also use the computers to conduct independent studies or to view USU mail or class schedules.

The Computer Control Room is adjacent to the Computer Laboratory. It is the nerve center for the SimCen. All data, voice, and video signals are fed through the Control Room and can be routed to other areas in the SimCen accordingly. The Control Room also houses several departmental servers which handle the current requirements of the Center. During testing, the Control Room operates as a monitoring station for instructors, allowing overall viewing of the Computer Laboratory through a one-way, mirrored window or specific viewing of the individual workstations from the overhead camera.

The Surgical Simulation Laboratory. The Surgical Simulation Laboratory uses virtual reality and a full-scale operating room mock-up to provide highly realistic scenarios for surgical training. This area is the first site approved to investigate teaching the surgical skills practicum for the Advanced Trauma Life Support Course through the use of computer-based simulators and plastic models rather than anesthetized animals or cadavers. The Operating Room is furnished to look and feel like a typical operating room. In addition to the typical Operating Room equipment, the room holds intravenous catheterization, endoscopy, and diagnostic ultrasound simulators. The Operating Room can be configured to match the conditions of a standard Operating Room, an Emergency Room, or an Intensive Care Unit. Here, a single human patient simulator responds to various drugs and interventions. Driven by two computers, the human patient simulator can be pre-programmed with patient characteristics or variables such as age, anatomy, and physiology factors depending upon the training event. Students are faced with real-life situations as the human simulator breathes out Carbon Dioxide, and breathes in various gases, depending upon the scripted clinical procedure. The simulator has five palpable pulse areas and will exhibit the appropriate physiologic reactions in

response to various intravenous or inhaled agents. Presently, there is a capability for 80 different drugs to be "virtually" administered by various computer microchips. The simulator responds to the type and amount of these drugs according to instructor-determined, pre-programmed patient variables. In the Operating Room Control Room, a two-way headset and a one-way mirror into the Operating Room allow instructors to communicate with the Operating Room Coordinator. From the Control Room, the coordinator can change patient variables on the computer and even speak into a hidden microphone feed on the simulated patient in order to bring more realism to the scene.

The Virtual Reality Laboratory, which is funded, in part, by the Association of Military Surgeons of the United States (AMSUS) develops computer-based surgical simulators to meet the educational objectives of the Simulation Center. Two functional directives of the Virtual Reality Laboratory are research which advances simulation procedures and harnessing the capabilities of existing technologies. In the Virtual Reality Laboratory, state-of-the-art computer-based equipment enables students to view medical objects in two or three dimensions. A haptic interface allows the computers to re-create the tactile sense which permits users to touch, feel, manipulate, create, and alter simulated 3D anatomic structures in a virtual environment. Here students can teach themselves, at their own pace, and they can feel comfortable about making mistakes as well as repeating an exercise. The Virtual Reality Laboratory is equipped with simulators for Vascular Anastomosis, Pericardiocentesis, a Diagnostic Peritoneal Lavage Unit, and a hand-immersive environment for on-going research. **Both the Pericardiocentesis and Diagnostic Peritoneal Lavage simulators were developed in the Virtual Reality Laboratory. These two simulators are the first of their kind and, they are unique to the SimCen.**

Telementoring and telesurgery systems can provide a solution when expertise for treating conditions caused by highly toxic or contagious contaminants is not available. Previous telesurgery attempts have been limited by the necessity of dedicated, high-bandwidth links between master and remote units. The recent development of the Internet2 High-Bandwidth Network is a potential solution to the problem. The SimCen plans to explore the feasibility of using Internet2 as a connection medium for remote telesurgery. Internet2 is a consortium of more than 190 universities, in partnership with industry and the government to develop advanced network applications and technologies. USU is a member of the consortium; and, both the hardware and the necessary fiber links connecting the SimCen to Internet2 are in place. Once resources are identified, the first step for remote telesurgery would include a remote link to be set up between the SimCen and USU. This would allow the conduction of connectivity tests on the equipment and the fine-tuning of the network for optimal performance.

The Operation and Maintenance costs for the SimCen are expected to be partially offset through the use of the computer-based testing laboratory by medical and nursing students from USU and the military treatment centers throughout the D.C. area as they prepare for their computer-based testing/certification requirements. The SimCen should also generate cost-avoidance through the provision of readiness training and distance learning for the Military Health System as requested by the Surgeons General.

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Research Administration.

We will optimize our role in military and federal medical education and research.

- Goal 5, USU Strategic Plan, 2001.

Background. The Office of the Vice President for Research was established at USU to facilitate, promote, and oversee the research activities at USU. The position of the Vice President for Research evolved through recommendations from the USU faculty. Following an extensive search, the first **USU Vice President for Research, Ruth Ellen Bulger, Ph.D.**, was appointed during March of 1996; she served in that position until March of 2000. The second **Vice President for Research, Steven Kaminsky, Ph.D.**, was appointed in the position and arrived at the University in March of 2001. The Office of Research (REA) currently consists of thirteen full-time personnel who report to the Vice President for Research. The Office of Research reviews, monitors, and coordinates approvals for all matters dealing with research at the University, to include the following: identification of potential funding sources; pre-award review and administration; grant awards and receipts; post-award administration; administration of the human participant research program, to include review and approval by the University's Institutional Review Board (IRB); and, the monitoring of all regulatory compliance requirements.

The Office of Research also provides coordination and support for the Graduate Student Colloquium and the Faculty Senate Research Day. This annual event, held on April 10 through 11, 2001, included internationally known keynote speakers as well as presentations of on-going research by USU faculty, students, and investigators from affiliated institutions such as the Walter Reed Army Medical Center (WRAMC), the National Naval Medical Center (NNMC), the Armed Forces Institute of Pathology (AFIP), and the Washington Hospital Center. Workshops and symposia are also sponsored by REA on topics of interest to the USU community. During 2001, REA-coordinated workshops addressed career development strategies for graduate students, emerging issues in technology transfer, and the policy considerations and federal regulatory requirements upon which assurance committees such as the USU Institutional Review Board (IRB), the Institutional Animal Care and Use Committee (IACUC), and the Radiation Safety Committee base their review and approval.

The Office of Research provides service to three communities: the University as an institution, USU faculty and student investigators, and more than 80 funding organizations which support research at the University. The REA staff runs the intramural grant program and provides administrative support for the SOM Research Merit Review Committee, which conducts peer review of all faculty applications for intramural funding. During 2001, the USU Intramural Program consisted of 80 militarily relevant protocols, 61 clinical research awards, and eight projects in areas of educational research. Standard USU awards for militarily relevant research were typically funded at 90 percent of the applicant's budget request; clinical research awards were generally supported at 80 percent. As part of the University's on-going efforts to encourage young faculty, new assistant professors with a standard award in either category received 90 percent of their budget requests. The 2001 USU student research programs supported the work of 9 students in the School of Medicine, 32 students in the Graduate School of Nursing, and 28 candidates in the Ph.D. or Dr.P.H. Graduate Education Programs. Student applications were reviewed by a faculty committee in each student's area of study and by the appropriate Dean.

Similarly, in 2001, the Office of Research provided oversight for six multi-site, Congressionally-funded research programs which totaled $30,000,000: the TriService Nursing Research Program; the

Center for Prostate Disease Research; the Defense Brain and Head Injury Program; a Coronary Artery Disease Reversal Program; the Clinical Breast Care Program; and, the new Program for Post-Polio Research. Together, these programs support approximately 100 individual research projects conducted at USU and elsewhere. To better support these Congressionally-funded research programs administered by USU, a full-time coordinator was added to the REA staff during 2001. This individual will eventually serve as a central point of contact to assist investigators, program managers, project administrators, and the REA research specialists who are involved with these programs and for whom REA provides guidance and oversight.

Extramurally funded research at USU included 330 projects supported by Federal agencies such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the U.S. Army Medical Research and Materiel Command (MRMC), and the Office of Naval Research (ONR). These investigations explored a variety of scientific areas, including basic biomedical issues central to the mission of the Military Health System: the mechanisms, transmission, and control of a wide range of infectious diseases; a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; Defense women's health issues; warfighter performance factors; responses to the various stresses of military life; and, the development of new methods for the diagnosis and treatment of medical problems faced by the U.S. military and their dependents. (See Appendix C for examples of the achievements and recognition awarded to individual USU researchers.)

USU Researchers Investigate Diseases of Special Interest to the Military. A wide array of research protocols at USU investigate specific disease threats faced by the Uniformed Services during peacetime and deployment. For example, malaria is endemic in many areas where the military deploys its fighting forces; technological advances conducted by USU researchers have made it possible to predict mosquito population levels and transmission risk for a range of mosquito-borne diseases such as malaria, even within precise areas and time frames. By using satellite imaging and remote sensing devices, researchers assist in predicting high-risk locations for the occurrence of malaria and similar diseases. These predictions focus disease control operations and conserve scarce finances as well as human resources. Infectious diseases studied at USU have included, or continue to include, the following: malaria; Venezuela equine encephalitis (VEE); leishmaniasis; E. coli, H. pylori; and, bartonellosis. Examples of additional disease-related research have included: identification of previously unknown bacterial virulence genes; and, analysis of the genesis and pathology of various types of virus. These projects have supported the military medical mission by advancing the understanding of both the transmission and the internal mechanisms of a spectrum of pernicious and/or common diseases which may be faced by deployed forces. It is envisioned that these protocols will provide important applications and open avenues to better ensure homeland defense through the control, diagnosis, and treatment of natural and manmade biological threats. In support of these research activities, the SOM Office of Clinical Affairs coordinated the updating of the USU Memorandum of Agreement with National Naval Medical Research (NNMR) during 2001; the new agreement includes collaborations with laboratories in Lima, Peru, Jacarta, Indonesia, and Cairo, Egypt. A similar agreement was also completed with the Walter Reed Army Institute of Research (WRAIR) for collaborations with its laboratories in Kenya and Thailand.

USU Research and Combat Casualty Care. Research conducted by USU faculty in the area of combat casualty care continues to enhance the provision of rapid diagnostic methods and treatments which ensure military readiness, excellent care for deployed forces, and the rapid return of the injured and sick to

active duty. Protocols which deal with combat casualty care have focused on the following areas: 1) exploration of pain-control mechanisms which underlie established treatments such as morphine; 2) blood preservation and delivery (e.g., the effects of cross-linked hemoglobin in traumatic brain injury, global and local responses to profound hemodilution, and the effect of environmental hazards on heme regulation); 3) treatment of nerve injury, to include providing the groundwork for effective strategies to limit nerve damage and encourage nerve regeneration (e.g., low-power laser irradiation on in vivo nerve regeneration and the role of neurocytokines and plasticity in sensory nerve injury); 4) understanding, preventing, and treating endotoxic shock; 5) wound healing and sepsis (e.g., characterization of inflammation and its intercellular mediators, and the use of prophylactic intravenous antibiotics for penetrating eye injuries); and, 6) identifying causes of life-threatening complications resulting from the combination of exertion and injury under deployed conditions to ensure the effective treatment of traumatic injuries.

USU Research Augments Military Operational Medicine. Most of the USU research protocols in the area of military operational medicine have fallen under three general categories: 1) factors which enhance military readiness (e.g., human performance models for exercise, reduction in acute and chronic injuries, and understanding of endocrine factors that affect performance); 2) factors which decrement human performance (e.g., acute and chronic Post Traumatic Stress Disorder (PTSD), neurological stress and dysfunction, and hyper- or hyperthermia); and, 3) endocrine control and its effect on performance (e.g., endocrine and immune interactions with exercise, and the relations between trauma and human stress). Currently, USU researchers are investigating the ability to manipulate the physiological mechanisms of stress and immunity, human sleep and seasonal cycles, and the neurological changes necessary to short- and long-term memory. Such research should assist the MHS to: allow deployed forces to stay awake longer with less impact on performance; develop better strategies for enhancing and preserving memory; ultimately prevent and treat neuropsychotic illnesses such as depression and post traumatic stress disorder; and, facilitate deployed troops and their families in preparing for, and contending with, the significant stressors associated with military operations.

Enhancement of Administrative Services. During 2001, REA instituted regular meetings with the Research Administrators of the USU departments, centers, and activities. The meetings were established to: identify and resolve problems; streamline the processes for submission, review, and administration of grant applications; and, strengthen the working relationships among the REA staff, USU departmental staff, faculty researchers, and the Henry M. Jackson Foundation Office of Sponsored Programs. The Jackson Foundation provides significant administrative services for more than 80 percent of the extramurally funded projects at USU.

Coeus, the Grants Management Database, underwent a major upgrade during 2000, to improve the functionality of the database and the appearance of the printed reports. Coeus stores detailed pre- and post-award information on each of the research protocols submitted or conducted by the USU investigators. Its records now include a complete history of every change or action from the award notice through the close-out (e.g., award amounts, assurance status, modifications, and reporting requirements). The upgrade also enables the REA staff to download information from the database into an Excel spreadsheet, which, in turn, provides greater speed and flexibility in gathering detailed and accurate grant information for programmatic reports and the administration of the individual projects. The REA staff has also developed several standard, but USU-specific, award reports. REA staff can now easily provide USU faculty members, departments, and administrators with information concerning the status of all USU research projects, reporting and

assurance deadlines, and the total amount, or percent, of effort that is assigned to each research project. In addition, the USU Research Home Page <*www.usuhs.mil/research*> was expanded and updated during 2000. The site provides pertinent, up-to-date, user friendly information on both intramural and extramural grant opportunities. It also provides the ability to download a wide range of application and assurance forms.

During 2001, the Vice President for Research initiated strategic planning for a series of weekly workshops which will provide sustained, focused instruction and peer critiques for junior faculty engaged in writing applications for extramural funding. Each workshop session will address the skills and expertise required to complete each section of the typical grant application: the abstract for the grant proposal; background for the area of interest and proposed research; the hypotheses and specific aims of the proposal; presentation of preliminary results; experimental design and methodology; and, statistical analysis. The initial workshop is scheduled in 2002.

Institutional Review Board (IRB). The Program for the Protection of Human Participants in Research and the USU IRB jointly ensure the protection of human volunteers from risk during research conducted at USU and its affiliates. The Program's administrative staff, who also function as members of the REA staff, review each protocol conducted at the University or by a member of the USU faculty or student body to ensure that: 1) the research complies with the regulations and standards of DoD and other Federal organizations, as applicable; 2) potential risks to the subjects are minimized by the research design and do not outweigh the actual benefits of participation; 3) appropriate processes of obtaining informed consent from potential subjects are in place adequate to the backgrounds of the volunteer population as well as the research design; the processes should not be coercive or disrespectful of the needs of the individual volunteers; and, 4) the documents produced during the consent process and the conduct of the research protocol are maintained in accordance with standard scientific practice and Federal regulations.

Each research project, following review and recommendations, is then presented to the full IRB at its monthly meetings. In 2001, the IRB reviewed and approved the following: 211 initial proposals for human subject research; 120 amendments to protocols already underway; and, 119 annual or semi-annual reviews of previously approved projects. Although the IRB meets at least once a month, several additional ad-hoc meetings are generally required over the course of a year. The USU IRB consists of 21 voting members, including nine physicians, two basic scientists, three social/behavioral scientists, one nurse, one epidemiologist, and the USU chaplain and four other representatives of the non-scientific USU community. Seventeen of the 21 members are drawn from the USU faculty and staff, two are employed by NIH, one practices at WRAMC, and one is from NNMC. Three non-voting members provide coordination or staffing services and attend each meeting: the IRB's Executive Secretary; the Vice President for Research; and, a member of the USU Office of the General Counsel. During 2001, USU hosted IRB 101, a one-day training course on the fundamentals of research protections and regulations for human volunteer subjects. The course was attended by 100 individuals and featured discussions on the ethical principles underlying human research, an overview of the Federal regulations governing such research, and small group (mock IRB) analyses of specific case studies. The annual course featured **Dr. Charles McCarthy, Senior Research Fellow, Kennedy Institute of Ethics, Georgetown University,** and **Susan Kometsky, MPH, Children's Hospital, Boston.**

A review of the USU IRB Program was conducted during July of 1997, by the Director, Scientific Activities, Office of the Assistant Secretary of Defense for Health Affairs. Although the review found no significant deficiencies, the REA staff was expanded to accommodate the growing number of protocols

requiring IRB review. An Institutional Review Board Coordinator was added to the REA staff during 1999. USU investigators who plan to do research with human participants are encouraged to have pre-application discussions with the staff of the IRB Program. Program staff and new members of the IRB attend national conferences in order to remain current with the latest human-participant issues and regulations. The Food and Drug Administration (FDA) has cognizance over Federal IRB Programs where research is conducted with investigational new drugs and devices. Because some USU research falls into this category, the FDA has the authority to audit the entire USU program. On March 22 and 23, 1999, an FDA inspector conducted a two-day audit of the USU Human Use Program and the USU IRB. The audit included a review of IRB minutes from 1997, 1998, and 1999, plus a random sampling of the IRB files on protocols with a greater than minimal risk to human subjects. The USU IRB Program was found to be in full compliance with the governing regulations (Title 21, Code of Federal Regulations, Parts 50 and 56) with no need of corrective action by the Division of Scientific Investigations, Office of Medical Policy, Center for Drug Evaluation and Research of the FDA. During 2001, in addition to the previously awarded Assurance of Compliance from DoD, USU obtained a Federal-Wide Assurance from the Department of Health and Human Services (HHS). Each assurance sets out USU's institutional responsibilities in the protection of human subjects to include: 1) standards for the initial and continuing review of research protocols; 2) requirements for the prompt reporting of information required by each Federal agency, to include the suspension or termination of any study due to non-compliance with regulations or unexpected, serious harm to a research volunteer; and, 3) guidelines for the appropriate training and educational requirements for IRB members, USU investigators and administrative staff. **The audits conducted by the Director of Scientific Activities for the Office of Health Affairs in July of 1997, and the FDA in March of 1999, combined with the Assurance of Compliance obtained from DoD and the Federal-Wide Assurance from HHS, have demonstrated that the outstanding support rendered by the USU Program for the Protection of Human Participants in Research and the USU IRB to the University research environment and community meets, or exceeds, all governing standards and regulations.**

A Separate IRB Is Approved for the Military Cancer Institute. On January 14, 2002, a separate Institutional Review Board was formally approved at a signing ceremony attended by the President of USU and the Commanders of NNMC, WRAMC, and the Malcolm Grow Medical Center (MCMG). The Military Cancer Institute IRB will draw its members from the four organizations. The new IRB will assist physicians, dentists, nurses, and other health care providers in their pursuit of oncology research in compliance with Federal regulations and accepted ethical standards of scientific conduct. Protocols conducted under the auspices of the Military Cancer Institute are designed to improve the quality of patient care and to enhance the education and training of staff.

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USU Center for Laboratory Animal Medicine, Veterinary Surgery Division. On November 4, 1999, the USU Center for Laboratory Animal Medicine received confirmation of continued full accreditation from the Council on Accreditation of the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC International). **"The Council on Accreditation of the AAALAC has reviewed the report of the most recent site visit to USUHS... The Council commends the staff and administrative personnel for continued development of alternatives to animal use in surgical protocols. The Council is pleased to inform you that the program conforms with AAALAC International standards as set forth by the Guide for the Care and Use of Laboratory Animals (Guide), NRC, 1996. Therefore,**

considering the provision stated below, the criteria for maintaining FULL ACCREDITATION have been assured." The Center for Laboratory Animal Medicine is scheduled for its next AAALAC inspection in May of 2002.

Background. The USU Veterinary Surgery Division (VSD) of the Center for Laboratory Animal Medicine provides full surgical training support to qualified USU faculty supporting both teaching and research protocols. VSD is composed of two large teaching laboratories and two operating rooms used chiefly for research protocols involving non-rodent species. These areas are equipped with modern surgical and surgical support equipment which allows comprehensive care and monitoring. Support areas include separate instrument cleaning and sterilization rooms, a surgeon's scrub area, and a large multi-purpose room used for both pre-operative procedures and post-operative recovery. During 2001, a third operating room was utilized by a LASER research team for special procedures.

Current Activities. A variety of significant teaching laboratories were conducted during 2001 by VSD. These laboratories provided students with invaluable experience working with biological tissue; also, the laboratories were frequently reported by the medical students to be one of their most valuable learning experiences. The teaching laboratories provide the students with the opportunity to gain experience in basic surgical skills and the proper handling of tissue among other critical techniques. These skills help students to more effectively function during their future residencies and in the practice of medicine. Also, in the event that as military physicians they will be deployed under battlefield conditions, the familiarity and heightened skill level afforded by the teaching laboratories can prove to be of significant value. Students are exposed to a combination of training techniques prior to specific training on the use of animals. **The use of computer simulation and mechanical surgical simulation devices complements the students' surgical training experiences and also reduces the number of animals required to provide the necessary training.** Navy corpsmen staff the VSD; all are trained human surgical technicians, which enables a solid professional relationship between veterinary surgery staff members, surgeons, and students. The corpsmen also contribute significant preoperative and monitoring skills to all of the teaching laboratories of the Multidiscipline Laboratories. An assignment to USU has been found to tremendously broaden the experience of the corpsmen and to afford a unique training opportunity through the combination of human surgical skills with current veterinary technology. Also, co-located with the surgical section are radiology support services which include a human hospital GE Advantx X-ray unit equipped with fluoroscopy. This equipment allows advanced diagnostic capabilities for the central animal facility and serves as a tremendous resource for USU investigators.

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USU Barrier Facility. A rodent barrier facility occupying approximately 2,558 square feet within the USU Central Animal Facility is capable of housing 6,000 mice. This resource was conceived and developed by the Vice President for Teaching and Research Support and veterinarians from the Center for Laboratory Animal Management, along with input from the USU Institutional Animal Care and Use Committee, and interested USU investigators. The facility, opened during 1999, is equipped to accommodate the needs of USU investigators whose protocols require that research animals (rodents) be kept under ultra clean conditions. Ultra clean conditions are necessary to reduce the chance of pathogen exposure, which could have devastating effects on research goals and potentially result in the waste of animal lives, investigators' time, and related resources. The facility is also intended for the housing of transgenic mice (mice which have been altered genetically to simulate disease states or modified biochemical conditions).

The Barrier Facility has a staff composed of one full-time technician who is specifically trained in transgenic techniques and is capable of producing transgenic animals; in addition, an animal husbandry caretaker also supports the barrier facility. The technician daily monitors animals housed within the barrier and is responsible for: 1) written entry procedures (which include the use of personal protective equipment) and the restriction of non-essential personnel; and, 2) the conduction of training on barrier-housed animal handling procedures. Equipment acquisitions in support of the barrier include ten additional ventilated cage racks and a computerized, controlled rate freezer for the cryopreservation of crucial reproductive elements (embryos, eggs, and sperm). The controlled-rate freezer is a state-of-the-art piece of equipment which allows the long-term storage of frozen mouse embryos. Once a transgenic or other valuable mouse line is developed, the cryopreservation technique keeps that line viable without having to house large numbers of breeding animals to maintain the line. When a particular mouse line is required, the embryos are thawed, implanted, and normal breeding of the line continues. This saves a tremendous amount of space and resources that would normally be required for maintaining a breeding colony. **The capability to produce transgenic animals for investigators is a research tool that is not available at other Department of Defense research facilities in the National Capital Region.**

The barrier is equipped with a limited access card key system and consists of four sections: an autoclave area with two physically separate rooms; five clean animal holding rooms; one procedure room; a laboratory for transgenic surgical and manipulative procedures; and, a storage area. One of the animal holding rooms can be used as a quarantine room for animals awaiting final clearance of health status. All barrier mice are housed in specially ventilated cage racks, such that the animals are only exposed to highly filtered (sterile) air. All supplies (caging, bedding, food, and water) are sterilized prior to entry or use in the barrier. The transfer of mice from soiled caging to clean cages is performed in a positive pressure laminar flow cabinet, which further ensures protection from pathogenic agents. The USU barrier has the distinction of being free of rodent diseases due to the essential efforts of the USU staff.

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Implementation of Safety Strategies. The overall mission of the USU Center for Environmental Health and Occupational Safety (EHS) is to protect: the USU community from harm during their employment at the University; our facilities; and, the environment. To accomplish this mission, during 2001, EHS continued its on-going development and implementation of the following three strategies:

Increase the Safety Consciousness and Wellness of the USU Community. EHS continuously works to raise the "safety consciousness" of the USU community through eleven strategic goals: 1) focusing EHS efforts on laboratory safety inspections versus reviewing protocols; 2) establishing a USU Safety Committee; 3) prominently displaying safety concepts in highly visible areas; 4) rewarding researchers who achieve outstanding laboratory safety inspection results; 5) ensuring that researchers are held accountable for unsatisfactory laboratory safety inspections; 6) making EHS team members' efforts and accomplishments more visible to the USU community; 7) providing limited items for researchers' use without cost; 8) strengthening surveillance and compliance procedures for controlled substances and ethanol products; 9) becoming a mercury-free work environment by January of 2003; 10) collaborating with the Henry M. Jackson Foundation regarding safety approval for hazardous orders; and, 11) increasing the USU community's knowledge of wellness programs.

During 2001, the EHS Bioenvironmental Engineering Division instituted new processes and improvements to address safety issues which included: 1) complete revisions of the Hazard Communication Course, the Laboratory Safety Course, and the Blood Pathogen Course to ensure compliance with Federal regulations; this included the creation of a new laboratory safety manual and the development of a PowerPoint presentation for the course material; 2) the development of a comprehensive laboratory inspection checklist with associated risk assessment codes (RAC) for ranking deficiencies from minor to severe; 3) the expanded training of EHS radiation survey workers to observe laboratory safety violations, such as improper chemical storage, which had not been a regularly scheduled part of the EHS surveillance duties; and, 4) the revision and simplification of the Biohazard, Controlled Substances and Dangerous (BCD) Form 3207 to enhance its use by USU researchers during the submission of protocols. As a part of its long-term strategic goals, EHS envisions the USU Safety Program serving as a Benchmark for other organizations; EHS recognizes that the accomplishment of this strategic goal can only be achieved through collaboration with the entire USU community and the proactive identification and correction of safety concerns. Throughout 2002, EHS plans to continue its on-going efforts to ensure both safety and wellness for the entire USU community.

Reduction of EHS Oversight in Low Risk Areas. EHS will reduce its oversight and approval processes in low-risk areas. This will be accomplished by: 1) reducing the restrictions for ordering chemicals through the use of the government purchase card; 2) decreasing the number of ancillary CUFS approvals performed by safety; 3) streamlining the paperwork required to submit a proposal through various committees concerned with safety; 4) increasing the efficiency of safety services through the use of USU web sites; 5) providing limited safety items through the USU Pharmacy without charge to the researchers; and, 6) decreasing administrative inventory burdens by providing the ability to manage certain inventories through the use of a USU web site.

Project an Image of Assistance. EHS will strive to project an image of assistance through the following efforts: 1) the projection of an image of assistance versus one of enforcement or compliance monitoring; 2) the immediate identification and response to all safety concerns and questions; 3) the provision of items at a minimum cost when safety issues are identified (i.e., free alcohol replacement thermometers, reduced pricing for safety needles, etc.); and, 4) the development of a user-friendly EHS web site to further the understanding of safety programs and the significance of safety services (i.e., waste pick-up, dosimetry, training, etc.).

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SOM Department of Psychiatry Sponsors a Collaborative Relationship with the Stanley Laboratory of Brain Research.

> **Schizophrenia and bipolar disorder affect more than 4 million Americans at any given time. However, for a variety of reasons, research on these disorders has been severely neglected. Because of this neglect, we know much less about the causes of these diseases than we should know, and we have less effective treatments than we should have. The price we are paying for this neglect is incalculable, including legions of homeless mentally ill persons, jails full of mentally ill individuals charged with misdemeanors, victimization of the most vulnerable, suicides, episodes of violence, and literally millions of individuals affected with these diseases who are leading marginal lives.**
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> - **E. Fuller Torrey, M.D., Executive Director, the Stanley Foundation Research Programs on Schizophrenia and Bipolar Disorder**, 2001 Annual Report.

Background. In February of 1999, during a ribbon-cutting ceremony, the University President welcomed the Stanley Laboratory of Brain Research to the SOM Department of Psychiatry. Through a collaborative arrangement with the University, the School of Medicine, and the Stanley Foundation, the USU community now has access to the Stanley Laboratory's brain specimens from individuals who suffered from diseases such as schizophrenia, bipolar disorder, and severe depression - the largest of such collections in the World. The Stanley Foundation Brain Bank and Neuropathology Consortium is made possible through funding from the Theodore and Vada Stanley Foundation. Its purpose is to collect postmortem brain tissue and to distribute it, without charge, to research groups working on schizophrenia and bipolar disorder (manic-depressive illness).

Current Activities. **E. Fuller Torrey, M.D.**, and his research group continued to provide outstanding expertise to the University throughout 2001. The Stanley Foundation postmortem brain collection for research on schizophrenia and bipolar disorder has over 430 specimens. The USU Laboratory has distributed more than 100,000 sections and blocks of tissue to 120 research laboratories worldwide which are doing research on these diseases. Some 55 large freezers contain the collection located at the Brain Research Laboratory in the USU SOM Department of Psychiatry. The specimens are approximately evenly divided among individuals who were diagnosed with schizophrenia, bipolar disorder (manic-depressive illness), severe depression, and normal controls. Most of the specimens are provided to researchers doing research on schizophrenia, bipolar disorder or depression. For example, during 2000, the Stanley Foundation donated a normal control specimen to a World Health Organization project dedicated toward the establishment of worldwide standards for brain tissue for comparison with prion-caused diseases such as Creutzfeldt-Jakob Syndrome. On April 9, 2001, The Washington Post featured Dr. Torrey in an article entitled "Thinking Outside the Box." The article included the following: The Stanley Foundation is supporting a quarter of the research on schizophrenia and half of the research on manic-depression in both the United States and Europe.

When the Stanley Foundation initially assumed responsibility for the Neuropathology Consortium, it looked forward to the day when it would have hundreds of measurements on the same parts of the brain from many different laboratories. That task is being addressed through the work of **Dr. Michael Knable**

who has examined 69 separate data sets from 14 laboratories on the prefrontal cortex. A total of 17 abnormal markers were identified, which pertained to a variety of neural systems. Schizophrenia was associated with the largest number of abnormalities, many of which were also present in bipolar disorder. Neuropathologically, bipolar disorder was more similar to schizophrenia than it was to severe depression. Major depression was found to be associated with relatively few abnormalities. The majority of abnormal findings represented a decline in function and could not be easily explained by exposure to psychotropic or illicit drugs. A paper on these findings was accepted during 2000 for publication in a special issue of Brain Research Bulletin.

In 2001, the Stanley Laboratory of Brain Research also published an article on prefrontal cortical data in the Brain Research Bulletin. In addition, Dr. Torrey received the William C. Porter Award from the Association of Military Surgeons; and, he published a book, The Invisible Plague: The Rise of Mental Illness from 1750 to the Present. Dr. Torrey's career as a psychiatrist and his research on schizophrenia and other mental illnesses were also featured in The Washington Post and The Washingtonian magazine during April of 2001. In May of 2001, Morley Safer of 60 Minutes also interviewed Dr. Torrey with a similar focus on his research on schizophrenia and bipolar disorder. That interview was featured on the April 21, 2002 edition of 60 Minutes.

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Information Technology.

Background. During 1994, committees were formed at the University by the School of Medicine and the Faculty Senate to address USU's future use of computers and technology in general. With the future development of Information Technology (IT) and Medical Informatics at USU in mind, the University President sent a delegation of seven USU representatives to the American Association of Medical Colleges (AAMC) Information Technology Conference. The conference served to reenforce the University's inclusion of computer-assisted communication and technology within its strategic planning process. With total support from the leadership at USU, strategic goals were developed so that Medical Informatics would be utilized to emphasize distance learning, continuing medical education, computer-assisted medical education, access to medical databases, and other medical information systems. The focus of those efforts, in accordance with the University's mission, would be on the unique educational requirements of military and disaster medicine. In October of 1997, a number of USU information technology-related committees were combined to form the Automated Information Systems Policy Committee (AISPC). Currently, this committee meets monthly to review guidance objectives, identify resources, develop requirements, and plan information technology policy strategies, and training.

Extensive technical improvements were made during 2000 and 2001 in the following areas: servers; desktop computers; software development; teleconferencing; e-mail; network; and, teaching facilities. The USU Information Services Management Center (UIS), while continuously responding to user concerns, long-range technology refreshment plans, and the USU Strategic Plan, has implemented numerous projects, in collaboration with USU's Core Management, to improve technology services, products, and its working relationships with USU community. In addition, UIS updated its mission statement to more accurately reflect its missions and functions. Improvements reported during 2000-2001 include the following: **Servers:** Twenty file servers were upgraded to ten state-of-the-art high performance systems resulting in the stabilization of redundant web and e-mail servers. **E-mail:** Five separate E-mail systems were converted to

Novell GroupWise 5.2 and later upgraded to version 5.5. This action standardized formats, address books, and addresses. It also provided Internet access, a highly desired post office protocol server, and improved the use of attachments and external E-mail; during 2001, UIS also implemented the USU E-Mail Policy to purge mail every 60 days (instead of every 90 days). **Network:** The network was upgraded from a 10 megabit (MB) coaxial cable to a 100 MB twisted pair system; during 2001, UIS formed the Base Ring Committee to facilitate communication, organization, and collaboration between USU, the Armed Forces Radiobiology Research Institute (AFRRI), the National Naval Medical Center, and other Base tenants and subcommands. **Enterprise Database:** Two major applications, Pharmacy and Phase I of STARS II were successfully developed and implemented. Both systems were developed utilizing the Oracle-based Enterprise Data Base and replace old legacy systems. STARS II allows USU faculty and staff to track students from their initial application, through matriculation and graduation. **University Homepage:** The USU Homepage contains over 2,360 pages of information and some 33,100 links to additional information; the vast majority of USU departments now have active homepages and many are sharing teaching and research information via the Internet on a regular basis; during 2001, UIS Webmasters partnered with the USU Faculty Committee to completely redesign the University's Homepage and to build web templates for over 40 departments within the University. **Training:** The UIS training officer provides on-going, face-to-face training for faculty, students, staff and Information System Coordinators, in addition to publishing a quarterly electronic newsletter, which provides information on IT issues; in addition, UIS personnel received professional certification and training (e.g., MCP, MCSE, Oracle, Contracting, Supervisory, and Networking) as appropriate. **Desktop Computers:** During 2001, UIS continued its on-going management of a three-year technology refreshment cycle for 800 desktop computers within USU. **Centralized Software and Support:** UIS managed, tracked, tested, recommended, and distributed UIS-supported software, to include Operating Systems, during the past year. **Help Desk Web Page:** A web site containing useful information regarding UIS support and troubleshooting ideas for users was developed, implemented, and maintained. **Video Teleconferencing:** UIS implemented a substantial improvement of the systems to down-link and up-link video teleconferences.

Customer Support. During 2001, UIS provided support for: 3,000 information systems users accessing e-mail, remote dial-in accounts, Internet Protocol connections, satellite, and software applications; 1,500 dial-in-users; 2,750 telephone and fax lines; and, 1,200 Voice Mail Systems. In addition, as the owner of a Class B Internet Protocol License, USU acts as an Internet Service Provider. and supports areas on and off campus, such as the National Naval Medical Center, 12 off-site Department of Defense activities, and various non-DoD facilities.

Desktop Computers. Following Assistant Secretary of Defense, Health Affairs (ASD/HA), guidance, a plan to lease desktop computers by the University was implemented during 1998, 1999, 2000, and 2001. The plan calls for all basic office automation and teaching computers to be replaced with leased systems. During 2001, 800 desktop computers were in a three-year technology refreshment cycle. The replacement of 300 leased computers will take place during 2002. The process continues to provide standardization, technology refreshment, enhanced budget planning, compatibility, and improved user support. UIS continues its on-going management of contracts to support the leased machines and software licenses for the central computing facilities.

Help Desk. A set of desktop tools, also based on ASD/HA guidance and USU requirements, was recommended by the AISPC and approved by the USU President. In addition, the University signed an agreement under a Maryland State Educational Contract (the Maryland Enterprise Educational Consortium (MEEC) with the Microsoft Corporation which provides site licenses at significantly reduced educational rates. This agreement allows the UIS Help Desk to make the latest Microsoft software available to all faculty, staff, and students. The selection of a single set of desktop tools greatly simplified user support and improved the Help Desk response during 1999, 2000, and 2001. The Help Desk also provides SPSS statistical software, Novell Client software, security systems, and various utility and educational programs to its user population. In addition to the implementation of the desktop computer-leasing program, during 2001, the Help Desk handled 5,773 UIS-directed requests for assistance. The total calls requiring assignment and resolution by the Help Desk totaled 2,124; of this number, 182 tickets were dial-up requests; and, 120 tickets provided assistance with viruses. Throughout the year, the UIS Help Desk alerts the USU community of viruses and assists with virus protection. Help Desk projects for the Year 2001 included: IP tracking and data base maintenance; the testing and deployment of new software products; the deployment and replacement of leased machines; and, the management of UIS-supported products. The Help Desk continues to assist with in-house training on standard operating procedures and with off-site training for professional certification; all of which contributes to the reduction of calls and to an increase in user productivity.

Software Development. In 2001, the UIS Information Engineering Branch (IEB) successfully deployed Phase II of the STARS II application, which completes the first phase of the USU Corporate Data Base. IEB is comprised of experienced software developers; the staff members hold those Oracle and Microsoft professional certifications required for life-cycle methodology in all software engineering projects. IEB has also formalized the processes to perform systems analysis, requirements, re-usable code, testing, and fully repeated processes for system roll-out, to include documentation and training. With the implementation of STARS II, the Admissions and Registrar Office can now electronically process an applicant from an initial application, through matriculation, and graduation, to include the tracking of all courses and grades for the individual student. Faculty and staff utilize STARS II to electronically submit grades to the Office of the Registrar where grades are verified and posted to the web. **This system consolidates and replaces five legacy systems which are no longer accessed**; in addition, EIB acquired a software tool which significantly reduces the time for importing data from the legacy systems into the Enterprise Data Base. As discussed above, the development of a University corporate data base began with the creation and implementation of automated systems to assist the USU Office of the Registrar; additional tools for the location and tracking of personnel, program management, financial administration, and inventory control are currently being developed.

Web Support. In 2001, the UIS Operations Division maintained and supported three web servers: the Primary, Interim, and Back-Up Servers. The Primary Web Server hosts over 3,000 web pages; it runs under sun Solaris with a Netscape Enterprise Server as the web engine. The server administrator upgraded the operating system to monitor and automatically log errors, which resulted in a 99 percent up-time for the server. The Interim Web Server supports 80 Page Masters throughout the University. The server administrator installed "harden procedures" to prevent hackers and security holes which also resulted in a 95 percent up-time. In addition, a new process for the Back-Up Web Server was installed to automatically update the web pages from the Primary Web Server, thus allowing the Back-Up Server to stay current with the Primary Web Server. During 2001, the UIS Web Masters of EIB continued to support the USU Page Masters. This

support included a formal training program for the development and implementation of Section 508 of the Federal Accessibility Act, the use of the Interim and Operational Servers, as well as the provision of a Page Master's User Guide.

Web Development. The Web Masters use a systematic methodology to perform web development activities. Web development projects include STARS II, USU Research Day, the USU Marine Corps Survey, and the USU Social Work Conference. Web projects were developed using Microsoft ASP and run on a Microsoft IIS Server in a Windows 2000 environment. To ensure data integrity and security from intrusions, all servers are routinely monitored and backed up. Also during 2001, it was determined to purchase and install a Firewall System and scanning programs capable of blocking intrusions and to provide mechanisms for creating three levels of security (open to the world via the Internet; closed to everyone outside of the University; and, accessible following verification from outside the University via various accounts, passwords, and verification processes).

Training. During 2001, the UIS Training Officer provided classroom training for all SOM, GSN, MPH, and Graduate Students at USU, as well as personnel located off-site. The Training Officer provided training at the USU Faculty and Staff Orientations which are held quarterly. At the user's request, the Training Officer performed specialized hands-on and one-on-one training on Microsoft Applications, GroupWiseE-Mail, the proper use of network and computer resources, network security, and, all supported UIS software and special requirements. The UIS Training Officer partnered with the USU Security Office in developing and providing security awareness training required for all faculty, staff, and students; and, they coordinated on the implementation of the DoD Security Notice in the Network Log-on. During 2001, the UIS Training Officer developed and electronically distributed, the Quarterly UIS Training Newsletter.

System Operations. During 2001, UIS System Operations made great strides concerning the network systems (Network, Telecommunications, NetWare, and VAX). New and existing hardware equipment was re-designed and installed; and, software was upgraded which resulted in better performance and higher connection rates to the Internet. Due to these actions, USU customers experienced almost 100 percent uptime.

Network. Network personnel are responsible for the University's network design, implementation, maintenance, and configuration management. In 2001, the UIS Operations Division kept all local distribution systems on-line with little, or no, down-time. These local distribution systems distributed high-speed data transmissions between student simulation centers and lecture halls. A new proxy server was also implemented; it allows USU out-bound Internet connection and authentication to military and commercial sites. The Network Operations Center (NOC) was engineered to monitor all network operations from a central location; the NOC has the capability to monitor in-bound and out-bound mail traffic, the remote access server, port communications, and view all network support devices. The base network was reconfigured to provide reliable, redundant network connections, which increased speed and provided back-up for the National Navy Medical Center and other commands.

Telecommunications. In 2001, UIS Communications personnel provided support for 2,750 telephone and fax lines and 1,200 Voice Mail Systems. In addition, support was provided for video teleconferencing and satellite technical support. Significant improvements were made in the reliability of communications, video conferencing, and satellite services. New telephone lines and support equipment were

installed in several recently acquired locations. Video Conferencing technology support was provided to: the GSN's VA/DoD Distance Learning Program; the SOM Departments of Medicine, Preventive Medicine & Biometrics, Psychology, and, Obstetrics & Gynecology; the DoD Partnership for Peace; DoD's Information Management System (PIMS); and, the National Information Learning Center (NILC) in Tblisis, Republic of Georgia. USU has two satellite dishes used to provide programming throughout the University. These dishes are normally set to continuously broadcast CNN and C-SPAN network news; however, other health-related programs are down-loaded upon request; for example, during 2001, satellite programs were down-loaded for the SOM Department of Preventive Medicine & Biometrics and the Armed Forces Radiobiology Research Institute (AFRRI). In addition, during 2001, the UIS Communications personnel worked extended hours with Verizon technicians for five weeks to replace damaged, underground cables and restore telephone service to the USU community.

Netware. In 2001, the UIS Netware Branch processed more than 1,409 trouble call requests. The Netware Administrators, responsible for the Novell Local Area Network (LAN), the GroupWise E-Mail Servers, and two in-bound and out-bound servers, provided support for the following: back-up of over 600 gigabytes of data; space allocations; on-line support of hardware failures; virus protection; testing and implementing vendor patches and upgrades; LAN account creation and deletion; reliable mail and file storage; and, the maintenance, creation, and attrition of over 3,000 e-mail and dial-in accounts.

VAX. The VAX Administrator processed more than 139 trouble call requests for USU customers. The System Administrator is responsible for system maintenance, account creation, and hardware. During 2001, services included the following: file and print management; back-ups and hardware configuration; and, upgrades of the Operating System to resolve problems which were causing system crashes. The System Administrator successfully replaced USU's older and slower mainframe, which supports the financial system, with a more robust computer system. This replacement was performed at no extra cost to the University. In addition, the System Administrator increased performance and reliability and reduced the overall costs of contracts through the addition of improved and faster disc drives for modifying equipment contracts.

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Technology Transfer Program.

Background. Since 1980, Federal law has encouraged Federal laboratories and public academic institutions to transfer inventions and other technology to the public sector, which includes industry, state and local governments, and other academic institutions. This "technology transfer" process allows the benefits of public investment in research and development to be shared with all segments of our society. At the same time, institutions which invest public and tax-free funds in research are permitted to share in the downstream financial benefits of this investment - returning funds for use in further research and to provide limited financial incentives for individual researchers. Technology transfer includes cooperative research and development, patenting and protection of intellectual property, and licensing of inventions in return for a percentage of royalties. Because of the legal issues associated with these mechanisms and other aspects of technology transfer, the USU Office of the General Counsel is directly involved in the oversight of the

University's Technology Transfer Program. Recognizing the need to monitor and market the growing patent and intellectual property developed by the University faculty, the USU President determined that the Technology Transfer Program should be recognized as a formal entity within the University. In 1999, the USU Technology Transfer Program was formally recognized with a mission to enhance interrelationships with USU researchers and to facilitate interaction with the DoD Patent Office. In addition, the USU Vice President for Executive Affairs also established a web site for Intellectual Property and for the new Technology Transfer Program during 1999. Currently, the office is staffed by a Director/Patent Agent and two half-time assistants; the staff directly reports to the USU General Counsel, who, in turn, reports to the USU Vice President for Executive Affairs. The University continues a very close relationship with the Henry M. Jackson Foundation (HJF) in the area of technology transfer. In 2001, the HJF established an Office of Technology Commercialization within its own Office of the General Counsel. The two Ph.D.'s assigned to the HJF office represent a serious commitment to a joint (University/HJF) program in technology transfer.

Current Activities. Because the University is a leader in many areas of biomedical research, an academic institution, and includes Federal laboratories, the USU Technology Transfer Program has been, and continues to be, a successful effort. A significant indicator of the success of this program is its efficient facilitation of the sharing of the USU research in a manner which promotes progress in science and improvement in the quality of health care for both the Armed Forces and the world community. In 2001, the University entered into three Cooperative Research and Development Agreements (CRDAs) and 31 Material Transfer Agreements, filed (in cooperation with the HJF) ten patent applications and nine provisional patent applications, and licensed one invention. In addition, numerous faculty researchers received information and guidance from the staffs of the USU Office of Technology Transfer and the HJF Office of Technology Commercialization. Significant efforts were also made in managing and maintaining previously protected intellectual property, CRDAs, and licenses. Significant highlights during 2001 also include: 1) continued development, in conjunction with HJF and several faculty members, of a Joint Patent and Technology Working Group; 2) involvement in the University's annual Research Day, including participation in a break-out session on technology transfer; 3) funding of short- and long-term research and educational efforts through special project funds and endowment accounts administered by the HJF; 4) direct funding support for the SOM's newly established Institute for Vaccine Research; 5) royalty sharing for eight faculty researchers; 6) limited funding of graduate student stipends; and, 7) arranging a patent incentive award for a technician who rendered important contributions to SOM technology development over a period of ten years.

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RESOURCE STEWARDSHIP

We will optimize resources to efficiently and effectively implement USU core capabilities.

- USU Strategic Plan, Goal 3.

New Construction on the USU Campus.

Background. Since 1978, there has been no additive construction to support USU activities despite the growth in the number of degree-granting programs conducted by the University and major increases in the cost-effective oversight responsibilities assigned to the USU by the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). Some of the expanded responsibilities include: the Graduate School of Nursing (GSN); administration of the TriService Graduate Medical Education (GME) Programs for the National Capital Region; mandated professional Continuing Health Education (CHE); and essential credentialing programs for the MHS. In addition, the accrediting entities for the University have continuously recommended that the USU address the expanded academic program requirements for small classrooms; and, they have expressed serious concerns over the separation of the GSN faculty and students between two locations, which adversely impacts student instruction, mentorship, and counseling. Between September 1993 and December 1997, USU was prohibited from participating in the military construction process. However, following the December 1997 decision of the Secretary of Defense that the University should remain open, as stated in Program Budget Decision 711, the USU Vice President for Administration and Management (VAM) was directed by the USU President to provide oversight for the resubmission of all documentation and related efforts required for the construction of a fifth building on the USU campus. The VAM coordinated all efforts with the Vice President for Resource Management and the Deans of the SOM and GSN.

On April 4, 1997, a Health Affairs site team determined that the construction of a fifth building at USU in Fiscal Year 2001 would eliminate leasing costs and would be cost-effective. Following that determination and extensive coordination by the VAM, on March 26, 1998, Design Authorization 98-N-10 was provided to the Naval Facilities Engineering Command with the following directions: 1) the inclusion was to take place in Fiscal Year 2001; 2) the scope of construction was to include 8,312 gross square meters; 3) the design amount was $15,000,000; and, 4) DD Form 1391 and a Draft Program for Design were provided with the authorization. The Navy Facilities Engineering Command completed its call for contractor bids on the design requirements for the USU construction project and remained on hold until the USU construction was approved by Health Affairs. In May of 1998, Health Affairs determined that construction at USU would not be included in the Fiscal Year 1999 Defense Health Program (DHP) MILCON package; and, the Surgeons General would be required to identify funding from their Medical Construction Programs if the USU project were to be included in the DHP MILCON Program. **In June of 1998, the Senate Committee for the Military Construction Appropriation Bill for 1999 urged "the Department of Defense to address the requirement for a fifth building construction project in the Fiscal Year 2000 budget."** In December of 1998, the USU President resubmitted a request to Health Affairs requesting that the construction costs of the USU building be addressed as a separate entity and not be resourced from the limited construction budgets of the Surgeons General.

During 1999, **the Military Construction Appropriations Bill for FY2000 included the following: "The Tricare Management Agency is directed to accelerate the design of this project (the construction of a fifth building on the USU campus), and to include the required construction funding in its fiscal year 2001 budget request."** In response to the congressional directive, and, in its capacity as the Executive Agent for USU, on October 26, 1999, the Navy Bureau of Medicine (BUMED) Facilities Planning and Programming Division initiated the contracting process for a Project Planning Study. The first phase of the USU Project Planning Study, to develop a quantifiable needs assessment for space, began on December 6, 1999 at the USU campus. To facilitate the verification of the study, the Office of the Surgeon General of the Navy also established a Study Team to discuss and validate the identified requirements with appropriate entities within the MHS; and, the USU President also established an ad hoc committee to assist the VAM. A contractor was hired by BUMED, using USU funding, to prepare supporting documentation and the planning study.

To accommodate the rapid turn-around of the first phase of the study, which was to be provided in draft form to the TriCare Management Agency by late January of 2000, the VAM organized and provided to all concerned parties, inclusive background notebooks which provided documentation, projected space requirements, and mission-related information for the **nine entities included in the Planning Study: 1)** the Graduate School of Nursing (GSN faculty and staff are housed in leased space in Silver Spring, Maryland; the separation of faculty and students has been identified as a concern by the GSN accrediting entities; the new construction would: unify the GSN faculty, staff, and students; eliminate the leasing of space; and, facilitate the degree-granting GSN distance learning programs); **2)** USU-wide small classroom requirements (USU small classrooms and lecture halls are already scheduled at capacity and do not allow flexibility for the SOM or the GSN; the new construction would provide some 12,065 gross square feet of urgently required small classroom and lecture areas with distance learning/military readiness capabilities); **3)** Continuing Education for Health Professionals; **4)** the Military Training Network; **5)** Graduate Medical Education (to include the Administrative Office for the National Capital Consortium); **6)** the Office of Educational Affairs (to include USU readiness and simulation requirements); **7)** Preventive Medicine and Biometrics TriService Tropical Medicine and Master of Public Health Programs; **8)** the TriService Nursing Research Program; and, **9)** requirements of the Office of the USU President, to include the USU Chaplain.

<u>BUMED Study Validates the Proposed Construction.</u> The BUMED Study Team focused on two primary areas of concern: 1) the functional shortfall of current and projected requirements for small, multi-functional, and multi-configuration capable classrooms; and, 2) the cost-effective relocation of the Graduate School of Nursing (GSN), Continuing Education for Health Professionals (CHE), the Military Training Network (MTN), and Preventive Medicine and Biometrics (PMB) staff from leased space to the USU campus. The BUMED Study Team coordinated a justification/validation process with the Services for the requested space. Following the validation process, a memorandum was completed by BUMED and forwarded by the Navy Surgeon General on February 17, 2000, to the Chair of the USU Executive Committee; the memorandum recommended that the Surgeons General pursue a joint decision to program funding for the proposed construction of Building E on the USU campus. On April 12, 2000, USU was informed by BUMED that a consensus had been reached among the Surgeons General on the following factors which represented **the position of the USU Executive Committee: 1) the project represents validated space requirements and is needed; 2) the current estimated project cost ($9 million) is appropriate; and, 3) the project should be programmed by TMA (TRICARE Management Activity) utilizing standard milcon processing milestones (i.e., FY05 or later).**

Scope of the Construction Project. The total scope of the proposed construction project is 56,020 gross square feet which includes underground parking. The Program for Design distributes 41,055 gross square feet to meet the University's requirements for ample circulation associated with the movement of students and staff between classrooms. The 41,055 square feet will be constructed with a fibre-optic backbone throughout the occupied portions of the building and connected to the existing USU IT network. Breakout of the 41,055 square feet reflects as follows: Education Offices/Administrative Support - 21,315 gross square feet; Classroom/Classroom Support Space - 12,065 gross square feet; General Support (Toilets/Lockers, etc.) - 4,346 gross square feet; Distance Education Production Laboratory (Studio) - 2,654 gross square feet; and, Computer Learning/Testing Area (20 Stations) - 675 gross square feet.

Preliminary Studies Required for the USU MILCON Project Are Completed. The coordination process for the proposed USU construction project was developed using the Defense Medical Facilities Office, Office of the Assistant Secretary of Defense for Health Affairs Space and Equipment Planning Systems (SEPS). Since November of 1999, **Mr. James Burke**, Bureau of Medicine Facilities Division, has provided extraordinary support in the successful management of the entire process. The Bureau of Medicine, the Engineering Field Activity Chesapeake, Naval Facilities Engineering Command, and the TRICARE Management Activity, Health Affairs, directly coordinated in the development of the construction project for USU. **The following studies/analyses have been completed and provided in a Project Notebook dated October 2000:** the DD Form 1391; the Facility Study (to include graphic materials); the Site Survey Checklist; the Program for Design; the Economic Analysis; the Planning Study (to include validation of requirements); and, the Statement of Architectural Engineering Services. The Environmental Assessment Study, a process initiated in October of 2000, was coordinated and subsequently completed. As a result, in mid-November of 2001, USU was informed that the proposed construction will **not** adversely impact the environment; and, an Environmental Impact Statement will **not** be warranted. Based upon the Environmental Assessment findings, on November 29, 2001, USU forwarded, through its Chain-of-Command, a request to the Chief of Naval Operations for a formal determination that the proposed construction on the USU campus will have no significant impact on the environment. The next step is the design process.

Funding for the USU Construction. On September 25, 2001, USU was notified by BUMED that its construction project is now in the TRISERVICE Medical MILCON Program for Fiscal Year 2006 at a total cost of $9,300,000. BUMED is currently proceeding with a formal request for design authorization from the Defense Medical Facilities Office (based on available funds); the estimated cost of design is $930,000.

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Navy Base Allocation of Space to USU. From 1998 through 2001, the Vice President for Administration and Management (VAM), as directed by the USU President, and the USU Facilities Division coordinated with the National Naval Medical Center (NNMC) for the reallocation of space currently occupied by the Naval Medical Research Center (NMRC). NMRC began its relocation from the Naval Base to the Forest Glen community near the Walter Reed Army Medical Center during 1999; the relocation process for NMRC was completed during July of 2001. Inclusive reviews and cost analyses were conducted by the Vice President for Administration and Management and the USU Facilities Division; all findings were coordinated with the USU President, the Deans of the SOM and the GSN, the USU Vice President for Resource Management, and other appropriate USU management, to ensure that the projected renovation and annual

costs for the reallocated space could be absorbed within the USU budget. Projected reviews and analyses included: 1) information systems requirements; 2) telephone, fax and copier equipment; 3) minor construction; 4) furniture; and, 5) maintenance costs to include utilities and janitorial services. Following agreement over funding sources and a thorough coordination process, the USU President approved moving forward to request the reallocation of space from NNMC to the University.

Memoranda of Understanding with NNMC Are Completed. USU and NNMC completed memoranda of understanding to reallocate responsibility (from NNMC to USU) for Buildings 53, 59, 79, 28, and 139 which have been vacated by NMRC. Building 53 was assumed by USU in July of 2001; Building 59 was turned over to USU during 1999; Buildings 79 and 28 were turned over to the University during 2000; and, Building 139 was allocated to USU in February of 2001.

Building 53. Building 53 is a two-story structure with an additional mid-level basement which houses the building and hyperbaric mechanical support systems. The allocation of Building 53, which includes approximately 32,285 square feet, addresses USU's urgent requirements for laboratory, administrative, and storage space; these requirements will **not** be addressed by the proposed construction of a fifth building on the USU campus. Building 53 includes 12 large laboratories and several thousand usable square feet of administrative space. At the request of the USU President, the Dean of the SOM directed his space committee to make recommendations through him to the USU President for the allocation of space on the second floor of Building 53. That process continued throughout 1999, 2000, and 2001 with the following results:

- **Department of Psychiatry.** The USU SOM Department of Psychiatry and the Stanley Foundation moved initially into first floor space in early 1999. Signed agreements were completed by all parties; and, the University has been reimbursed by the Stanley Foundation for an appropriate percentage of the costs of operating the building. Currently, the Department of Psychiatry and the Stanley Foundation together occupy approximately 6,567 square feet of laboratory, administrative and storage space on the first and second floors, to include hallway areas dedicated to the storage of freezers.

- **Department of Radiology and Nuclear Medicine.** During 2000, the Department of Radiology and Nuclear Medicine moved a Division, largely resourced by a grant, into 1,870 square feet of administrative and storage space on the second floor of Building 53; since then, an additional 156 square feet of storage space on the first floor was also allocated to the Division; resourcing was coordinated by the Vice President for Resource Management with the Department of Radiology and Nuclear Medicine for extensive information system requirements and minor renovations; all have been completed and the Division is currently occupying 2,026 square feet.

- **Graduate School of Nursing.** One room, on the second floor, with 635 square feet, was allocated to the Graduate School of Nursing for mentoring, counselling, and teaching requirements; minor renovation, which created five working areas, was completed; and, the space was used during 2001.

- **Department of Neurology.** The Department of Neurology was allocated one large laboratory (746 square feet) on the second floor; renovation plans were coordinated during 2001; construction, funded through a Neurology grant, began in March of 2002 and is expected to be completed by mid-2002.

- **Department of Medicine.** The Department of Medicine, the Division of Clinical Pharmacology, completed its coordination process; and, the relocation took place in March of 2002. Clinical Pharmacology currently occupies 2,630 square feet of laboratory, administrative, and storage space on the second floor of Building 53.

- **Naval Medical Research Center.** The Naval Medical Research Center, NMRC, as a result of collaborative efforts with the three USU Departments of Military and Emergency Medicine; Psychiatry; and, Anatomy, Physiology and Genetics and coordination with the USU Vice President for Resource Management, will be responsible for the maintenance and related costs of the hyperbaric chambers (hyperbaric chambers - 7,215 square feet) located on the first floor of Building 53.

- **USU Multidiscipline Laboratories - Common Area.** A large conference room, located on the second floor, with 676 square feet, was renovated during 2000 and was used throughout 2001 by the USU community.

- **Information Services Management Center.** The USU Information Services Management Center (UIS) was allocated two rooms (approximately 318 square feet) for the storage requirements of the support equipment for the information systems in Building 53.

- **Remaining Space for Allocation.** Approximately 979 square feet (Rooms 53-111 and 53-112A), located on the second floor, remain open for allocation by the University Space Review Committee. The annual utility bill for Building 53 (32,285 square feet) is estimated at $346,732; the estimated custodial requirements for one year is estimated at $132,250. The VAM will continue coordination efforts with the Vice President for Resource and Management and all entities allocated space within Building 53 for the equitable distribution of these costs.

Building 59. Building 59, a two-story structure, has 4,072 usable square feet which includes an immersion pool/tank, a physiology lab, an instrumentation lab, and divers' lockers. Following minor renovations completed during 1999, investigators from the Department of Military and Emergency Medicine moved into Building 59. Building 59 receives its information systems support through equipment located in Building 53.

In addition to research grants administered by the Department of Military and Emergency Medicine, the immersion pool will also facilitate collaborative efforts between three University Departments (Military and Emergency Medicine; Anatomy, Physiology, and Genetics; and, Psychiatry). In addition, the course work presented in the Military Applied Physiology Course, Operational Emergency Medicine Skills, and the recently approved Graduate Education Program in Applied Human Biology (Undersea Medicine and Aviation Physiology) will be significantly enhanced by directly exposing students to the ongoing applied research in Building 59. Building 59 will support collaborative research for the above mentioned USU Departments. The annual utility bill for Building 59 is estimated at $39,369; the estimated cost of annual custodial requirements for Building 59 is approximately $5,586.

Building 79. Building 79, adjacent to Building 59, is a two-story structure with an unfinished second floor; it offers 1,066 usable square feet which is currently planned to support the recently approved USU Graduate Education Program in Applied Human Biology (Undersea Medicine and Aviation Physiology). The annual utility bill for this building is estimated at $6,777; the annual custodial requirements will

be calculated when the space is utilized; no expenses are expected during 2002; a custodial projection for 2003 is $6,405.

Building 28. Building 28 is a two-story structure with a total of 5,155 square feet. Renovation has been completed and by mid-2002, it will be used by two USU activities: the Graduate School of Nursing and the SOM Department of Medical and Clinical Psychology. The two activities will be located on the second floor of the building in 2,571 square feet. Space (450 square feet) on the first floor is currently being renovated for use as bathrooms; they are scheduled for completion in 2002. At present, the Logistics Division is scheduled to use the first floor space (unheated/no custodial service) for the storage of large research/ medical equipment, etc. Utility costs are estimated at $17,065; the annual custodial costs are estimated at $12,035.

Building 139. Building 139 is a one-story structure with approximately 5,562 square feet which will be available for the USU SOM Department of Surgery and the USUHS/Windber Medical Center/Walter Reed Army Medical Center/Department of Navy Clinical Breast Care Project. This research project will utilize a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer. The multidisciplinary model integrates prevention, screening, diagnosis, treatment, and continuing care; the project is further unique in the proposed incorporation of advances in risk reduction, informatics, tissue banking, and research. The Clinical Breast Care Project will pay for the required renovations; it will also pay all costs associated with the building to include utility, maintenance, and custodial requirements. Renovation is on-going and expected to be completed during 2002.

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Renovation/Replacement Projects.

Laboratory Renovations throughout Buildings A, B, C, and D. During 2000, with the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the Vice President for Administration and the USU Facilities Division provided oversight for the renovation of 2,310 square feet of laboratory space throughout the USU complex. Laboratory renovation was completed, through the Dean, SOM, for four Departments: Biochemistry; Obstetrics & Gynecology; Radiology and Nuclear Medicine; and, Anatomy, Physiology and Genetics. During 2001, one laboratory with 468 square feet was renovated within the Department of Biochemistry. With the 33,127 square feet of renovated laboratory space that took place from 1993 through 2000, combined with the 468 square feet of renovation during 2001, the total of renovated laboratory space is approximately 33,595 square feet. This amounts to 38.6 percent of the 86,926 square feet of laboratory space in the USU complex. Three office areas within the SOM were also renovated for the Department of Anesthesia for a total of 559 square feet; in addition, 380 square feet of office space was renovated to accommodate the relocation of University Affairs.

Renovated Space in Building 53. Throughout 2000 and 2001, with the approval of the USU President (and the identification of funding for contracted projects by the Vice President for Resource Management), the USU Facilities Division provided oversight for contracted work, support, and manpower from its Division staff for the renovation of a total of 7,899 square feet of laboratory and administrative space in Building 53. The SOM Departments of Medicine (Clinical Pharmacology - 2,630 square feet), Psychiatry (1,932 square feet), and Radiology and Nuclear Medicine (2,026 square feet) represented a total of 6,588

square feet of renovated space for the SOM; the Graduate School of Nursing had 635 square feet renovated for mentoring and educational use; and, the MDL Division of Teaching and Research Support had a conference room with 676 square feet renovated for use by the entire USU community. All of the extensive relocation and furniture requirements for the USU personnel assigned to these renovated spaces were coordinated by the USU Logistics Division.

Heating/Ventilation/Air Conditioning (HVAC) Replacement Project. Following the identification of environmental and health concerns reference the quality of air throughout the USU complex and the inability to procure replacement parts for the antiquated USU HVAC system, the Facilities Division, with the approval of the USU President, coordinated with the Public Works Center (PWC) to design a complete replacement of the USU HVAC system. Building B was selected as the first area for renovation because it had the poorest air circulation in the complex. Phases 1 through 7 have been completed. Phases 1-7 ($8,900,000) included the construction of a mechanical room and the replacement of the HVAC system throughout Building B. Phases 8 ($2,351,692) and 9 ($2,091,686) have been funded, are ongoing, and will complete the HVAC replacement in Building C by the end of 2002. Phase 10 is estimated at $2,800,000 (Building D); and, very rough estimates for Phase 11 (Building A) are approximated at $4,000,000. It is anticipated that funding for the final two phases may be identified before the end of 2002. This on-going project has required extensive relocation of USU personnel; and, the USU Logistics Division has successfully worked with the contractors to efficiently coordinate these efforts.

Anatomical Teaching Laboratory Renovation Efforts. During 1998, it was identified that the backroom/storage areas containing the freezers and work space for the Anatomical Curator required significant renovation. Late in Fiscal Year 2001, the Vice President for Administration and Management requested a review of the project and began coordination with the Vice Presidents for Resource Management and Teaching and Research Support for the renovation of both the work areas and the freezers. With the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the Facilities Division coordinated with the Navy Public Works Center (PWC) for an accelerated design for construction. That effort concluded successfully and $201,254 was obligated for the construction requirements during September of 2001. Resource Management, through the USU Contracting Directorate, also obligated funding for the purchase of new freezers. The project was successfully completed during March of 2002.

Plaza and Elevator Repair. When the University was originally constructed, a drainage system was not provided under the plaza. As a result, there had been a steady leakage of water throughout the underground garages and various areas of the ground floor level. Separate attempts had been made to correct this concern over the past years; however, none resolved the problem. During 2000, the Facilities Division worked with PWC to design a repair project for the plaza which included four phases. The first two phases were funded during 2000 and completed. Funding in the amount of $654,112 was funded in September of 2001 for the final two phases. Work has now been completed and the contractors have finished some minor related projects to include the replacement of concrete.

Funding has been obligated for the repair/renovation of the elevators in Building A (three elevators) and Building B (four elevators). Determination of the order of renovation for the 11 elevators throughout Buildings A, B, C, and D was based on the number of repair calls and general deterioration of the individual

elevators. The renovation of the 11 elevators will take place one at a time to reduce the level of inconvenience to the USU community; estimated construction time per elevator is four months. Construction of the Building A elevators began in August of 2001, with an estimated completion date in late 2002.

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Resource Management Programs.

Background. The areas of responsibility described below are under the oversight of the USU Vice President for Resource Management. **Mr. John E. Dexter** was selected as the first USU Vice President for Resource Management in June of 1990; he served in that capacity until his retirement in January of 2001. Following an extensive search, the second USU Vice President for Resource Management, **Mr. Stephen C. Rice**, was selected and assumed the position in January of 2001.

Financial & Manpower Management (FMG). The University closed out a successful financial year on September 30, 2001. At the end of the Fiscal Year 2001, the Operations and Maintenance account (one year funding) had an obligation rate of 99.994 percent. During the last quarter of Fiscal Year 2001, USU received a supplemental allocation of $5.1 million ($600,000 restoral of withhold and $4,500,000 distribution of supplemental appropriation); these additional funds were applied against long-standing requirements in the University's maintenance and repair budget. In coordination with the USU Facilities Division and the Vice President for Administration and Management, FMG obligated funds through the Navy Public Works Center for the following renovations and repairs: 1) the heating/ventilation/air conditioning (HVAC) replacement/repair project; 2) completion of the plaza repair project; 3) the upgrade of the elevators in Building B; and, 4) the renovation of the storage and working areas of the Anatomical Teaching Laboratory. The University was also able to make significant progress on its equipment back-log, through its funding of over $1.5 million in support equipment. In the Procurement account (three year funding for capital equipment over $100,000), the University spent $270,000 for a Patient Simulator against an available budget of $300,000; the remaining funds will be applied against 2002 requirements. The two University Research, Development, Testing and Evaluation (RDT&E) accounts (two-year funding) were obligated as follows: the Defense Health Program (DHP) portion of $2,919,000 was spent in its entirety for the Head and Neck Injury project; and, the DDR&E portion of $1,941,000 was spent for intramural research support, to include $621,000 spent on research-related equipment; the remaining funds in the DDR&E account will be used in 2002.

The University's government travel card program has been recognized by the DoD for consistently maintaining the lowest travel card delinquency rate in the entire Department. Christopher Slack, Bank of America's Senior Vice President for Government Services, has praised the University for a program that "is a benchmark and showcase of best practices." More than 1,200 USU employees have government travel cards; and, approximately 200 individuals travel each month. A process has been established at USU to ensure the continuation of USU's low delinquency rate. Approving officials must sign travel claims promptly and submit them to FMG, which must review and forward all properly completed vouchers to the Defense Finance and Accounting Service (DFAS) within two days, or immediately notify the USU travelers of any discrepancies. Students performing long-term temporary duty are able to file partial claims each 30 days, thus ensuring that they have the funds to pay their bills when due. Additionally, DFAS has been paying USU claims, on average, within four days of receipt, well ahead of the DoD requirement of 15 days. A final

reason for the University's outstanding record is that USU senior leadership has made it clear to University cardholders that delinquency of payments is unacceptable. In 2001, USU also entered into a partnership with the Navy Bureau of Medicine and Surgery (BUMED) to jointly manage the funding levels of USU's procurement account in order to maximize benefits for both USU and the Defense Health Program (DHP). Under this agreement, USU is responsible for executing the University's procurement program and requesting and justifying any long-term capital equipment requirements; BUMED assists in the management of the appropriation process, facilitating the matching of funds with the timing of procurement actions. Also during 2001, there was new emphasis on shared problem solving of budgetary issues with all of the USU activity heads and chairs; this was initiated during numerous individual meetings in the mid-year review process which included an increase in the level of detail and justification in the USU budget submissions from each activity head and chair.

Contracting Activities. During 2001, the USU Contracting Directorate provided significant support to the many unique programs of the School of Medicine, the Graduate School of Nursing, University Activities, the Armed Forces Radiobiology Research Institute, and numerous DoD initiatives and programs. The Directorate processed over 1,700 USU (Operations and Maintenance (O&M) funded) requirements totaling approximately $12,858,000 in support of USU Departments and Activities. In addition, the Directorate received approximately 55 requirements, totaling $13,330,560 in extramural (direct citation) funds from numerous Federal and DoD agencies and activities in support of fifteen major programs. This amount included funding for numerous scientific research programs which are contracted with the Henry M. Jackson Foundation for the Advancement of Military Medicine; some examples follow: the Medical Executive Skills Training Program which provides training to the military's health care executives; the Center for Casualty Care Research (CCRC) which provides support and consultation services to several Federal Agencies, to include the FBI and the U.S. Marshals Service, and includes the Hazardous Materials Response Training Program, a cooperative effort with the FBI; the Deployment Health Center located at the Walter Reed Army Medical Center, which in addition to research on Gulf War Illness, also has expanded to include a variety of diseases encountered during deployments; the Center for Prostate Disease Research (CPDR) which conducts research into prostate disease through funding provided by the CPDR Endowment which is now valued at $22,000,000; the Center for Disaster and Humanitarian Assistance Medicine (CDHAM) which is providing training and education for DoD and equipment and humanitarian assistance to Mexico and other Central and South American countries; and, the Center for Ergonomics and Workplace Health which is studying ways to make the Federal workplace a healthier and more productive environment. In addition to the above programs, the Directorate also awarded and administers a $6,000,000 personal services support contract for the U.S. Army Center for Health Promotion and Preventive Medicine. The Directorate now administers and manages funded programs valued at well over $50,000,000. During 2001, the USU Government Purchase Card Program continued to expand with over 12,400 purchase card transactions being conducted, totaling approximately $6,342,000 in purchases.

Grants Management. In January of 2000, the Office of Resource Management was delegated responsibility for the fiscal and administrative management of USU-awarded grant agreements. The Vice President for Resource Management established the Grants Management Office and the position of Grants Officer to ensure effective and efficient administrative management for USU-awarded grant agreements. Since its establishment, the Grants Office has been fully staffed with three permanent employees: a Grants Officer; a Grants Management Specialist; and, a Grants Management Assistant. During 2001, the Grants

Office provided a full range of grant management services in support of the University's research community by awarding grant or cooperative agreements; this support included serving as a business advisor and providing fiscal management and guidance to grant recipients and investigators. In its second year of operation, the Grants Office awarded 7 new grant agreements worth more than $6,700,000; and, it completed 125 grant modifications. Currently, there are 110 active USU awarded grant agreements ranging from $5,000 to $48,000,000 which are managed by the Grants Office. The total award value is approximately $253,000,000. There are approximately 75 principal investigators conducting research on projects awarded to approximately 12 grant recipients. A majority of the awards go to the Henry M. Jackson Foundation; the remaining awards go to other non-profit organizations including universities, private foundations, and institutions. Currently, there are 33 Agencies providing funding support. The Grants Office processes an average of 48 invoices a month for payment; these invoices are paid at nine pay stations (DoD and civilian). The Grants Office also provides oversight for the TriService Nursing Research Program, an annual program valued at approximately $9,000,000 with more than 70 grants.

Resource Management Information. The Resource Management Information Office (RMI), which became fully staffed during 2001, is comprised of the Systems Administration and the Information Systems & Services Branches. The RMI develops, maintains, and administers the University's resource management information systems, primarily, the College and University Financial System (CUFS), DoD's Standard Procurement System (SPS), and Research Administration's Grants Management System (COEUS). During 2001, RMI worked on the following special initiatives: 1) **Establishment of the Resource Management Information System Search Committee** - In response to one of the University's Strategic Planning Objectives, RMI was appointed as the lead agent for finding a suitable replacement for the University's principal management information system, CUFS. The Resource Management Information System Search Committee was established selecting membership from key USU functional areas in order to effectively evaluate the available system options and ultimately propose a recommended implementation plan. To assist in this process, a consultant was contracted to complete a functional requirements document in support of the CUFS upgrade; 2) **Development of a Directorate of Contracting Web Page** - A web page was developed for the Directorate of Contracting to assist in the dissemination of guidance to the USU and vendor communities on various acquisition issues such as policy, regulations, solicitations, proposals, the Government Purchase Card, and other procurement guidelines; 3) **Transfer of Disbursements (Vendor Pay) Function to the DFAS Center in Denver** - Due to a mandate for a Defense Finance and Accounting Service (DFAS) realignment, the disbursements (vendor pay) function was transferred from the DFAS location in Omaha (OPLOC) to the DFAS Center in Denver. This transfer, ultimately a successful effort, necessitated an extensive modification of the automated disbursement program in CUFS to accommodate the unique coding characteristics used at the Denver Center.

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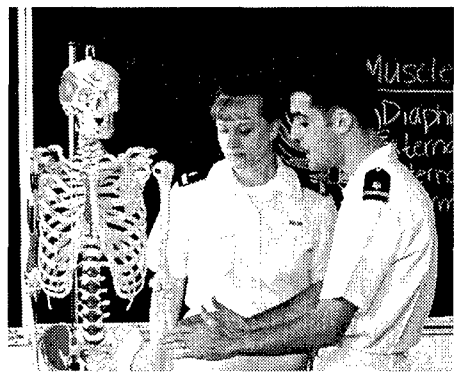
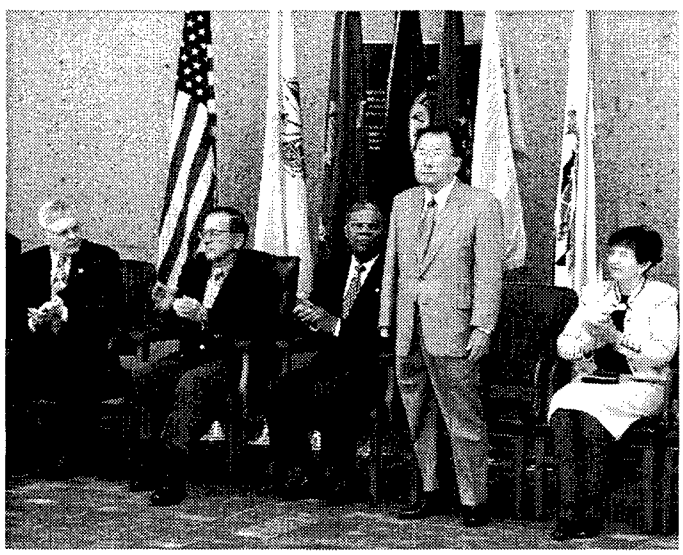
READINESS

I have been involved with medical education throughout my career, now serving in my 25th year as a member of the teaching faculty at the Uniformed Services University of the Health Sciences. WMD issues have been a part of the medical curriculum at USUHS and that curriculum provides a valuable template for our Nation's medical schools and graduate medical institutions. – RADM John F. Eisold, MC, USN, Attending Physician of the United States Congress, Testimony before the House Subcommittee on Oversight and Investigations, Committee on Veterans' Affairs, November 14, 2001.

Leah Strobel is a 2nd Lieutenant in the U.S. Army. The University of Florida graduate began her military career just months ago when she enrolled as a first-year student at USUHS, but military service stretches far into her family tree, back to the Civil War. Strobel always hoped to be a doctor and found a way to combine that with her cherished family tradition. "There is no better place for me to be than USUHS. What we are learning right now is applicable to what is occurring in the world." Strobel says that while she never envisioned the magnitude of the events that occurred on September 11th, "there are no second thoughts...I would like to be in an operational unit... It would be an honor to serve and support soldiers on the front line... September 11th has helped me envision where I'll be in the future." – The AAMC Reporter, The Association of American Medical Colleges, December 2001, page 9.



While the Regents have always recognized the importance of maintaining a medical curriculum which incorporates the unique challenges created by the use of biologic, chemical, and radiologic weapons, we were especially pleased to note that DoD's University of the Health Sciences is now widely recognized as a first stop for reliable education, training, and research in the medical response to weapons of mass destruction. The entire University effort in support of our Nation's response to the terrorist threat is a testament to the foresight of the Department in maintaining such a unique asset. – The Honorable Everett Alvarez, Jr., J.D., Chairman, USU Board of Regents, Correspondence to the Secretary of Defense, December 4, 2001.



USUHS graduates hold senior operational and leadership positions beyond Congressional expectations. A recent review documented that of the first six classes of USUHS School of Medicine graduates, 42 percent hold operational or leadership positions... USUHS has gone above and beyond every expectation... – Joint Congressional Press Release, Senators Paul Sarbanes and Barbara Mikulski on the Awarding of the Joint Meritorious Unit Award from the Secretary of Defense to USU, released on February 1, 2001.

Calculated median retention by source of accession supports the notion that specialists exit early. Overall, the median length of non-obligated service for specialists in the MHS averages only 4.4 years. That average drops to 2.9 years when Uniformed Services University accessions are excluded. –Response by the Surgeon General of the Navy to the Senate Appropriations Committee, Hearings were held on February 28, 2001.

Some of the USU family jumped from helicopters and performed immediate triage and on-site care of the casualties at the Pentagon. Others have remained at the side of DC Law Enforcement and Continuity of Government Officials and have assisted in a multitude of emergency actions. Others stayed with the families of victims and have opened their wallets to let them know that their encompassing American family will not desert them in their time of crisis. And, many rolled up their sleeves to donate blood. Whatever it takes, we are ready, because that is the true nature of the American Family. –Faye Glenn Abdellah, Ed.D., Sc.D., RN, Dean and Professor, Graduate School of Nursing, Remarks at the USU Memorial Service for the Victims of September 11, 2001, October 9, 2001.

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RELEVANCE • READINESS • OPTIMIZATION

II. THE F. EDWARD HÉBERT SCHOOL OF MEDICINE

While the Regents have always recognized the importance of maintaining a medical curriculum which incorporates the unique challenges created by the use of biologic, chemical and radiologic weapons, we were especially pleased to note that DoD's University of the Health Sciences is now widely recognized as a "first stop" for reliable education, training and research in the medical response to weapons of mass destruction. The entire University effort in support of our Nation's response to the terrorist threat is a testament to the foresight of the Department in maintaining such a unique asset.

- **The Honorable Everett Alvarez, Jr., J.D., Chairman, USUHS Board of Regents**, Memorandum for the Secretary of Defense, December 4, 2001.

ESTABLISHMENT

Background. From 1945 to 1950, there was an acute deficit of medical experience resulting from the rapid downsizing after World War II. The loss of physicians was so acute, and retention so poor, that the Army and Navy medical departments began residency programs as a recruitment and retention device. In 1950, the physician shortages forced the involuntary recall of reservists and also forced the retention of those eligible to retire.

After the Korean War, the United States, for the first time in peacetime, maintained large, active-duty military forces through conscription and allocated significant resources to build and maintain a world-wide military presence. The medical departments of the Army, Navy, and Air Force participated in this expansion and relied on conscription. During this time, over 90 percent of all graduating physicians and dentists served on active duty for an average of two years.

During the conflict in Vietnam, from 1964 to 1972, medical support of a sophisticated nature was deployed in fixed facility hospitals with staff and equipment equal to those of academic medical centers in America. The helicopter essentially replaced the motor ambulance for evacuation; and, air evacuation to the United States became routine. Capitalizing on the lessons learned in past wars, preventive medicine kept the infectious disease and non-effectiveness (inability of the forces to participate in combat activities) rates at the lowest levels of any war, while rapid evacuation and advanced surgery reduced the died-of-wounds rate.

The conscription of physicians, which began in 1950, ended in 1973 when the draft law was repealed. In anticipation of this, a military medical school (USUHS) and a scholarship program (HPSP) in civilian medical schools were established by Congress in 1972 to provide physicians for the Armed Forces. The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426, established the HPSP Program to be a flexible source for the quantity of physicians required by the Armed Forces; USUHS was established to provide a cadre of military medical officers who would serve as career officers, providing continuity and leadership for the Military Health System.

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USU's First Academic Program. The F. Edward Hébert School of Medicine was established by Congress as part of Public Law 92-426 in 1972, with its first class graduating in 1980. The early development of the University concentrated on USU's first academic program, the School of Medicine. **The Honorable Anthony R. Curreri, M.D.** was appointed as the University's first President in 1974; **Jay P. Sanford, M.D,** joined **Dr. Curreri**, at the USU President's request, and was later appointed as Dean, SOM, in May of 1975. He served as Dean through 1990. The initial development of objectives for the SOM was accomplished through the combined efforts of the Board of Regents (BOR), the BOR Educational Affairs Committee, Dr. Curreri, Dr. Sanford, and special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: the Surgeons General of the Army, Navy and Air Force; Chiefs of the Medical Departments/Services of the Army, Navy, and Air Force; physicians from the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow Air Force Medical Center at Andrews Air Force Base, the Wilford Hall U.S. Air Force Medical Center, the U.S. Army Academy of Health Sciences, Sheppard Air Force Base Academy of Health Sciences, Brooke Army Medical Center, and the Armed Forces Institute of Pathology; the Secretary of the Air Force; the Secretary of the Navy; the Association of American Medical Colleges (AAMC); the American Medical Association (AMA); the Liaison Committee on Medical Education (LCME); the Department of Health, Education, and Welfare; the National Institutes of Health (NIH); George Washington University; Georgetown University; and, Howard University.

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MISSION

The USUHS shall: 4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences; 4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces; and, 4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

- DoD Directive 5105.45, signed by **The Honorable John J. Hamre, Deputy Secretary of Defense**, dated March 9, 2000, page 2.

Consistent Mission Direction Focused on Readiness. USU has a twenty-nine year history of guiding statements, mission direction, goals and tasking documents from the Congress, the Executive Office of the President, and the Department of Defense. From the words of the School of Medicine's "Founding Father," **Congressman F. Edward Hébert**, ... as he described how he first envisioned the University during the 1947 timeframe:

> **The mission of USUHS is to produce...dedicated young officers who...will be able to mobilize and deploy rapidly...to meet military and civilian crises...The University will provide opportunities for aspiring young military officers to attain academic recognition..."** (the Life and Times of Congressman F. Edward Hébert, 1976, page 408)

to the 1999 mission statement quoted above from the Department of Defense... the goals of the USU SOM have remained consistent; the SOM must provide: 1) a cadre of career-oriented physician officers who will provide leadership and continuity for Uniformed medicine; 2) unique training in combat medical care, trauma, mass casualties, the response to weapons of mass destruction, medical logistics, and rapid deployment; 3) joint training in a multi-Service environment; and, 4) the opportunity for health care professionals throughout the MHS to attain academic recognition.

Strategic Planning. A formal process of strategic planning was initiated in 1991 to set priorities for the University. The process was conducted by an executive steering committee chaired by the USU President and included representation from the entire USU community. Mission and vision statements and guiding principles were completed in early 1992. Since that time, specific goals, strategies, and objectives have been established for the University, to include metrics for achieving those goals.

The SOM community has been actively involved in the development of the USU Strategic Plan, participating in the initial strategic planning training sessions during 1991, the finalization of objectives and metrics during 1999 and 2000, and the strategic planning sessions held during April of 2001. This multi-year process has included institutional retreats, town meetings, departmental briefings, and printed and electronic updates as a means of communicating with the SOM faculty and staff.

To ensure that the SOM's future direction is consistent with the Military Health System, the SOM strategic planning process is guided by the current strategies and goals of the Military Health System, the strategic planning policies and guidance established by the Office of the Assistant Secretary of Defense for Health Affairs. The SOM Departments must show a direct relationship with USU's overall Strategic Plan when submitting their requests for future budgets. A formal process for identifying program needs and for submitting increased budget requests tied to the Strategic Plan has been established. A School of Medicine Strategic Plan has been written and has undergone review by the Basic Science Chairs Committee, the Clinical Science Chairs Committee, and the Faculty Senate.

Internal and External Departmental Review Process. A program was adopted by the School of Medicine in 1998 which mandated each department to conduct a "self-study" every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of "peers" from outside of the University. From 1999 through 2001, self-studies and external reviews have been completed by the Departments of Dermatology, Family Medicine, Military and Emergency Medicine, Obstetrics and Gynecology, Neurology, and Surgery. Other departmental reviews pending completion include: Anesthesiology; Anatomy, Physiology and Genetics; and, Radiology and Nuclear Medicine. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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Mission Accomplishment...SOM Graduates Provide Continuity and Leadership for Military Medicine.

Retention of SOM Alumni and Unique Training Ensures Continuity for Lessons Learned in Military Medicine.

I believe our opponents don't understand our business... they say medical care, and they envision peace time medical care as the only business we are in. In fact, we have two broad categories of business. One is called readiness. The other is called the peace time benefit.

USUHS, is the best investment in readiness medicine that we can make, (it) provides a tremendous baseline for us. We train our uniformed services graduates in the benefit missions through residencies, but they (USUHS graduates) have a foundation in readiness that we cannot get anyplace else. We don't practice medicine in the military. We practice military medicine.

- Testimony by the **Surgeon General of the Air Force, Lieutenant General Paul K. Carlton, Jr.**, before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

In Vietnam... I had no military training prior to coming in. It was a very challenging, difficult experience... when I got there I learned how to take care of Marines myself. I was alone. There was no place to med-evac patients, so through the night I had to keep casualties alive until we could move them during the daylight...

The emotional experience of a young doctor who does not have the right kind of training in these kind of things has driven me to where I am today.

My whole life since that time has been dedicated to try to prepare people for combat, and USUHS has been able to train these young physicians to be far more ready than I was. They are superb in medicine. The training that USUHS provides is far more than just the medical training. What we have here is the ability to train Army, Navy and Air Force and Public Health Service physicians from day one to work together in a joint environment. They go and they jump out of airplanes with the Army, they go with us to the Marine Corps, they go with us aboard ships at sea, and they go to the air. They do all these things together... from day one... so they develop a joint mentality that has a value of which you cannot quantify the cost of. So, when the time came for me to select a doctor who was going to go on the Joint Task Force for Somalia, I chose a USUHS teacher, ...one who had been there, who spoke the language, who was able to do joint planning and to effectively bring the troops to Somalia. You cannot cost that out...the value of having people with this kind of training is really irreplaceable. There are many, many , many courses and experiences at USUHS that are just not duplicatable. It is a national resource. They come as leaders...they are dedicated to stay with us for a long time... We want experienced people to stay in the military... Now that we have USUHS, we cannot give that up.

- Testimony by the **Surgeon General of the Navy, Vice Admiral Donald F. Hagen,** before the Senate Armed Services Committee, March 2, 1994, pages 35-37.

Since its first graduation in 1980, through April of 2002, USU has granted 3,101 medical degrees; 2,561 of those graduates remain on active duty in the Uniformed Services: Army - 1,000; Navy - 737; Air Force - 728; USPHS - 96. The active duty physician force in the MHS currently totals approximately 11,833 physicians (Army - 4,149; Navy - 3,584; Air Force - 4,100); the 2,465 USU SOM Graduates on active duty in the Army, Navy, and Air Force represent 21 Percent of those 11,833 physicians. The early founders had hoped that the USU graduates would equal at least 10 percent of the total physician force; the USUHS SOM has exceeded that original milestone. During the complicated era following "right-sizing," USU has steadily provided an excellent source of career-minded physicians who are uniquely skilled in the practice of military medicine. Where Congress had envisioned a retention rate close to 70 percent, the overall retention rate for USU SOM graduates from its first graduating class in 1980 through the present, is 85 percent; of the ten USU SOM classes which graduated between 1990 and 1999, the retention rate is 97.3 percent. These retention rates become even more significant in light of the recruitment and retention concerns currently reported by the Armed Forces. In addition, the SOM graduates 97.3 percent of those who matriculate.

SOM Graduates Present Clinical Skills Required for MHS Residency Programs.

The system in place for the documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate.

- Letter to USUHS, Liaison Committee on Medical Education (LCME), dated April 6, 2002.

Senator, the three of us (Surgeons General) make up the Executive Board for the Uniformed Services University of the Health Sciences (USUHS), and we have a direct impact on the university...over the last eight years, as I have commanded a major medical center and also as the Surgeon General, I have learned of the quality of the product of USUHS and the focus that USUHS has on military medicine and the importance (of USUHS) to the Surgeons General. I would be hard put to be without the graduates of USUHS.

- Testimony by the **Surgeon General of the Navy, Vice Admiral Richard A. Nelson**, before the Senate Appropriations Committee, Subcommittee on Defense, on February 28, 2001.

USUHS is a dramatic difference in depth and degree and experience and exposure and immersion in what we call military medicine, that is not available in the civilian community. My experience has been we have uniformly superior products in the (USUHS graduates). **I happened to be stationed on an Army post before I came here, with a small clinic run by a young doctor. I saw the difference between his predecessor and himself, the USUHS graduate. He hit the ground running and turned the clinic around in just a few short weeks. It made a lasting impression on me.... From the clinics**

to the largest Air Force hospital in this country, Wilford Hall, USUHS graduates excel... A third of the USUHS graduates at Wilford Hall are in positions of high responsibility for their grade...I like what I see.

- Testimony by the **Surgeon General of the Air Force, Lieutenant General Alexander M. Sloan,** before the Senate Armed Services Committee, March 2, 1994, page 37.

Evidence of the high quality of training that SOM students have received comes from many sources. For example, each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received. In April of 2001, the USU Office of Student Affairs reported that the ratings of the Year 2000 Medical School Graduation Questionnaire Final Individual School Report show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. For example, 81 percent of the USU SOM seniors strongly agreed with the statement, "Overall, I am satisfied with the quality of my medical education." Only 39 percent of the all-school group rated the statement as "Strongly Agree."

Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. In January of 2002, the Office of Student Affairs reported that the results of the 2001 Joint Service Graduate Medical Education (GME) Selection Board for the USUHS SOM Class of 2002 were favorable. The overall selection rate for FIRST CHOICE programs was 80 percent; 132 out of 166 USU students matched for their first choice both in specialty and training site. Fourteen additional students received their first choice in specialty for a resulting 88 percent who received their first choice in specialty. Feedback obtained from residency program directors indicates that SOM graduates are consistently recognized as well-prepared to complete graduate medical training.

In addition, USU students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates higher than the national average. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The Step Examinations are administered at Prometric Testing Centers throughout the calendar year. Most of the USU fourth year students (SOM Class of 2002) completed the CBT between July and September of 2001. The overall performance for the Class of 2002 was strong; the average performance and the pass rate were significantly above last year's performance. The variability in scores has increased with the new CBT; this would be expected given the reduction in the number of questions and the introduction of a new testing format. The USU SOM class mean was 213 (above last year's mean of 210 and 208 for 1999); the USU SOM first-time pass percentage rate was 98 percent (above the 2000 rate of 97 percent and the 1999 rate of 95 percent); the national pass rate during 2000 was 95 percent.

Operational Assignments, Leadership Positions, and Unique Understanding of Military Medicine Are Substantiated.

These USUHS alumni serve in critical roles that are vital to the readiness mission of the Military Health System (MHS). The extraordinary retention of these military officers ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care. Currently, USUHS School of Medicine alumni represent over twenty-one percent of the total physicians on active duty in the military services. Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS.

- Testimony by **Vice Admiral Michael L. Cowan, Surgeon General of the Navy**, before the House Armed Services Committee, Subcommittee on Military Personnel, on April 10, 2002.

Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, and the American Association of Medical Colleges and the American Medical Association to accomplish these important and timely educational goals.

- Testimony by **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, on November 7, 2001.

As for recruiting, we have some of the best programs in the world. The young men and women who are coming out of the Uniformed Services University of the Health Sciences are absolutely superb!

- **Surgeon General of the Army, Lieutenant General James B. Peake**, Military Medical Technology, Volume 4, Issue 6, 2000, page 18.

Do I value USUHS? ...I value it a great deal and (consider that) **it is a major asset to this country. I do value the output. I can tell you that in the Army we have a deficit of training in the type of individuals who can go into combat with a battalion...and I do get complaints from line officers that we very frequently have physicians in there who are not ready for that. That is never the case when a USUHS graduate fills that bill.**

- Testimony by the **Surgeon General of the Army, Lieutenant General Alcide M. LaNoue,** before the Senate Armed Services Committee, March 2, 1994, page 35.

The highly dedicated USU graduates are earning promotions at above average rates; they have become well-respected in their medical specialties, and hold significant positions of leadership in areas of military medicine ranging from special operations and hospitals, to the White House, to Kosovo deployments, and to assignments aboard ships at sea and the Blue Angels. SOM alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty members, retirees, and their family members. These military physicians and the thousands of other health professionals who have taken advantage of the numerous graduate and continuing education programs provided by the SOM, are living testimony to USU's mission as the Nation's Federal Health Sciences University.

Following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that **"43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles."** The GAO reviewers also pointed out that they **"perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military"** than other accession sources (General Accounting Office Report, "Military Physicians - DoD's Medical School and Scholarship Program," September 29, 1995, page 43).

A review completed in January of 1998, documented that of the approximately 1,431 USU graduates on active duty who were eligible to hold leadership positions, and were not in a post graduate educational status, 292 were serving as chairs, chiefs or heads of departments, directors of services, or program directors in military hospitals, clinics or centers. An additional 60 USU alumni were serving in operational assignments for the three military services. These 352 USU physician alumni were holding significant leadership and/or operational positions throughout the Military Health System (MHS). Another review conducted in February of 1999, documented that of the first six classes of USU graduates, from 1980 through 1985, 408 alumni remain on active duty; 170 of whom (approximately 42 percent) hold senior operational or leadership positions.

The USU SOM Selection Process Ensures Commitment and Exemplary Retention Rates.

It is important to maintain a sense of continuity by remaining committed to the traditions, core values, and justifiable pride that are part of military medicine. Leaders organize, challenge others, provide the resources, and create the environment for others to achieve goals and accomplish remarkable feats... They make us believe in the nobility of a cause. The integrity and strength of character of the leader results in loyalty and devotion on the part of those who follow. It is the job of a teacher to keep bringing us back to certain basic principles. It is the moral obligation of the teacher to know his or her students, to recognize their individual needs, and to provide information, guidance, and encouragement during the learning process. The future of the medical departments appears bright when considering the quality of applicants seeking admission to the School of Medicine at USUHS. As a group, they have impressive credentials. Their application essays reflect a bright, highly motivated, and service-oriented cadre.

- **RADM Donald L. Sturtz, MC, USN, (Retired), Professor, Department of Surgery, USU School of Medicine**, "Commitment," Military Medicine, Volume 166, September 2001, pages 741-742.

High ethical standards, the candidate's own 'internal moral compass,' compassion, honesty, and integrity should be emphasized in the selection process for candidates to become the nation's physicians...Selection should employ MCAT scores and GPAs not as predictors of success in medical school, but as threshold measures to indicate only that applicants possess the intellectual endowment and scholastic aptitude needed to meet the academic rigors. Once candidates have satisfied those threshold requirements, we should give no further weight to academic credentials but make selections on the basis of character traits and aptitude for serving others.

- **Jordon Cohen, M.D., President, Association of American Medical Colleges (AAMC)**, in his opening speech at the 108th annual meeting of the AAMC, on November 6, 1997.

The USU SOM selection process has been identified as one of the major factors in the success of the overall retention rates of the USU alumni. All candidates are carefully screened during the interview process to determine the following: 1) already recognized sensitivity for national, public, and/or community service, which clearly has the potential for enhancement in federal service; 2) the presence of natural and adaptable leadership skills already documented in a variety of organizations and circumstances; 3) an enthusiasm for supportive care-giving directed at individuals and groups, forming the basis for evolvement as a physician in the broad areas of medicine, and military medicine in particular; and, 4) a documented record of academic success which extends beyond the boundaries of any standard curriculum, as demonstrated through individual creativity, service, and/or research. A Matriculating Student Survey conducted by the Association of American Medical Colleges (AAMC) showed that compared to the national group of matriculants, USU SOM candidates were more likely to select medicine as a career because of the opportunity to serve the community and to lead, and less likely to seek a medical career for purposes of prestige or high income.

The SOM Committee on Admissions, faculty and student interviewers, and the SOM Office of Admissions work together to manage and implement the SOM Selection Process. The Committee on Admissions is comprised of men, women, active duty, civilian, clinical science, basic science, minority, and community representation for a total of 23 individuals. The applicant review process operates at subcommittee and full committee levels, with the initial review focusing on Medical College Admission Test (MCAT) scores and grade point averages (GPAs). The secondary review process is designed to enhance the opportunity for inviting applicants to interview. Candidates with academic records which would ordinarily preclude regular review at the subcommittee level and those not initially invited for interview are reviewed by the Committee Chairman. This allows the identification of candidates who may have been overlooked and supports the SOM effort to recruit active duty military applicants, disadvantaged individuals and underrepresented minorities. Folders of all interviewed applicants are reviewed by three separate subcommittee members and are presented for full committee review if ranked above the minimum threshold. However, special consideration is extended to underrepresented minority and active duty military applicants ranked at lower levels, and these candidates are also presented to the full committee. In addition, individual committee members may bring the application of any interviewed candidate to the attention of the full committee independent of the subcommittee ranking.

The "interview day" is consistently reported as a positive experience by applicants; during the interview process, the applicants take part in various activities, to include: organized briefings; two formal interviews; lunch; a tour of the campus with students; and, informal visits with the Associate Dean for Student Affairs, the Director of Admissions, the Assistant Dean for Admissions and Academic Records, the Vice President for University Recruitment and Diversity Affairs, the Assistant Dean for Clinical Sciences, faculty members, and the Commandant. Applicants are also given the opportunity to stay overnight with a student host. The selection process has continuously brought to the SOM a group of students who are academically qualified and well-motivated to practice medicine. In the history of the medical school, only two percent of the student body has had to be disenrolled for academic reasons; this is about one-third of the national average. The excellent percentage of students graduating (over 97 percent) is due to: 1) a good selection process; 2) a solid educational program; and, 3) genuine concern for those students who require academic or personal assistance during their time at USU.

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ACCREDITATION

At its meeting on April 3-4, 2002, the Liaison Committee on Medical Education (LCME) reviewed and accepted with appreciation your progress report on the documentation of the comparability of clinical educational experiences across clerkship sites. The system in place for documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate. Your next full accreditation survey is currently scheduled for the 2006-2007 Academic Year.

- Letter from the Liaison Committee on Medical Education to the Dean, School of Medicine, dated April 6, 2002.

Early Coordination with the Liaison Committee on Medical Education. The developmental process for establishing the initial objectives of the SOM were accomplished through the combined efforts of the founding USU President, **Anthony R. Curreri, M.D.**, the Board of Regents (BOR), the Dean, **Jay P. Sanford, M.D.**, and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Significant among those coordinating entities was the Liaison Committee on Medical Education (LCME).

SOM Program Accreditation.

Background. The LCME accreditation process is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The accreditation process also fosters institutional and program improvement. The SOM received provisional accreditation from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American Medical Association (AMA) in 1976. The SOM was fully accredited by the LCME in 1979, and has continuously maintained that status.

The SOM prepared a Self-Study during 1992 and was visited by an LCME survey team during January 11-14, 1993. On April 7, 1993, the LCME voted to continue full accreditation for seven years. The Dean was asked to submit a report to the LCME by January 1, 1995, addressing: 1) progress in curriculum reform, including decompression in the first two years; 2) the empowerment and role of the curriculum committee to review, evaluate, design, and manage the curriculum; 3) the status of filling chairs of academic departments, with special reference to the availability of space and financial resources to do so and to the energizing of education and research; and, 4) the appropriateness of enrollment size and the adequacy of clinical resources. Following the LCME request, an ongoing curriculum renewal process was initiated in June of 1993. In November of 1993, the Dean's Policy Memorandum regarding the structure and function of the curriculum committee was updated to assign responsibility to the curriculum committee in accordance with the LCME's guidance as described in Functions and Structure of a Medical School. Search committees were appointed to fill the open department chair positions. And, plans were initiated to develop third-year clerkship rotations at two additional sites. A report, submitted in December of 1994, detailed the status of progress in the four areas identified by the 1993

LCME response. The LCME accepted the report in February of 1995; and, it requested an additional report by September 1, 1996, to address the following: 1) any changes in class size stemming from the downsizing of the Uniformed Services; 2) the status of continued federal support; 3) further progress in curricular management, evaluation, and reform; and, 4) the system and results of monitoring the equivalency of educational quality and the evaluation of students across sites of clinical education. The response, dated August 16, 1996, indicated that the class size had not been affected by the downsizing of the Uniformed Services; and that federal funding was sufficient to support the University's programs. Also, for the 1996-97 Academic Year, an additional ten percent reduction in contact hours for first and second year students was implemented, resulting in an additional afternoon per week of student study time. In September of 1996, the LCME accepted that report; and, no further information was requested prior to the full accreditation survey scheduled for the 1999-2000 Academic Year.

LCME Self-Study and Site Visit - 1999. Following accreditation by the LCME in April of 1993, the LCME scheduled its next review of the SOM Program for reaccreditation in November of 1999. As a precursor to that review, the Associate Dean for Medical Education coordinated an institutional Self-Study. Self-Study Committees were established during 1998, assigned topic areas, and charged to review and analyze portions of the Medical Education Database as well as other information considered relevant to their topic areas. Reports were then submitted to the Steering Committee on February 1, 1999; all reports were reviewed by both the Steering Committee and a larger LCME Task Force. All data, Self-Study reports, and the Executive Summary were submitted to the Dean during the Summer of 1999. Following the Dean's review, those materials were submitted for review to the LCME and the Survey Team Members some months prior to the Survey Team Visit. The Site Visit took place between November 14-18, 1999. Exit briefings and follow-up correspondence from the LCME suggested a very successful visit and continued accreditation. Official notice from the LCME was provided during April of 2000: "The School of Medicine received continued full accreditation of the educational program leading to the MD degree for a seven-year term. The next full survey will take place during the 2006-2007 academic year" (Letter from the LCME to the USU President, dated April 13, 2000).

Excerpts from the Summary of the LCME Full Accreditation Report as Provided in the USU Board of Regents 2000 Report to the Secretary of Defense.

There is ample evidence that a large number of faculty and staff members had taken the self-study seriously and participated fully in the preparation of the report, which was thorough and showed meticulous attention to detail. In reaching its decision to continue full accreditation of the medical school, the LCME identified numerous institutional strengths:

1. The School of Medicine is very successful in meeting its mission in graduating physicians who are well prepared and committed to military medicine;

2. **Dean Val Hemming** holds a deep commitment to the values and success of the School of Medicine. He is a strong, capable leader who has been critically important in helping the school fulfill its mission;

3. The clinical curriculum is delivered in excellent military medical facilities, both locally and nationally;

4. The Department of Internal Medicine is to be commended for its success in creating a uniformly excellent clinical clerkship, comparable in quality across multiple educational sites;

5. The students are bright, academically talented, and uniformly dedicated to careers in military public service. They are consistently positive in their views toward their school and its faculty;

6. The support services provided by the Student Affairs Office are exceptional and appreciated by the students;

7. The faculty is available, interested and committed to student instruction and supervision. They work in a collegial fashion on behalf of the School of Medicine and the students; and,

8. The library, computer services, and the new simulation center are state-of-the-art, meeting the educational demands of the students for the future.

As with the LCME's request for the submission of written progress reports following the April 1993 reaccreditation, the LCME requested that the Dean of the SOM submit a progress report by March 1, 2002, addressing the following items:

1. Documentation of the comparability of clinical experiences across clerkship sites;

2. Planning and documentation of resources to support ongoing curriculum design and oversight and enhanced centralized faculty control and management of the curriculum; and,

3. Planning for facility improvements for research and education, including progress in addressing the limitations in research laboratory space, office space, and adequate space for small group instruction in the first two years.

The Dean of the SOM began initiatives to enable a timely response to the LCME's request for a progress report. In late April of 2000, the Dean met with the Curriculum Committee and charged its members to develop a plan to further enhance the process of curriculum oversight and management. This new plan was implemented at the beginning of the 2000-2001 Academic Year. The Associate Dean for Clinical Affairs was directed to develop a plan for documenting comparability of clinical experiences across clerkship sites. This task was accomplished in conjunction with the SOM clinical department chairs and hospital-based faculty. The SOM Space Review Committee developed and implemented processes for the review and assessment of space utilization. Baseline data was reviewed and recommendations were provided to improve assignment and utilization of existing space. This process, together with the additional use of Building 53 (discussed in Section I of this Edition of the USU Journal) on the grounds of the National Naval Medical Center, demonstrated the SOM's progress in addressing space utilization concerns. On April 6, 2002, the Dean, SOM, received notice from the LCME that it had "reviewed and accepted with appreciation the progress report on documentation of the comparability of clinical educational experiences across clerkship sites, planning and documentation of resources to support curriculum design oversight, enhanced centralized faculty control, management of the curriculum, and planning for facility improvements for research and education." The LCME informed USU that the next full accreditation survey is scheduled for the 2006-2007 Academic Year.

Additional Accrediting Entities Provide Quality Assurance. In addition to the University's accreditation by the Commission on Higher Education of the Middle States Association of Colleges and Schools and the SOM's accreditation by the LCME, the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM: 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health; and, 3) the American Psychological Association Committee on Accreditation. Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 4) the American Association for the Accreditation of Laboratory Animal Care; and, 5) the Nuclear Regulatory Commission.

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MILITARY UNIQUE CURRICULUM

Large-scale terrorist attacks and biological intimidation campaigns on American soil have sent shockwaves of change rippling through every layer of society. Each unexpected new challenge requires an adjustment in preconceptions and contains a practical lesson for the future. But at USUHS, it is learning as usual. Students have been explicitly trained to provide a medical response to terrorism scenarios like the ones that are playing out in the United States and abroad today.

- Association of American Medical Colleges, Reporter, Volume 11, Number 3, December 2001, pages 8-9.

"One place where the physicians of tomorrow do get thorough preparation to deal with the medical aspects of chemical and biological terrorism is at the Uniformed Services University of the Health Sciences...This `West Point for doctors' offers a unique grounding in military medicine, which prepares its graduates to handle real-world scenarios that most civilian doctors are ill-equipped to face, like the 1995 sarin gas attack on the Tokyo subway system...From basic studies integrated into the pharmacology and microbiology curricula, to the extensive field operations known as `Operation Kerkesner' and `Operation Bushmaster,' USUHS students learn how nuclear, biological, and chemical (`NBC' for short) agents act on the human body and what to do in the event of a suspected exposure - from detection to decontamination and medical countermeasures....the June 1998 issue of Military Medicine reported that only 19 percent of military physicians were confident about providing care in `NBC' situations. The majority of those confident few - 53 percent - were USUHS graduates."

- Association of American Medical Colleges, Reporter, Volume 8, Number 3, December 1998, pages 1 and 6.

General Overview. The School of Medicine is a fully accredited medical institution which provides a year-round, four-year curriculum. This curriculum is 174 weeks in length, approximately 20 weeks longer than the average curriculum of U.S. medical schools. This expanded curriculum focuses on epidemiology, health promotion, disease prevention, tropical medicine, leadership, officership, the management of combat trauma, and combat casualty field exercises. Woven throughout the students' entire course of study, these and other subjects focus directly on the unique requirements of career-oriented military physicians. The USU SOM military unique training includes **"approximately between 784 and 889 hours of initial military education and medical readiness training compared to that provided to the Health Professions Scholarship graduates whose training ranges from 50 to 132 hours, depending on the Service"** (General Accounting Office Report, "Military Physicians - DoD's Medical School and Scholarship Program," September 29, 1995, page 41).

USU represents a total military medical educational environment and acculturation process. The USU SOM provides the Military Health System (MHS) with career-oriented medical officers who possess the knowledge, skills, and attitudes essential for effective deployment during joint service operations. The SOM's principal focus is on military medicine, which involves the prevention of disease and injury; the management of combat trauma;

health promotion; and, diagnosis and treatment by medical personnel who are integral to the military operations they support. This focus also involves the syndromes and injuries which are either rare or unknown among non-military populations. Military medicine requires a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. **The SOM, for example, provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.** Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a physician's ability to properly support his/her military commander's responsibility for troop fitness. Also critical to a military physician's focus is his or her ability to provide disease prevention and health promotion under austere conditions.

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First Year Curriculum.

Background. Four SOM Departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, Medical History, and Psychiatry share the major responsibility at USU for teaching the military unique course material, material not found in the curriculum of any other U.S. medical school. In addition to the usual first-year medical school courses, such as anatomy, physiology, biochemistry and human behavior, students at the SOM have required courses in military studies, military medical history, tropical medicine (diagnostic parasitology and medical zoology), as well as biostatistics and epidemiology, all of which utilize military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the Uniformed Services. Students are focused on the delivery of preventive and treatment services in the "field" or in a deployed environment.

Overview of Military Studies. The Department of Military and Emergency Medicine is responsible for teaching the military studies curriculum during the first and second years of medical school. The first course occurs during the Fall of the first year and is entitled, "Overview of Military Medicine;" it introduces the students to military medicine through lectures and small group discussions. The content of the course includes the expectations that line officers have placed on the medical corps, the distribution and classification of combat casualties, the impact of disease and nonbattle injuries on readiness, and the career patterns of the military medical officer. The remainder of this course deals with the echelon system and evolving modular concepts of battlefield health care and an introduction to the areas of chemical, biological, radiological, nuclear, and high explosive (CBRNE) warfare. During the second instructional period (Winter) of the first year, the students learn the basic skills of prehospital care in a course entitled, "Combat Medical Skills." This portion of the curriculum exposes the students to the level of medical training of the basic medic and introduces, at an early time, those skills which must be built upon and expanded during subsequent medical training. "Military Applied Physiology" is presented during the third instructional period (Spring) of the first year. While this course parallels the traditional physiology course, it also reinforces the concept that was introduced during the Fall, that military medicine is a form of occupational/environmental medicine. **The physiologic responses to stressors common to the military environment such as cold, heat, radiation, dysbarism, altitude sickness, and exercise are presented in the context of their impact upon readiness.**

By the end of the first academic year, each student has completed course work and experiences considerably greater than those required by the Basic Medical Officer Course for any of the Uniformed Services. The first academic year spans 40 weeks of instruction within the SOM, one week of operational medicine, and five weeks of military medical field studies.

Operation Kerkesner.

I just returned from a 'fantastic' morning at Quantico observing Operation Kerkesner. I had no idea that the training had reached such a high state of sophistication... Some of my observations included the following: how integrated and well thought out the sequence and content of the training was; how those students with prior military time helped the uninitiated ones so well; how professional and competent the Marine NCO cadre was. What a powerful lesson for those students

to see how the NCO Corps truly is the backbone of the force; how impressed the two Thai Army officers and Japanese Naval officer were as they observed the training. USUHS no doubt is the global benchmark model; how the students praised this experience. Not one I spoke with had a negative thing to say.

- From a Letter to the USU President dated June 25, 1999, from **Colonel Frederick J. Erdtmann, MC, USA, Hospital Commander, Walter Reed Army Medical Center.**

Between the first and second year, all students participate in the required five-week course, "Military Medical Field Studies (MMFS)." The MMFS course begins with instruction in military field skills: operating a radio, navigating the land in daylight and at night, using preventive medicine principles, and protecting oneself against CBRNE attacks. The knowledge from this block of instruction prepares the students to successfully complete a one-week leadership laboratory exercise at the Quantico Marine Corps Base. This exercise, **Operation Kerkesner** (named after a former Marine faculty member of USU), challenges the students' ability to overcome field problems through their own initiative and team work. The field exercise focuses on small unit operations in a field environment. The class of 165 students is divided into four platoons which are further divided into eight person squads. Evaluators from the Department of Military and Emergency Medicine and platoon advisors from USU and Quantico live with the students and accompany them in all scenarios. Student leadership is rotated to place each student in a leadership position at squad or platoon level with all attendant responsibilities. The schedule includes operational scenarios which emphasize virtually all major points covered in the Military Studies I Course. Student leaders must know the medical threats (e.g., dehydration, insect-borne disease, sanitation, injury prevention, CBRNE avoidance and decontamination, physical and psychological stress) they may face and demonstrate how they would control these medical problems in their units. This course initiates the student to the field skills and small unit leadership experience required for the successful completion of Operation Bushmaster during the Military Contingency Medicine Course in the fourth year. **Operation Kerkesner** has been visited by a variety of active and reserve U.S. military medical personnel and has served as a model for the Navy's Rapid Deployment Medical Force (RADMF) training program. Elements of the course have been used in Public Health Service Disaster Medical Assistance Team (DMAT) training. Foreign military medical personnel have also attended the course to gain material to enhance their own training programs (e.g., the United Kingdom, France, Israel, Japan, Singapore, Thailand, and Mexico).

Non-Medical Operational Assignments. The field exercise is followed by the final portion of Military Medical Field Studies. During this time, prior service students may elect to participate in research, work with a mentor, or attend a military qualification school such as: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, and Escape (SERE) School Training; Underwater Operations (SCUBA); or, Expert Field Medical Badge (EFMB). Those students without prior service experience are required to spend four weeks with an operational unit in their parent Service. Students may be afloat on a Navy ship, with a Marine Battalion, with noncommissioned officers (NCOs), or with other junior officers learning the military occupational environment and developing a non-medical perspective on military medicine. Coordinators at each site report on the students' performance to the Department of Military and Emergency Medicine; and, each student produces a daily log and a written report detailing his/her experience and lessons learned. During this same period, twenty-five to thirty-five percent of each class will elect and successfully complete, one of the military qualification schools listed above.

Special Programs in Operational Medicine Offered by the Casualty Care Research Center. The Casualty Care Research Center (CCRC) is a division of the SOM Department of Military and Emergency Medicine. The CCRC, created in July of 1989, is staffed by military and civilian physicians and scientists. **The center provides USU medical students and other medical personnel disciplined training and research experiences in combat casualty care, medical counterterrorism, injury epidemiology, trauma management and other related areas.** USU's medical students attend the CCRC programs either as an elective during their fourth year or as part of their summer experience between the first and second years of medical school.

During 2001, students between their first and second year of medical school, selected an area of interest and worked with CCRC faculty members on individualized courses of research and study. The students were also divided into groups; each group was responsible for completing a research effort and for a presentation of findings. Students attended one or more of the following CCRC training opportunities:

1. Emergency Medical Technician-Tactical (EMT-T) Course. The EMT-T course was developed to provide relevant training to medical providers who work within the law enforcement special operations community. Topics in the EMT-T program include: clandestine drug laboratory raids; emergency medical care in barricade situations; care under fire; forensic science during patient care; medical operations, planning and medical intelligence; wounding effects of weapons and booby traps; special medical gear for tactical operations; personal protective gear; special needs for extended operations; preventive medicine; and, injury control;

2. Emergency Medical Technician - Tactical Advanced Course. The Tactical Advanced Course includes the following topics: advanced technology applications in the remote assessment methodology; legal concepts and moot court; individual health care concepts; concepts in crisis intervention; sleep/wake cycle management; emerging issues in chemical restraint; operational dermatology; management of training injuries; nutrition and fitness for tactical teams; and, less lethal weapons systems.

3. Weapons of Mass Destruction (WMD) Training Program. The Center offers a variety of training programs in the area of WMD to include: Out-of-Hospital Response Training; and, a Health Care Facilities Course. Topics of instruction include: identifying potential Chemical-Biological-Radiological-Nuclear (CBRN) devices; threat recognition and evaluation; formulating a building response/evacuation plan; the role of quarantine and isolating exposed individuals; psychological effects of a WMD incident; and, principles of hasty decontamination.

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Second Year Curriculum.

Extensive Hours of Preventive Medicine Training. During the second year, besides pathology, microbiology, pharmacology, ethics, human behavior, introduction to clinical medicine and physical diagnosis, students have additional hours of preventive medicine, including an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and, health services administration.

On October 3, 2001, the Dean, SOM, issued a revised policy directing that all second year medical students must certify as Basic Life Support (BLS) providers at the "C" level. The certification is in effect for two years and is provided during the sophomore year to maintain certification through May of the senior year. The Department of Military and Emergency Medicine schedules BLS certification sessions for the second year students; students may elect to certify through officially approved off-campus courses under the auspices of the American Heart Association or the American Red Cross. These courses must be at the "C" level, also known as the health care provider level; students must be certified prior to the beginning of their third year clerkships.

Military Studies. The second year course in military studies, conducted by the Department of Military and Emergency Medicine, focuses on two general areas: the science base for the practice of military medicine (wound ballistics, extensive background on conventional and unconventional weapons effects, toxic hazards, and psychological stress) and the command and staff functions of military medicine in Joint Commands (medical planning, medical logistics, medical evacuation systems, and blood programs).

The second academic year spans 35 weeks of instruction within the SOM. After final examinations, students prepare for the U.S. Medical Licensing Examination (USMLE) Step 1, which is the first of three examinations in the process of becoming a licensed physician. The current second year class completed the computer-based testing (CBT) for the USMLE, Step 1, between May and June of 2001, prior to beginning the first rotation of their third year. The Office of Student Affairs reported that 91 percent of the USU students in the Class of 2003 passed the examination on their first attempt. The national average percentage pass for 2001 was 90 percent.

Second Year Medical Ethics Course. The second year, Medical Ethics Course: Ethical, Legal and Social Issues in Medicine was initiated during the Summer of 1977. The course, taken by all medical students, was also presented during 2001 to the Nursing Anesthesia students from the USU Graduate School of Nursing. The course includes extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva Conventions. Other material stresses the resolution of hospital-based ethical problems in federal institutions. A wide range of speakers is annually provided during the course: **Gordon Livingston**, a local psychiatrist and West Point Graduate, shares lessons learned during the Vietnam Conflict; **Robert Leitch**, a British nurse with extensive combat experience, describes future conflicts such as those already faced by military health care providers in regard to the extent of medical resources that should be offered when providing humanitarian care; **Craig Llewellyn,** Professor and Director, Center for Humanitarian and Assistance Medicine (CDHAM), Department of Military and Emergency Medicine, summarizes the discussions by suggesting what the students should retain from the differing views

presented during the course. There are four issues which all USU students address: 1) Military Medical Triage. The students learn that the practice of military medical triage sometimes departs from traditional civilian medical procedures; rather, the top priority may be to further the military mission. The students discuss how the varying priorities may be necessary to save extensive lives, both military and civilian; 2) Captured Enemy Service Persons. The USU students learn that if the captured enemy is ill or injured, he/she is to be regarded as a patient. There is no option for physicians or any service persons to mistreat prisoners or to treat them "less equally" for revenge or military gain; 3) Exploitation of Vulnerable Patients. In this session, the students learn that in medicine, physicians should never exploit vulnerable patients for military gain; and, 4) Self-Incriminating Information. In this final area, students are instructed that the two primary tasks of military physicians are to keep their patients healthy and to provide commanders with accurate information regarding the health of their patients. Over 150 faculty from USUHS, NNMC, and WRAMC led discussions on these and other issues with small groups of students. The final lecture, during both 1999 and 2000, was given by **Patricia Heberer**, an historian at the Holocaust Museum; the students learn that all physicians are susceptible to immoral behavior and that they must avoid the mistakes of the past.

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Third Year Curriculum.

Overview. The third year curriculum consists of clerkships in the principal specialties of medicine. Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, and troop dispensaries on active military bases) and the patient population which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

As a part of their training and work during their clerkships, USU SOM third (and fourth year students) provide hundreds of thousands of hours of patient care related services in the MHS hospitals during each calendar year. Such services include: examination of patients; providing post-operative care; organization and maintenance of the completion of the medical history and physical examinations of patients; assistance at surgery and the delivery of newborns; and, updating progress notes in patient records. These services, performed by USU medical students in a supervised setting, provide necessary and important support in the provision of quality medical care to the men, women, and children receiving treatment throughout the MHS.

All SOM departments are providing a clinical experience within the ambulatory setting. The ambulatory services of all departments have grown significantly within the past seven years. The Department of Medicine has taken the lead and devoted extensive resources to the planning, development, and implementation of a comprehensive ambulatory teaching experience. The department's program and its faculty have become nationally recognized for accomplishments in this area; a number of publications in peer-reviewed journals and presentations have resulted.

Clerkships Represent the Entire Spectrum of the MHS. USU medical students complete their third and fourth year clinical clerkships at 20 military hospitals, representing the entire spectrum of the Military Health System (MHS). The third year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third year rotations: Family Practice (six weeks); Obstetrics/Gynecology (six weeks); Pediatrics (six weeks); Psychiatry (six weeks); Internal Medicine (two six-week sessions); and, Surgery (two six-week sessions). Five of the USU SOM academic departments - Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, and Psychiatry - use the Walter Reed Army Medical Center and the National Naval Medical Center as major clinical instructional sites.

The University has reevaluated and updated the affiliation agreements with its major teaching affiliates. This has further defined the relationship between the SOM and its 20 clinical sites to ensure that clear routes of communication exist and areas of mutual interest are appropriately defined and addressed. The Associate Dean for Clinical Affairs provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are put into place.

The following teaching hospitals have established affiliation agreements with the USU SOM: 1) **U.S. Army - (9)** Walter Reed Army Medical Center, Washington, D.C.; Brooke Army Medical Center, San Antonio, Texas; Tripler Army Medical Center, Hawaii; Madigan Army Medical Center, Tacoma, Washington; Dewitt Army Community Hospital, Fort Belvoir, Virginia; Martin Army Community Hospital, Fort Benning, Georgia;

Darnall Army Community Hospital, Fort Hood, Texas; Womack Army Community Hospital, Fort Bragg, North Carolina; Eisenhower Army Medical Center, Fort Gordon, Georgia; 2) **U.S. Navy - (5)** National Naval Medical Center, Bethesda, Maryland; Naval Hospital, Portsmouth, Virginia; Naval Hospital, San Diego, California; Naval Hospital, Jacksonville, Florida; Naval Hospital, Pensacola, Florida; and, 3) **U.S. Air Force - (6)** Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; Wilford Hall Medical Center, Lackland, Texas; USAF Medical Center, Wright Patterson Air Force Base, Ohio; USAF Medical Center, Keesler Air Force Base; David Grant Medical Center, Travis Air Force Base, California; and, Eglin Air Force Base, Florida.

The Department of Obstetrics and Gynecology Successfully Utilizes Standardized Patients to Assure Mastery of Required Knowledge, Skills, and Professional Behaviors. Educators in Obstetrics and Gynecology and accreditation bodies have been concerned that a medical student may complete a required core clinical clerkship without the assurance of the mastery of essential clinical skills or the demonstration of the essential components of professionalism. The SOM Department of Obstetrics and Gynecology initiated a program of assessment utilizing standardized patients (trained actor-patients) in an Objective Structured Clinical Exam (OSCE) format with one-on-one faculty supervision at the end of each core six-week clinical clerkship. These sessions are conducted at USU's Medical Simulation Center for clerkships in the National Capital Area; and, sessions are provided in the Obstetrics and Gynecology Clinics located at the integrated Wilford Hall USAF Medical Center in Lackland, Texas, the Brooke Army Medical Center in San Antonio, Texas, and at the Tripler Army Medical Center in Hawaii. As other clinical programs have done, the Department can now assure that the students have been observed correctly performing techniques. The following procedures are performed utilizing standardized patients during the clerkship: the clinical breast examination; the speculum pelvic examination; the bimanual pelvic examination; an interview of the adolescent gynecologic patient; and, an interview of the menopausal patient. Another innovation, during 2001, was the provision of direct, on-the-spot feedback to the medical students from the standardized patients and the faculty supervisors both at the conclusion of each of the essential techniques, or procedures, listed above, and following the final examination sessions. The standardized patients and faculty reinforce the skills and also provide guidance for improvement. Feedback from the students has been extremely positive; they understand the importance of being able to exhibit the required skills and behaviors; and, they particularly appreciate the immediate guidance and the opportunity to improve their performance of these essential skills. As a consequence, this clerkship experience leaves a permanent impression on the students which eventually benefits their future patients in subsequent clinical encounters.

An Innovative Clinical Clerkship Management Tool Utilizing Palm-Type, Hand-Held Computer Devices. The Department of Obstetrics and Gynecology has also initiated the development and implementation of an innovative clinical clerkship management tool utilizing palm-type, hand-held computer devices for medical student performance evaluations. During 2000 through 2001, the residents in the USU, NNMC, and WRAMC-sponsored Uniformed Services Residency in Obstetrics and Gynecology Program utilized a hand-held device operating system application which was developed by faculty in the USU Department to establish a cumulative data base encompassing the residents' individual patient care management experiences. On a weekly basis, each resident downloads his or her data to the main department computer through a "HotSync" function. This allows the program director to have timely, on-going access to the experiences of all of the residents. The positive impact of this program was recently published in the peer-reviewed premier journal, Obstetrics and Gynecology, and was showcased in a special session at the Annual Meeting of the Council on Resident Education in Obstetrics and

Gynecology in March of 2001. Since the residents are the primary teaching interface with the USU medical students, a new program has been developed in the SOM Department so that the residents can enter their assessments of the performance of the USU medical students who are rotating on their respective services. When the residents download their own patient care experiences on a weekly basis, their evaluations of the USU medical students are automatically downloaded as well. The Clinical Clerkship Director then has ready access to the progress of all of the medical students in a format which is automatically updated each week. The results of this pilot project were reported at the National Faculty Development Workshop conducted by the Association of Professors of Gynecology and Obstetrics in January of 2001. As the program is further developed, it will be implemented at all clerkship sites (Brooke Army Medical Center, Fort Belvoir Army Hospital, the National Naval Medical Center, Tripler Army Medical Center, the Walter Reed Army Medical Center, and the Wilford Hall USAF Medical Center). Data for all students in the Department of Obstetrics and Gynecology is downloaded weekly through a secure Internet site so that the Clerkship Coordinator can monitor the progress of all students at all sites. This process helped USU to meet the LCME requirements for uniform experience and assessment for all USU medical students across all sites.

Pediatric Clinical Rotation - Exceptional Family Member Program. Third year medical students on their pediatric clinical rotation receive a new perspective on family care; the rotation sends the students directly into the homes of parents who have children with special needs or disabilities. Every six weeks, a new group of USU students visit homes on an individual basis, integrating into the family for about two hours and learning about life with a special-needs child. The parents are the teachers in the non-clinical, interactive environment. USU works with the Bethesda-based Institute for Family-Centered Care to provide the training. The Institute recruits, trains, and supports parents to serve as faculty and advisors for the project. The parents develop a list of capabilities and behaviors for the students which goes beyond their basic medical knowledge. These include self-awareness, good communication, decision-making skills, and a professional attitude. These are competencies which the parents feel characterize outstanding physicians. Medical conditions of the children include seizure disorders, Downs Syndrome, cerebral palsy, cystic fibrosis, leukemia, juvenile rheumatoid arthritis, and severe multiple disabilities. The children range in age from pre-school to adolescence. Prior to their visit, the students are assisted in forming self-directed learning goals; afterward, the students write a one-page paper about the strengths which they saw in the child and family and their own emotional reaction to the visit. The USU students are provided essential lessons about the capacity of families and the role of the physician.

Pediatric Cardiology Module - Cardiac Auscultation at the Simulation Center. Beginning in 2000 and continuing throughout 2001, an innovative case-based, interactive scenario in pediatric cardiology was introduced into the third-year medical student pediatric clerkship through the advanced technologies of the National Capital Area Medical Simulation Center. This teaching module is an interactive session between the instructor and medical students with discussions on the events of the cardiac cycle and a demonstration on their relationship to heart sounds and murmurs in the normal child as compared to the child with congenital heart disease. Interactive discussion is facilitated by the instructor and covers the following topics: 1) the electrical and mechanical events in the cardiac cycle; 2) the four common functional murmurs; 3) a short overview of congenital heart disease; 4) the normal cardiac auscultation of the child; and, 5) the abnormal clinical findings as illustrated by the more common congenital cardiac defects. The instructor's presentation is supported by slide presentations and the use of computer software. The demonstration of heart sounds and murmurs is based on a CD-ROM which contains audio files of actual pediatric cardiac sounds as well as other visual resources which are available to the instructor

and to each of the students at his/her individual work station. The teaching objective is for the student to recognize the normal clinical findings in the cardiovascular examination of the child and to differentiate between physiologic and pathologic sounds and murmurs. A pre-test is given at the beginning of the session; each student is tested on the heart sounds and murmurs provided by the computer software program. The teaching module is expected to complement the clinical experience during the clerkship and to help develop physical diagnosis skills; a post-test is given at the end of the six week clerkship to evaluate the progress of the individual student. This educational experience was presented at the National Meeting of the Council on Medical Student Education in Pediatrics in San Diago in March of 2001. The USU SOM Pediatric Education Section presented a poster entitled, "Utilizing a case-based interactive learning module incorporating CD-ROM-based technology to optimize the teaching of cardiac auscultation skills in the pediatric clerkship." The poster presentation was well received by the attendees.

Patient Simulation Laboratory - A Collaborative Effort.

On April 10, 2001, and June 12, 2001, we brought 8 registered nurse students to your anesthesia simulation laboratory for realistic and invaluable advanced cardiac life support training. The experience our students receive in your lab is consistently of the highest caliber and a highlight of their training. As usual, their evaluations of the experience were outstanding. I appreciate the learning opportunity your patient simulation laboratory affords our students. My wish is to continue the collaborative relationship we have established with your staff to provide exceptional simulator training for future Critical Care Nursing Course students.

- **Karen M. Whitman, MS, RN, CS, Major, U.S. Army Nurse Corps, Director, WRAMC Critical Care Nursing Course**, letter dated June 28, 2001.

A collaborative project between the National Naval Medical Center's Department of Anesthesiology and two USU SOM Departments, Anesthesiology and Anatomy, Physiology, and Genetics, led to the development, in 1997, of a fully interactive medical training laboratory at USU: the Patient Simulation Laboratory (PSL). As mannequin-based simulation was new not only to USU, but also quite rare, in general, throughout the world of medical education, almost every program offered by the USU PSL was developed and implemented by the USU PSL staff. The PSL has been in daily use since its first course offering. The greatest advantage that patient simulation brings to medical education is the ability to schedule disasters so that the students can gain familiarity with managing resources in times of crisis.

The patient simulator, located in the USU SOM Department of Anesthesiology, is being used to train four primary groups: medical students, graduate nurses, anesthesia residents, and students of the crisis and consequence management of weapons of mass destruction and terrorism. In addition, there are TriService post-graduate military medical readiness groups: The Army Medical Center and School from the Walter Reed Army Medical Center (WRAMC), the Air Force Critical Care Air Transport Teams (CCATT) from the Malcolm Grow Medical Center (MGMC), and USNS COMFORT clinical staff from the National Naval Medical Center (NNMC).

USU SOM students, during their third-year anesthesia rotation, are instructed in the basic fundamentals of anesthesia and the role of the anesthesiologist in surgery. They learn to connect a patient to external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. For the first time, USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses while actually performing the procedures and administering anesthesia, without putting a patient, or themselves, at risk.

The PSL has six mannequins which span the range of ages from newborn to adult, both male and female. The simulators are designed with more than 20 patient profiles, each with unique characteristics, including cardiovascular, pulmonary, and metabolic attributes. There are more than 35 customizable "events" ranging from anaphylaxis to ventricular fibrillation which can be assigned to the simulated "patients." Instructors are able to select the type, severity, and speed of a case and tailor it to match the ability of the student; the instructor can then assess the clinical judgment, decision-making, and performance levels of the student. A lesson can be "paused" to provide the instructor the opportunity to give the student feedback; and, clinical situations can be repeated until the desired level of performance is achieved. The mannequins (simulators) can present a number of various medical problems and altered physiological states. A certain scenario may incorporate any number of characteristics and complications including difficult airway management, cardiovascular conditions, allergic reactions, problems with equipment set-up, and equipment failure. **The simulators present scenarios applicable to combat casualty care, anesthesia, critical care, trauma, and emergency medicine.** The simulators are designed with automatic drug recognition systems, which create realistic responses to model drug compounds administered to the mannequins. Each syringe is equipped with a unique computer chip which represents a specific drug. Drug models include intravenous and inhaled anesthetics, neuromuscular blockers, cardiovascular agents, and a wide range of infusion pharmaceuticals which affect the simulators as they would human patients.

The SOM has completed its fourth year of teaching the first-year SOM students a simulated cardiovascular reflex scenario as part of their Physiology Course; each year, the SOM students have expressed strong enthusiasm for this simulation presentation. The simulated patient definitely adds a clinical context to some of the physiological and pharmacological principles presented to both the medical and nursing students. In addition, to these hands-on small group (8 students) simulations, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples during their Pharmacology lectures. Thus, the PSL brings the hospital to the students through a newly installed Advanced Distance Education Network (ADEN), which was designed by the PSL staff.

The USU SOM Departments such as Military and Emergency Medicine, Pharmacology, Biochemistry and Molecular Biology, Microbiology and Immunology, and Pathology offer classes focusing on the effects of chemical agents and radiation and biowarfare agents. One such course is the Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror: Part I; the instructor, **Aileen Marty, CDR, MC, USN, Associate Professor, USU SOM Department of Pathology**, is a recognized expert in emerging infections and pathology. The course, first offered during 2000, provides an understanding of the medical features and medical countermeasures for living agents or organic products which could potentially be used in warfare, terrorism, or criminal activities in the context of the political implications of such weapons of mass destruction. Also incorporated into the course is a hands-on training phase conducted in the PSL; the simulator's real strength is that medical disasters can be scheduled and students can practice repetitively until they gain familiarity, competence, and poise with the unexpected. In conjunction with Commander Marty's course, the PSL has produced inhalational

anthrax and marine toxin exposure scenarios, with another scenario featuring smallpox currently in development. The pneumonic plague scenario is also played out in the PSL, placing the students in a real-life situation. Part II of the CDR Marty's course, first offered during 2001, focuses on nuclear, radiological, high explosives, chemical agents, and unusual weapons and it is also acted out in the laboratory. These realistic exercises result in the class members reaching out to others and forming teams to solve problems; they provide experience with almost every facet of a response to a biological or chemical terrorism event.

Simulation Center Introduction to Surgery Rotation. The advanced technologies of the National Capital Area Medical Simulation Center are being used in simultaneous fashion every six weeks to introduce the third year medical students to their surgery rotations. The students are provided both an introductory discussion and a lecture regarding an abdominal surgery laboratory to be held the following day. The patient actors are used to provide an hour-long, three-patient opportunity to elicit, from the medical students, a medical history; and, the patient actors enable the medical students to perform a focused physical examination for a variety of acute abdominal diseases (e.g., appendicitis, pancreatitis, gallbladder disease, ectopic pregnancy, and others). These encounters are videotaped and the tapes are reviewed with the teaching surgeon during the subsequent hour. A suturing and knot-tying laboratory is held in the computer laboratory using both web-based and senior surgeon instruction. Plastic mechanical models (Laerdal/MPL) are used to teach such skills as endotracheal intubation, chest tube insertion, and surgical airway. The human patient simulator (MEDSIM) is used to teach the best approach to simple clinical problems such as hypotension or hypoxemia. The virtual reality laboratory experience includes starting an IV (HT Medical), creating an anastomosis (BDI), and performing bronchoscopy (HT Medical). Two additional simulators are used to teach emergency trauma procedures: pericardiocentesis and diagnostic peritoneal lavage. These last two trauma skills simulator technologies were developed at the National Capital Area Medical Simulation Center (SimCen - see Section I, pages 73-77).

Through the use of this multi-modality facility, the SimCen, the experience of medical students can be enhanced so that the first time some of the above-described problems or procedures are encountered, it will not be with a live patient, but rather with the most appropriate simulator. Approaches, such as those provided by the advanced technologies of the Simulation Center, are expected to minimize the possibility of medical errors.

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Fourth Year Curriculum.

Yours is the only medical school in America which trains physicians to be ready for duty on the bottom of the ocean or on the surface of the Moon, and any place in between...As students, you went through one of the most rigorous programs in the country... You prepared yourself to treat patients anywhere in the world, under any circumstances.

- **President Ronald Reagan**, Commencement Address, SOM Class of 1987.

Overview. The fourth academic year begins with a one week Military Preventive Medicine Course. Early in the fourth year, approximately 165 students also take the USMLE Step 2. The 165 fourth year students have ten four-week blocks for 1,650 rotations. Students must complete an eight week subinternship as well as the following four-week clerkships: Military Contingency Medicine, Military Emergency Medicine, and Neurology. The senior year concludes with a one-week Transition to Residency Course.

Military Medicine. The Department of Military and Emergency Medicine conducts two courses in the senior year which are required for graduation from the SOM. Although separate in time, they are closely coordinated. For years, Military Contingency Medicine (MCM) has focused on medicine in a deployed environment and in response to a terrorist attack. The first two weeks of the course are currently devoted to reviewing and expanding basic concepts and manual skills learned in the first two years of Military Studies. While Combat Medical Skills included first-aid at the medic level for the first year medical students, the Advanced Trauma Life Support (ATLS) course is taught at the physician level to the fourth year students. The USU SOM is one of only three U.S. medical schools which require ATLS for all of their students. Additional topics in the first two weeks include the management of combat trauma, chemical-biological-radiological (CBR) exposure, environmental injuries, and combat stress. Special sections focus on triage, women's issues, and working with non-governmental organizations in disaster relief or humanitarian assistance missions. Integration with national strategic goals, operational missions, and tactical objectives is emphasized in all aspects of the course. The third week of MCM is dedicated to Operation Bushmaster (see next paragraph) so that didactic lessons can be applied in multiple simulated situations during a field training exercise. The fourth week continues student education in military medicine and begins the transition into hospital-based emergency medicine. Students review basic and learn advanced life support interventions during this period; these two and one half days also prepare the SOM students to excel in a four-week clerkship entitled Military Emergency Medicine (MEM).

Operation Bushmaster. This field training exercise uses the constructs of three Battalion Aid Stations and one Forward Support Medical Company to allow students to practice skills learned in MCM and throughout the military and "traditional" SOM curriculum. Because of the need to educate students from all Services, these treatment facilities are designed to represent generic first- and second-echelon levels of care. Real-world modular teams, such as the Air Force's Mobile Field Surgical Teams, have been integrated into the scenarios. Army companies have provided frontline ambulances, UH-60 Blackhawk helicopters, and medical personnel to give students experience with medical evacuation procedures. The overall scenario was changed this year from a Major Theater War to a peace enforcing Operation Other Than War in a Joint Task Force environment, in order to

reflect recent trends in military deployments of the last decade. Students are evaluated on: medical care provided to dozens of simulated casualties; leadership skills under demanding and stressful conditions; mission focus; and, overall teamwork.

Emergency Medicine Clerkship. Unlike most medical schools in the United States, the USU SOM requires all students to complete a clinical clerkship in emergency medicine prior to their graduation as physicians. Lectures, case studies, and advanced life-support skills in the last two and one half days of MCM prepare students to work in one of 18 emergency departments around the country. The primary goal of this educational opportunity is to allow students to learn the initial approach to patients of all ages for whom a diagnosis is not already known or narrowed down to a short list of possibilities. Students gain clinical experience evaluating patients of all ages with undifferentiated complaints and often unknown severity. Under the on-site supervision of practicing emergency physicians, USU SOM students evaluate acute presentations of common injuries and illnesses, devise management plans, and formulate disposition decisions within a variety of health care systems. Each Year, approximately three to four students from each Service (five to six percent of each class) choose emergency medicine as a career specialty.

Operational Electives. The Department of Military and Emergency Medicine, through its Education Division or one of its three centers, sponsors several electives in operational medicine. These may include clinical rotations in military emergency departments or aerospace medicine clinics, enrollment in military courses, or attendance at the Joint Readiness Training Center. Qualification as a flight surgeon may be obtained through either the U.S. Air Force School of Aerospace Medicine or the U.S. Army School of Aviation Medicine; during this last year, the Army School altered the timing and structure of their course specifically to enable USU SOM students better access to this form of occupational medicine. Whereas only one student had attended in the previous two years, five students and one faculty member attended during 2001; four of those six were the top four graduates of the demanding six-week Army course. Nine students plan to attend during 2002. Additionally, three students were sponsored by the Center for Disaster and Humanitarian Assistance Medicine to accompany an Air Force unit on a humanitarian mission to El Salvador. And, two students planned on working in a trauma center in Armenia before their graduation in 2002.

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USU SOM Curriculum Stresses a Military Focus. In addition to the military unique curriculum described above, the USU SOM academic departments and faculty have structured **all of their courses to include: topics specific to military medicine and not covered in the traditional medical school curriculum; and, teaching examples and cases drawn from military medicine.** This content focus is reinforced by the fact that many of the faculty (one third of the billeted basic science faculty and two-thirds of the clinical faculty) are uniformed officers representing the Army, Navy, Air Force, and the Public Health Service; these unformed instructors provide experience and contextual correlations during their teaching of traditional topics. **The unique practice of military medicine is woven throughout the four years of medical school.**

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Curriculum Renewal.

Background. The SOM curriculum utilizes a variety of educational experiences and learning formats, including lecture, laboratory, clinical correlation, small group discussion, computer and web-based experiences, patient simulator, standardized patients, and experiential exercises. The SOM vision for the undergraduate curriculum is that the science of today is taught in an environment which will foster increased long-term, self-directed learning tomorrow. Toward this end, the SOM Curriculum Committee completed an exhaustive study of the undergraduate curriculum and revisions are on-going to minimize the traditional curricular "stovepipes" through course integration and the increased use of clinical material.

In both the first and second years, there is a heavy emphasis on small group learning. In the first year, this takes the form of laboratories in Anatomy and Physiology and discussion groups in Human Context. Additionally, the Introduction to Clinical Medicine Course starts in the first year and begins to develop history-taking and physical diagnosis skills. In the second year, laboratories continue in Pathology and Microbiology, while there is increased use of a small group problem-based learning educational format. In both Pathology and Clinical Concepts, groups of 8 to 12 students team with a faculty member to review clinical scenarios. The format of these encounters is designed to flow seamlessly into the second year portion of the Introduction to Clinical Medicine Course and the clerkships during the third year.

The Renewal Process. As the Chief Academic Officer of the SOM, the Dean is responsible for institutionalized curriculum management. Policy issues are reviewed and considered by a standing Curriculum Committee which reports to the Dean. Institutionalized curriculum renewal in the SOM has been a high priority in recent years. The formalized process began with Phase I (1993-1995) of curriculum renewal. During Phase I, a steering committee with four subcommittees was developed to cover the following areas: 1) the history of medical education in the United States; 2) current experiments in curriculum reform; 3) curriculum at the USU SOM; and, 4) professional requirements and outcomes. Subcommittee reports and recommendations were produced and reviewed by the faculty. The Dean's Office and the relevant academic departments then offered recommendations on how to best implement the committee's recommendations and, subsequently, they were charged to implement those recommendations.

During Phase II (1996-1997), a steering committee and five subcommittees were established to review or complete the following: 1) objectives and/or goals; 2) an organizational template for curriculum management; 3) basic science and intra-departmental and clinical integration; 4) the clinical clerkships, both required and elective; and, 5) outcomes and evaluation. Topic groups were established and the subcommittee and topic group reports and recommendations were reviewed by the steering committee, relevant academic departments, and the Dean. A consensus on the recommendations and plans for implementation was reached; and, the recommendations were implemented.

Phase III began in February of 1998 (and continues to the present time). The Dean charged the Curriculum Committee with reviewing the December 1997 Curriculum Review Report produced during Phase II of the curriculum renewal process. The Curriculum Committee was also charged with providing oversight for the planning process and the development of an implementation plan for curriculum renewal. This implementation plan is envisioned as an evolutionary process, with changes in the curriculum occurring in an incremental fashion. The Curriculum Committee completed a draft of SOM educational objectives, which was reviewed by the Dean

and distributed to faculty, students, and staff for comment, and finalized in 1998. The current draft of the curriculum renewal implementation plan includes five major areas of focus: 1) the development of educational objectives and the further integration of military medicine topics into the general curriculum; 2) content coordination, integration, and presentation; before the renewal process was initiated, the SOM curriculum was a traditional two years of basic science and two years of clinical science program; currently, the basic and clinical science content is on the way toward integration across the four year program; 3) the use of computers in academics; 4) outcome measures; and, 5) faculty development. In order to facilitate this intensive process and to diminish the natural anxiety which results from change, the Dean held town meetings, directed the establishment of a web site for the distribution of information and discussion of issues, involved representatives from all academic departments, established topic groups to review curriculum content, and directed student involvement at all levels. As changes to the curriculum occur, the Dean has also directed that his office establish and monitor processes for student, faculty, and TriService evaluation of the curriculum changes.

There are numerous examples of clinical medicine being integrated into the basic science experience. Close collaboration between the Departments of Radiology and Nuclear Medicine and Anatomy led to the development of computer-based learning resources correlating basic anatomy with the radiological representation of normal and pathologic states. The Medical Physiology Course (which is closely integrated with Anatomy) has a long-established tradition of incorporating clinical faculty into the course. Several areas in particular - cardiovascular, renal, and pulmonary - have demonstrated extensive clinical integration for many years. As part of Phase III, all course and clerkship directors were asked to review the current SOM objectives and to establish consistency between objectives at the individual course/clerkship level and the institutional level. A master grid was developed by the standing Curriculum Committee to facilitate the review of the curriculum for any gaps in content and to determine the adequacy of methods for assessment of student performance. Educational objectives were used to revise the military medicine portions of the curriculum and to guide the coordination of topics in the Anatomy and Physiology Courses. There were several initiatives considered during 1999-2000 to move more of the basic science to the clinical years.

SOM Executive Committee on Curriculum. On August 2, 2001, the SOM Dean issued a Policy Memorandum updating the responsibilities of the USU SOM Executive Committee on Curriculum (ECC). The twelve members of the ECC have been designated with responsibility in seven areas to: 1) articulate, with the concurrence of the Office of the Dean, well-defined learning objectives which each student must meet to receive the M.D. Degree; 2) conduct a biennial review of each required course/clerkship in the SOM undergraduate curriculum, including content, format, teaching methods, course materials and methods for verifying that graduating students have met all learning objectives; 3) establish a prospective course/clerkship review schedule which gives course/clerkship directors sufficient time for proper consultation and preparation before the biennial review; 4) complete the course/clerkship review and assessment within 60 days of submission and presentation by the course/clerkship director, including submission of findings and recommendations to the Office of the Dean; 5) request, if necessary, through the Office of the Dean, further information, seek consultation with faculty or external consultants, and, when appropriate, sponsor symposia on curriculum to assist course/clerkship directors or topic group leaders in curricular planning or improvement; 6) periodically review institutional policy concerning the curriculum and educational practices to ensure consistency in the implementation and management of the undergraduate medical education program; and, 7) address other curricular issues and educational initiatives as charged by the Dean, SOM. The Department Chairs are responsible for establishing objectives, designing content and presenting each course/clerkship assigned to his/her department and for assuring that the performance of

students is evaluated in an appropriate and timely manner and in accordance with institutional policy. The Chairs are also responsible for supporting course/clerkship directors with requisite faculty and specifically for assigning teaching responsibilities to faculty members and for allocating departmental resources as required to support the courses, clerkships, selectives, and electives assigned to their departments. Course or Clerkship directors for departmental-sponsored courses will be appointed by the responsible Chair; course or clerkship directors for interdepartmental courses will be appointed by the Dean, SOM. Faculty members are the content experts in the individual basic science and clinical science disciplines and collectively are responsible for the SOM curriculum. The processes of curricular design, implementation and evaluation must involve broad participation by the SOM faculty both at the departmental level and at the institutional level. Every assigned faculty member is responsible, generally in coordination with the course or clerkship directors, for fulfilling his/her assigned teaching responsibilities in the areas of undergraduate curriculum.

Center for the Enhancement of Healthcare Training and Outcomes. The USU SOM Departments of Medical and Clinical Psychology and Family Medicine have developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychologists, prospective health care professionals, and faculty. The mission of the Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) is to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy, improve cultural proficiency, and maximize health care outcomes; 2) provide a forum in which students have the opportunity to practice the skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships - inside and outside of the USU community; and, 4) evaluate the impact of CEHTO and to continuously improve and refine the training provided. Fundamentally, CEHTO is designed to teach students, residents, and health care professionals how to maximize their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal skills, technology, and cultural awareness to effect the most beneficial treatment plans for patients. With customized training modules, CEHTO participants also receive training to help them better manage themselves (i.e., personal stress management, cultural awareness, interpersonal sensitivity) and others (i.e., resolving conflict or dealing with severe physical or mental illness). As a component of the Family Medicine Clerkship curriculum, for example, medical students receive experiential training. Via facilitated conversations, small and large group exercises, and multi-media presentations, they learn about how cultural factors affect them, their patients, and their interactions with others. Experiences such as these foster an appreciation of cultural diversity, the patients' mental health needs, and how our own beliefs and biases can impact patient care. Most important, this training gives students the opportunity to consider, rehearse, and evaluate specific strategies to deal most effectively with diverse multi-cultural populations. Hands-on, experiential training modules utilize standardized patients (patient actors) at the USU Medical Simulation Center. Using realistic behavioral simulations, this state-of-the-art medical simulation center provides a unique forum in which participants can practice, develop, and refine new skills, and translate increased cultural awareness into culturally proficient behaviors. Detailed feedback is provided and individualized behavioral prescriptions are generated to assist participants in setting objective goals for improvement.

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Departmental Review. A program was adopted by the School of Medicine in 1998 which mandated each department to conduct a "self-study" every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of "peers" from outside of the University. From 1999 through 2001, self-studies and external reviews have been completed by the Departments of Dermatology, Family Medicine, Military and Emergency Medicine, Obstetrics and Gynecology, Neurology, and Surgery. Other departmental reviews pending completion include: Anesthesiology; Anatomy, Physiology and Genetics; and, Radiology and Nuclear Medicine. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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STUDENT AFFAIRS

Class of 2005. During August of 2001, the School of Medicine (SOM) matriculated its twenty-sixth class (the Class of 2005). 1,765 applicants representing all 50 states competed for 165 positions. There were approximately 11 applicants for each position which allowed a diverse and highly qualified selection of candidates with a motivation toward public service. The Class of 2005 includes 63 Army, 51 Navy, and 51 Air Force medical students. In addition, 2 United States Public Health students were added to the class. The demographics of the class are depicted as follows:

- Sixty-eight students (41 percent) were associated in some way with the military before USU matriculation. Of those,
  - Seventeen students served previously as officers; thirteen had previously served as enlisted personnel; eighteen were service academy graduates; fifteen were direct graduates of ROTC programs; and, five were reservists.
- Fifty-five students (33 percent) are women.
- Thirty-nine class members (23 percent) are minority students (including 12 students from groups classified as underrepresented by the Association of American Medical Colleges).
- The average age of the entrants at the time of application was 24 years.

All members of the Class of 2005 hold Baccalaureate Degrees; twenty-one students hold Master of Science Degrees; and, one holds a Doctorate in Veterinary Medicine. Biology was the most represented undergraduate major of the matriculants (33 percent); eleven percent of the class had majors in chemistry; and, eight percent had majors in biochemistry. Some of the other disciplines in which members of the Class of 2005 hold degrees are economics, history, microbiology, nursing, physical education, physics, and zoology.

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The Office of Student Affairs. Throughout Fiscal Year 2001, the Office of Student Affairs (OSA) was engaged in personal and/or professional academic counseling and career guidance for the 668 students in the SOM. Beginning in September of each year, OSA conducts well over 300 formal interviews. In 2001, this process formally began with the post-matriculation interviews of all 167 freshmen from the first year class.

Structured Interviews for the First Year Class. The purpose of the MS-I (medical student-first year) interview is to engage each new medical student in a relationship with the OSA and the office staff who will manage their professional development and career guidance. The interview is open with an emphasis on the future partnership (or the individual management and consulting network) which will exist between each student and the three deans in OSA. The interview covers five areas: 1) Transition - the move to Washington, e.g., housing, getting settled, family issues; 2) Sense of Membership in the Class, e.g., within and between Services, professional, social; 3) Sense of Professional Vision, e.g., vision for what will come after medical school;

4) Adjustment to Student Life, e.g., how are they managing the 24 hour clock; 5) Inquiry about Image, e.g., aside from roles of student, spouse, parent, athlete, what really defines them? Students are free to raise any questions, concerns, or thoughts. The interviews require considerable time, but have definitely proven to be worth the effort for both the students and OSA. These interviews set the stage for an on-going dialogue with each student over the four years of medical school and for establishing a sense of community throughout the student body.

Sponsor Program. In January of 2001, OSA allocated sponsor assignments for the newly accepted students in the Class of 2005. Upon acceptance to USU, members of the incoming class are individually matched with members of the current freshman class. First-year students serve as the incoming students' sponsors; the student sponsor answers questions about housing, moving to Washington, family issues, military summer training, and many other topics. The student-sponsor relationship has proven to be a valuable tool in assisting the incoming students through matriculation.

USMLE Step 1 Preparation. During Fiscal Year 2001, OSA prepared the second-year students for the United States Medical Licensing Examination (USMLE) Step 1 Board Examination which the students took between May and June 2001, prior to beginning their first of the third-year clinical rotations. In 1999, the USMLE introduced computer-based testing for the Step 1 and 2 examinations. During 2001, OSA provided class-wide presentations covering the fundamentals of the examination process, test preparation strategies, and test taking skills. Students also organized their own informal program which included mini-lectures on broad relevant topics, meetings with select faculty, and group study sessions. The USU first-time pass average was 91 percent (the national first-time pass average for 2001 was 90 percent).

Third-Year Clerkship Scheduling. Also during February, OSA met with the second-year students to schedule their third-year clerkships. To increase student input into the orchestration of their third-year clerkship schedule, OSA has moved from a system where students were simply given a pre-selected schedule of randomly assigned clerkships. The student now has the ability to place rotations of special interest in the first half of his/her junior year and the opportunity to experience potential career choices at an early point. In addition, the current system allows students to coordinate some of the required travel in their academic third year with personal events which may already be planned or anticipated. The staff of OSA conducted Round 1 clerkship selections for the Class of 2003 using randomly assigned numbers. During the second week of February, students met as a group and picked rotations for the remaining rounds. The students shared equally in opportunities for assignments of choice and expressed their appreciation for the process.

Graduate Medical Education Planning Interviews. OSA conducts interviews with the third-year medical students during the fall term. During the first few months of 2001, OSA met individually with members of the junior class to conduct fourth-year planning. The hour-long meetings covered Graduate Medical Education (GME) planning, specialty choice, interviews, and specific sequencing of senior rotations to maximize the selection of their residency of choice; again, available selections for senior-year rotations exceeded the general expectations of the students. OSA arranged program schedules which enhanced student growth, professional experience, and individual preferences. A major product of this process is the Dean's Letter, which presents a comprehensive

picture of each student's strengths. Selection for GME positions is competitive; OSA and students worked together to create the best nomination packages possible.

Graduate Medical Education Selection Board. The Joint Service Selection Board convened during the week of November 26 - 30, 2001; and, 166 USUHS seniors (the Class of 2002) were selected for PGY-1 positions: Army - 65; Navy - 51; Air Force - 50. The overall selection rate for FIRST CHOICE programs was 80 percent. USU had 132 out of 166 students match for first choice both in specialty and training site. Fourteen additional students of the Class of 2002 received their first choice in specialty, resulting in 88 percent (146 out of 166) receiving their first choice in specialty. **Approximately half of the class (49 percent) was selected for training in a primary care specialty.** 82 seniors will begin their residency training during this Summer in the following areas: Family Medicine - 27; Internal Medicine - 27; Pediatrics - 17;, and, Obstetrics and Gynecology - 11. The directors of the MHS military programs once again demonstrated confidence in the USU SOM graduates.

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The USU Military Medical Student Association. The Military Medical Student Association (MMSA), a quad-service, student-run organization, originated at USU more than twelve years ago. MMSA's goals include developing lines of communication among military medical students nationwide, providing information, and promoting morale and unity among future military medical officers.

Unlike USU medical Students, the Health Professions Scholarship Program (HPSP) students attend universities in the civilian sector; they receive tuition and books and are paid a monthly stipend while working toward their medical degrees. The HPSP students receive limited military training and influence while attending the civilian schools. To share their unique military training, MMSA has sponsored conferences where residency directors and medical specialty representatives from around the country, and USU staff and faculty members present lectures and hold discussions on various topics, including service specific issues, military medical history, operational considerations of military medicine, and basic military concerns which affect both USU and HPSP medical students. The USU MMSA has also established the MMSA Journal which provides valuable military information of interest to medical students; the MMSA goal is to make copies of the journal available to all HPSP students.

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USU Students Appointed on Liaison Panels. Among all of the medical students in the United States and Canada, the Association of American Medical Colleges (AAMC) chose two USU SOM students to represent medical students on a pair of key panels during 2001, two prestigious assignments. **Ensign David Brett-Major**, a fourth-year medical student, was chosen to represent the AAMC as the student member on the Liaison Committee on Medical Education (LCME). His one-year term began on July 1, 2001. **Ensign Sean McBride**, a third-year medical student, was appointed by the Administrative Board of the AAMC to serve as the student liaison to the Committee on Admissions. Founded in 1876, the AAMC comprises the 125 accredited U.S. medical schools, 16 accredited Canadian medical schools, 400 major teaching hospitals and health systems, 90 academic and professional societies representing nearly 100,000 faculty members, and the Nation's health through the

advancement of medical schools and teaching hospitals. The AAMC and its members set a national agenda for medical education, biomedical research, and health care. The association also works to strengthen the quality of medical education and training and knowledge, to advance research in the health sciences, and to integrate education into the provision of effective health care.

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ACHIEVEMENTS OF THE SOM ALUMNI

There is no better place for me to be than USUHS. What we are learning right now is applicable to what is occurring in the world.

- **Leah Strobel, 2nd Lieutenant, United States Army, USU SOM Freshman Class,** Association of American Medical Colleges, Reporter, Volume 11, Number 3, December 2001, page 9.

I deployed to the Gulf very early, August 11, 1990, as a senior medical officer with the Air Force Special Operations Command. Deployed in this capacity, my responsibilities ranged from flying training and combat support missions to representing my command at theater-level planning conferences...

The heat in August was incredible, with temperatures up to 125 degrees. Yet our maintenance personnel had to work around the clock to get our aircraft combat ready. Just sleeping six hours in the heat caused dehydration to the point of dizziness. Our medical team was on the flight line and around our tent-city bringing sunscreen and ice water to the personnel because they could not drink 100 degree water out of a canteen.

My training at USUHS had prepared me for working in austere conditions without fixed facilities. The tap water in our camp became contaminated by the sewer system, and water tanks had to be provided with chlorine levels monitored daily. Because of the military medical history classes I had at USUHS, I knew that disease and non-battle injuries could make an army ineffective before the battle began. Preventive medicine is an entire department and course of study at USUHS. I had the training and references... to avoid repeating the mistakes of previous wars... Because of the emphasis on tropical medicine at USUHS, I was able to advise the Commander and troops about potential infections and how to protect themselves... Because we studied the air evacuation system and did practice exercises using it at USUHS, I was able to coordinate a unique mini-mobile aeromedical staging facility at our intermediate operating base. This provided the transition from our helicopter rescue aircraft to the C-130 medical evacuation system.

As our troop build-up progressed, hospitals from each Service increased. Because at USUHS I had been taught the organization of medical systems in the other Services, I was able to arrange referrals for our patients much more easily... We had no logisticians, but were able to obtain supplies through the Army depot system which I also learned about at USUHS.

Another area of major concern for our personnel was chemical warfare. Because of the thorough preparation and field training I had as a student at USUHS, I was able to develop a training program in unconventional warfare, such as chemical and biological threats, which increased confidence and decreased anxiety in our troops...

When we deployed to our forward locations, there were no designated disaster preparedness personnel. The USUHS experience came in handy again, as I assumed those responsibilities.

A plan for decontaminating aircraft, vehicles, and personnel was created. Materials were purchased and positioned to maximize readiness.

To summarize the impact of the 4-year immersion in military medicine at USUHS on my preparation for war, I appreciated the operational mission of my unit and how I, as a medical officer, fit into the process of planning and executing that mission. This went well beyond treating patients. It involved analyzing the tactical situation, advising the Commander, and integrating with other Services. USUHS graduates were well prepared.

- Testimony by **Lieutenant Colonel Charles Beadling, USAF (USU Class of 1984, currently at the Rank of 0-6)**, Hearings before the Senate Appropriations Sub-Committee on Defense, April 14, 1994, page 95.

General Overview. The graduating Class of 2001 was the twenty-second class to receive Medical Degrees from USU. As of April 2002, of the total 3,101 medical school graduates, 2,561 remain on active duty in the Uniformed Services (Army - 1,000; Navy - 737; Air Force - 728; USPHS - 96) and represent over 21 percent of the total physician force in the Department of Defense - 11,833 physicians. USU graduates have a seven-year obligation which only begins after they complete their three-plus years of residency training. This obligation is exclusive of any other service obligations they may have already incurred, such as graduation from one of the Service Academies. After twenty-two graduations, data is now available to document that the USU SOM graduates are meeting, or surpassing, the goals established by the founders of USU. Since the first graduation in 1980 to April of 2002, the overall retention rate for USU graduates is 85 percent (Congress had originally envisioned retention rates close to 70 percent). The average USU physician graduate serves at least 18.5 years. An example of the critical role of USU graduates in the MHS was reported during February of 2001 when the Center for Navy Analysis (CNA) provided data on medical retention to the Navy Surgeon General for use in his responses to the Senate Appropriations Committee. The Navy Surgeon General informed the Congressional Committee that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years.

In just a short timeframe, USU graduates have become well respected in their medical specialties, and have become the core leadership in areas of military medicine ranging from special operations and hospitals, to the White House and Kosovo deployments, and to assignments aboard ships at sea, the NASA Johnson Space Center, with the Blue Angels, and in the Congress. Following the terrorist attacks on September 11, 2001, USU graduates were strongly represented among the medical relief workers at the World Trade Center and at the Pentagon; they led the efforts to identify remains at the Dover Port Mortuary; and, USU graduates assisted in directing the Nation's medical response in the wake of the anthrax attacks. Other alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty officers and enlisted personnel, retirees, and family members. Currently, 14 of the 58 Specialty Consultants to the Army Surgeon General are USU graduates; 9 of the 45 Specialty Consultants to the Navy Surgeon General are USU

graduates; and, 18 of the 58 Specialty Consultants to the Air Force Surgeon General are USU graduates. USU graduates are, and continue to provide, a strong cadre of leaders who ensure the continuity of military medicine.

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School of Medicine Recognized by the American Academy of Family Physicians. In keeping with its long-standing tradition, the Department of Family Medicine once more received a Family Practice Percentage Award from the American Academy of Family Physicians. The award recognizes medical schools for their success in making family practice a top career choice for graduating medical students. A total of 26 medical schools received the Year 2001 award which recognizes the highest three-year average of graduates entering family practice residency training programs from 1998 through 2000. The USU SOM received a Bronze Percentage Award for a three-year average of 21.8 percent. In addition, the Family Medicine Interest Group in the USU SOM Department of Family Medicine was named a 2001-2002 Program of Excellence by the American Academy of Family Physicians. The group received formal recognition at the Academy's national conference in Kansas City during July of 2001. The Chair of Family Medicine reported that "this was undoubtedly the result of the energy, enthusiasm and commitment of USU students and the wonderful vision and dedication of their advisor, **Lieutenant Commander, Mark Stephens, MC, USN.** Also during 2001, **2nd Lieutenant Chris Bunt, USAF, Second-Year Medical Student**, was named a regional coordinator for Family Medicine Interest Groups (FMIGs). He is responsible for overseeing the activities of FMIGs at medical schools in Maryland, Virginia, West Virginia, and Delaware. The FMIG is the student member organization of the Uniformed Services Academy of Family Physicians, a state chapter of the American Academy of Family Physicians.

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Second USU Alumni Is Promoted to 0-7. USU's second flag officer, **Brigadier General Charles "Bill" Fox, MC, USA, USU Class of 1981**, is now triple-hatted as the Corps Surgeon for the XVII Airborne Corps, Commander of the 44th Medical Command, and Director of Health Services at Fort Bragg, North Carolina.

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USU Alumni Earn Promotions to 0-6.

USU Army Graduates Selected for Promotion to Colonel - 2001.

Sixty-four percent of the USU SOM graduates who were eligible for promotion to Colonel were on the Army's promotion list during 2001; a rate twice as large as that of their peers. The University had 36 alumni eligible for promotion; 23 were selected. For non-USU SOM graduates, 50 of 157 were selected for a promotion rate of 32 percent.

USU Navy Captain Promotion Selectees - 2001.

The Navy released the promotion list for Captain (O-6), Medical Corps in the first quarter of 2001. Again, USU graduates were selected at a rate higher than their peers. In all, twenty-one USU alumni were selected for promotion to Captain, U.S. Navy, during Fiscal Year 2001. These alumni represent the USU Classes from 1983 through 1989.

USU Air Force Graduates Selected for Promotion to Colonel - 2001.

Of the USU SOM graduates considered for promotion to U.S. Air Force Colonel, 13 were selected during 2001.

U.S. Public Health Service Graduates Selected for Promotion to Captain - 2001.

The U.S. Public Health Service promoted two USU graduates to Captain during Fiscal Year 2001.

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USU SOM Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU SOM Alumni.

Class of 1980.

Colonel Howard Heiman, MC, USA, assumed the position of Chief of the Neonatal Service at the Wilford Hall Medical Center in late 1999 and continues in that assignment. Among his most notable achievements is the development of the first modern aeromedical neonatal transport system for the Department of Defense, for which he set the national standards, and authored a chapter and technical review. He has received the Best Resident Teaching Award two times, the Army Surgeon General's "A" Proficiency Designator, and is currently the Consultant to the Army Surgeon General for Neonatology.

Class of 1981.

Colonel Kevin Keenan, MC, USA, is currently serving as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina.

Captain Scott R. Lillibridge, M.D., USPHS, was chosen to lead the Department of Health and Human Services (HHS) Coordinated Bioterrorism Initiative in July of 2001. Before he was appointed as a Special

Assistant by Secretary Tommy G. Thompson, he served as the Director of the Bioterrorism Preparedness and Response Program at the Centers of Disease Control (CDC) and Prevention in Atlanta, Georgia. Captain Lillibridge has worked in 14 nations on epidemiology and other public health issues; he has three books in press and has authored or co-authored 25 publications on bioterrorism and various other public health issues.

Colonel Ann Norwood, MC, USA, Associate Professor and Associate Chair of the USU SOM Department of Psychiatry, gave a presentation on psychological reactions to bioterrorism at the Conference on Medical and Public Health Aspects of Bioterrorism on June 27, 2001, at the Johns Hopkins University School of Public Health. The conference was co-sponsored by the Memorial Institute for the Prevention of Terrorism in Oklahoma City, Oklahoma. Following the terrorist attacks on September 11, 2001, Colonel Norwood has been actively working with the American Psychiatric Association to assist the areas impacted by the attacks.

Class of 1982.

Colonel Jim Geiling, MC, USA, is assigned as the Commander of the Tri-Service DiLorenzo Tricare Health Clinic in the Pentagon. Several months prior to September 11, 2001, Colonel Geiling had conducted mass casualty training exercises in conjunction with the Pentagon Flight Clinic. The exercise simulated a plane crashing into the building; members of both clinics, following September 11th, agreed that the simulated training exercise has proven to be invaluable. When Colonel Geiling, who had been at the Walter Reed Army Medical Center during the terrorist attack on the Pentagon, found all access back to the Pentagon blocked, his well-trained staff moved into action as when he led them during their simulated exercises.

Colonel Karl Kerchief, MC, USA, assumed command of Reynolds Army Community Hospital, Fort Sill, Oklahoma, on July 25, 2001. Colonel Kerchief was previously assigned to Martin Army Community Hospital at Fort Benning, Georgia.

Colonel David Orman, MC, USA, is the Psychiatry Consultant to the Surgeon General of the Army. He is mentioned in a February Army News Service article, "Soldiers, Leaders and Communities Saving Lives," featuring the Service's new suicide prevention plan. The story focuses on training people how to recognize early signs of suicidal behavior and how to intervene; Colonel Orman is interviewed on the relationship between stress and suicide.

Colonel Carole Ortenzo, MC, USA, moved from the position of Chief, Department of Surgery, at the Martin Army Community Hospital (MACH) located at Fort Benning, Georgia, to the position of Deputy Commander for Clinical Services, also located at MACH.

Colonel Alton Powell, USAF, MC, currently assigned to the hospital at Sheppard Air Force Base, Texas, will command the 341st Medical Group, Malmstrom Air Force Base, Montana.

Colonel Lawrence Riddles, USAF, MC, currently assigned as the Surgical Operations Squadron Commander at the 81st Medical Group, Keesler Air Force Base, Mississippi, will assume command of the 5th Medical Group, Minot Air Force Base, North Dakota.

Class of 1983.

Colonel Cliff Cloonan, MC, USA, is currently serving as the Interim Chair of the Department of Military and Emergency Medicine at the USU SOM. Colonel Cloonan was assigned to USU in July of 2000 where he served as the Vice-Chair of the Department until August of 2001, when Craig Llewellyn, M.D., Colonel, USA (retired), stepped down as the Department Chair of Military and Emergency Medicine. Colonel Cloonan had previously served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, for three and one half years. From 1990 through 1993, Colonel Cloonan served in the USU SOM Department of Military and Emergency Medicine as an Assistant Professor; he was also the Course Director for both the Combat Medical Skills Course and the Introduction to Combat Casualty Care Course. Currently, in addition to serving as Interim Chair, Colonel Cloonan continues to serve as the current Emergency Medicine Specialty Consultant to the Army Surgeon General.

Colonel Warner "Rocky" Farr, MC, USA, is the Command Surgeon for the U.S. Army Special Operations Command at Fort Bragg, North Carolina.

Colonel Bradley Harper, MC, USA, is now the Chief of Pathology and Acting Deputy Commander for Clinical Services at the Irwin Army Community Hospital, located at Fort Riley, Kansas. Colonel Harper recently transferred from Fort Lee, Virginia, where he served as Commander of the Kenner Army Community Hospital. Recently, Colonel Harper was presented with the Order of Military Medical Merit, an honorary award given only to members of the Army Medical Department. Army Major General Harold Timboe, Commander, North Atlantic Health Services System, nominated Colonel Harper for the award. The award is a reflection of Colonel Harper's many years of exemplary service.

Colonel Lenora Williams Shaw, MC, USA, is the Chief of the Department of Surgery and Gynecological Services at the Moncrief Army Community Hospital located at Fort Jackson, South Carolina.

Captain Kevin Yeskey, M.D., USPHS, FACEP, Associate Professor, Department of Military and Emergency Medicine is currently the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control (CDC) in Atlanta, Georgia. Captain Yeskey was named as the Acting Director of this program on August 20, 2001; and, he was selected as the Director on December 1, 2001. As the Director, he is charged with enhancing CDC's capacities to assist States and other partners in responding to bioterrorism. In addition to infectious disease concerns, other CDC efforts under this program include consideration for chemical terrorism, a National Pharmaceutical Stockpile, and National Lab Enhancement.

Class of 1984.

Colonel Charles Beadling, USAF, MC, was selected to command the 375th Medical Group, Scott Air Force Base, Illinois; his assignment will begin during the Summer of 2002. Beadling is currently the Commander of the 95th Medical Group, Edwards Air Force Base, California.

Lieutenant Colonel Tom Knuth, MC, USA, is the Director of the Army Trauma Training Center at the University of Miami (Florida) Ryder Trauma Center. The Center was a TriService entity at Baylor University prior to its transfer to the University of Miami. Lieutenant Colonel Knuth is a trauma surgeon and was previously assigned to Blanchfield Army Community Hospital, Fort Campbell, Kentucky.

Class of 1985.

Captain Philip Coyne, M.D., USPHS, was selected as the Associate Director for Regulatory Affairs in the Division of Experimental Therapeutics at the Walter Reed Army Institute of Research in Silver Spring, Maryland. He is focusing primarily on new antimalarial drug development. His responsibilities continue to include work with the Department of Health and Human Services on broader pharmaceutical access issues and the expansion of his clinical workload to teach medical residents and infectious disease fellows at both the National Naval Medical Center and at the Walter Reed Army Medical Center, as well as medical students at USU.

Lieutenant Colonel (P) Loren Erickson, MC, USA, was selected to command the U.S. Army Center for Health Promotion and Preventive Medicine-Europe in 2003.

Lieutenant Colonel Bryan Funke, USAF, MC, left his position as the Commander of the 325th Aeromedical Squadron, at the Tyndall Air Force Base in Florida, to take over as Commander of the 14th Medical Group at Columbus Air Force Base in Mississippi.

Commander Douglas Knittel, MC, USN, is a forensic pathologist assigned to the Naval Medical Center in Portsmouth, Virginia. He is also one of only six U.S. regional Armed Forces medical examiners. After contacting the Armed Forces Institute of Pathology (AFIP), within 24 hours of the attack on the Pentagon, Commander Knittel was in Washington, D.C. He assembled as many uniformed pathologists and other specialists as possible to assist in the task of identifying those killed during the attack. A team of more than 50 AFIP staff members, including Commander Knittel, met at the Port Mortuary located at the Dover Air Force Base, Delaware. The staff worked 14 hour days for an average of two weeks at a time. Along with FBI latent print experts, Commander Knittel and the AFIP staff fingerprinted the victims, examined dental records, and collected DNA specimens.

Lieutenant Colonel Doug Liening, MC, USA, recently left his operational position as the Division Surgeon for the 82nd Airborne Division at Fort Bragg, North Carolina, to assume the position of Deputy Corps Surgeon for the 18th Airborne Corps also located at Fort Bragg.

Commander Eric McDonald, MC, USN, recently left his position as the Division Surgeon with the 1st Marine Division at Camp Pendleton, California, for an assignment in the Emergency Medicine Department at the Naval Medical Center in San Diego, California.

Commander Michael Maddox, MC, USN, is currently serving as the Division Surgeon for the 3rd Marine Division in Okinawa, Japan. In June of 2002, he will transfer to the Otolaryngology Department at the U.S. Naval Hospital in Okinawa.

Class of 1986.

Commander Bruce Baker, MC, USN, an anesthesiologist, recently returned from an assignment at Forward Operating Base, Camp Rhino, in Afghanistan, providing medical support for the U.S. troops in the region. Commander Baker reports that he assisted in the operation of a "Shock Trauma Platoon" and a two-bed surgical suite.

Colonel Rhonda Cornum, MC, USA, was featured in a special double issue of U.S. News and World Report, "Real Heroes: 20 men and women who risked it all to make a difference." The article pointed out Colonel Cornum's heroic service during the Gulf War when she was captured by the Iraqi army. The story explained how Colonel Cornum's stalwart conduct helped reshape the debate on women in the military. The possibility of capture was often cited to keep women out of combat; Colonel Cornum's experience led to the opening of many combat posts to women. Colonel Cornum was recently selected to serve as the Commander of the 28th Combat Support Hospital.

Lieutenant Colonel Clifford Porter, MC, USA, is on the staff of the General Surgery Service at the Madigan Army Medical Center in Tacoma, Washington. He is also the Commander of the 250th Forward Surgical Team (Airborne); and, during 2001 was selected for promotion to Colonel.

Lieutenant Colonel Andrew Satin, USAF, MC, is the Director of the Uniformed Services Residency in Obstetrics and Gynecology and the Vice Chair of the USU SOM Department of Obstetrics and Gynecology. The residency program was recently granted the maximum five-year accreditation by the Obstetrics and Gynecology (OBG) Residency Review Committee of the Accreditation Council for Graduate Medical Education. The residency program is the first in OBG to move from provisional status as a newly integrated program directly to the maximum accreditation of five years. It is a fully integrated program under the institutional sponsorship of the National Capital Consortium based at the National Naval Medical Center and the Walter Reed Army Medical Center. Of the more than 250 OBG residency programs in the United States, only nine have achieved the five-year maximum accreditation.

Class of 1987.

Captain Tom Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry, was in charge of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team helping out at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001. The team provided supportive services to 2,000 active duty and civilian employees on the Navy staff.

Colonel Bryon Hepburn, USAF, MC, was directly involved with the medical evacuation and treatment of the wounded sailors following the attack on the USS Cole. During the Winter of 2001, Colonel Hepburn, the Senior Flight Surgeon for the evacuation mission, joined in a subsequent review of that response for possible improvements. He visited USU on October 26, 2001, to brief the USU SOM students on the medivac operations.

Colonel Timothy Jex, USAF, MC, is serving as the United States Central Air Force (USCENTAF) Command Surgeon, based at Shaw Air Force Base, South Carolina. Colonel Jex is responsible for the medical planning at USCENTAF. He also manages medical war readiness materials for the USCENTAF, provides

supervision, establishes policy, works logistics issues for all of the deployed medical units, handles all medical issues for the Central Air Force Combat Command, and generally provides leadership for all of the deployed medical personnel. Colonel Jex was also deployed to Afghanistan during 2001.

Lieutenant Colonel Edward Lucci, MC, USA, is the Chief of Emergency and Operational Medicine at the Walter Reed Army Medical Center (WRAMC). He was the first emergency physician to arrive on the scene after terrorists crashed American Airlines Flight 77 into the Pentagon. Amid reports that a second strike was coming, Lucci remained at the site from 10:15 a.m. until 1:00 a.m. on September 12th. Lieutenant Colonel Lucci estimated that more than 100 patients needed medical treatment, about 15 of whom were in critical condition. Once the situation with patients was under control, medical personnel turned their efforts to helping rescue workers. The First Lady came to WRAMC on September 12th, and met with Lucci and the other members of his team. On staff at WRAMC since 1997, Lucci serves as the hospital's team leader for the special response team for chemical and biological events. He was also interviewed by U.S. News and World Report (special edition) and a program which was broadcast on the PBS Network.

Lieutenant Colonel Paul Mongan, MC, USA, was selected as the Chair of the USU SOM Department of Anesthesiology. He is the first medical school alumnus to become a Chair of a clinical department at the University. Lieutenant Colonel Mongan has been an Anesthesiology faculty member since 1997, serving as Director of Research, Associate Professor, and since 1999, as Vice Chair. He succeeded Sheila Muldoon, M.D., who remains on the faculty as a Professor of Anesthesiology.

Class of 1988.

Lieutenant Colonel Michael C. Edwards, USAF, MC, FACS, currently holds dual positions as Chief of Surgical Services and Chief of the Professional Staff at the 99th Medical Group/Mike O'Callaghan Federal Hospital, Nellis Air Force Base, Nevada.

Lieutenant Colonel Kondi Wong, USAF, MC, received the 2000 John Hill Brinton Award at the Armed Forces Institute of Pathology (AFIP) 16th Annual James Earle Ash Lecture in Washington, D.C. He won the award as the primary author of the article, "Foamy Cells with Oligodendroglial Phenotype in Childhood Ataxia with Diffuse Cerebral Hypomyelination Syndrome (CACH)." The award, named for the first curator of the Army Medical Museum, is given to a junior staff member selected by the AFIP Scientific Advisory Board. Lieutenant Colonel Wong is the Chief of the AFIP Division of Neuromuscular Pathology.

Class of 1989.

Colonel John Baxter, USAF, MC, has served as the Commander of the Pentagon Flight Medicine Clinic for some years; he is also the physician to the Secretary of Defense. On September 11, Colonel Baxter and his staff were conducting morning clinic, when the terrorists attacked the Pentagon. Upon hearing shouts for evacuation, Colonel Baxter and his physicians, nurses, and technicians immediately grabbed emergency trauma supply bags and ran towards the TriService DiLorenzo Tricare Health Clinic, the designated emergency rendezvous

site. Directed toward the fifth corridor of the Pentagon, they found an injured officer and searched for his co-workers. Despite warnings of another approaching plane, Colonel Baxter and his staff hurried further into the smoke-filled corridors searching for injured personnel. As they discovered an injured woman, they heard warnings of an inbound plane, two minutes away; they picked up the patient and ran to a pre-determined triage site, where Colonel Baxter and his staff joined the DiLorenzo Clinic staff in treating patients with burns, inhalation, and blast injuries. Several months prior to the terrorist attack, Colonel Baxter's clinic had conducted mass casualty training exercises in conjunction with the DiLorenzo Clinic. The exercise simulated a plane crashing into the building; on September 11th, members of both health care facilities agreed that the simulated training had proven to be invaluable.

Major Lisa Desvigne, USAF, MC, is a plastic surgery fellow at the Wilford Hall USAF Medical Center at Lackland Air Force Base, Texas. During 2001, Major Desvigne was part of a nine-member plastic surgery team which performed life-changing surgeries for indigent Honduran families at the Santa Teresa Public Health Hospital in Comayagua. The surgeons and anesthesiologists screened more than 80 patients and selected 30 for surgery; Army and Air Force teams have been providing such services for 17 years, to include maintaining records on their patients and performing follow-up surgeries as appropriate.

Class of 1990.

Lieutenant Colonel Bruce Adams, MC, USA, is currently serving as the Chief Resident, Department of Emergency Medicine, at the Medical College of Georgia in Augusta, Georgia. Lieutenant Colonel Adams recently spoke to the USU students in a USU SOM Military and Emergency Medicine Department Course on his experiences in Somalia.

Class of 1991.

Lieutenant Commander Michael Harrison, MC, USN, an anesthesiologist, recently served at the Forward Operating Base, Camp Rhino, in Afghanistan.

Commander Karen Parko, M.D., USPHS, is the Chief of Neurology Services for the Northern Navajo Medical Center in Shiprock, New Mexico. She is also the sole neurologist for the Indian Health Service in the lower 48 United States. Commander Parko frequently travels to other service units on the Navajo reservation to help with neurology services and to educate other physicians in the care of neurological problems and she has also established specialty seizure and Parkinson's clinics for the area patients. Commander Parko runs a neuro-diagnostic laboratory and performs nerve conduction studies and electromyography, as well as electroencephalograms. Dr. Parko has pointed out that her experience at USU provided her with a good overview of medicine and how it can be applied in different settings; the wide scope of medicine taught at the USU SOM has left her prepared to handle multiple medical situations outside of her specialty. Commander Parko's responsibilities also include administrative committee work in addition to serving as a neurology tort claim reviewer for the Public Health Service.

Major Paul Pasquina, MC, USA, has been selected as the Program Director for the Physical Medicine and Rehabilitation Residency at the Walter Reed Army Medical Center. Major Pasquina recently led the department

through its residency review by the Accreditation Council for Graduate Medical Education (ACGME). Formal results will be released during 2002.

Lieutenant Colonel Bill Rice, MC, USA, completed the U.S. Army Command and General Staff College Program in Leavenworth, Kansas. He is currently serving as the Director of Occupational Medicine, at the U.S. Army Center for Health Promotion and Preventive Medicine-Europe in Heidelberg, Germany.

Commander Scott Sherman, MC, USN, is currently assigned to the Naval Environmental and Preventive Medicine Unit 5 in San Diego, California. He previously served as a preventive medicine officer at Camp Pendleton, California.

Class of 1992.

Lieutenant Colonel Erin Edgar, MC, USA, has continued the trend of USU alumni serving in operational positions, when he assumed the position of Division Surgeon for the 82nd Airborne Division at Fort Bragg, North Carolina. Lieutenant Colonel Edgar has been twice promoted below zone.

Lieutenant Colonel Nelson Hager, MC, USA, left his assignment at the Madigan Army Medical Center in Tacoma, Washington, to assume the position of Chief of the Physical Medicine and Rehabilitation Service at the Walter Reed Army Medical Center in Washington, D.C.

Lieutenant Colonel Mark Koeniger, USAF, MC, recipient of the Malcolm Grow Award for Air Force Flight Surgeon of the Year in 1998, has returned from an assignment in Japan to serve as the Commander of the 86th Aeromedical Squadron at the Ramstein Air Base in Germany.

Commander Mary Porvaznik, M.D., USPHS, is the Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico. She supervises a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also runs a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba City, Arizona; her father was a physician who also served the Native American population. Commander Porvaznik's father, who completed 30 years in the Public Health Service and retired as an Assistant Surgeon General and Rear Admiral, suggested that she apply to USU. Commander Porvaznik reported that she realizes the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful.

Class of 1993.

Major John Andrus, USAF, MC, received the Malcolm Grow Award, during 2001, for his selection as the Air Force Flight Surgeon of the Year for 2000. Assigned to the 37th Airlift Squadron, Ramstein Air Base, Germany, Major Andrus is the fifth USU graduate to receive the Malcolm Grow Award. The Society of U.S. Air Force Flight Surgeons established the award in 1961 to recognize an individual thought to exemplify the ideal flight surgeon at the operational level. Selection is based on exceptionally effective support of a flying organization

and superior rapport with flying personnel. Among his other accomplishments, Major Andrus has also been honored for his work as the only flight doctor on the evacuation mission which brought 28 injured sailors to Ramstein following the USS Cole bombing in Yemen and for his work during separate medical missions to South Africa and Romania.

Lieutenant Commander John Lyszezarz, MC, USN, a member of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team, assisted at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001; the team provided supportive services to 2,000 active duty and civilian employees on the Navy staff.

Major Grant Tibbetts, MC, USAF, transferred from the F.E. Warren Air Force Base in Wyoming to his current assignment as Chief of Special Imaging at the 3rd Medical Group, Elmendorf Air Force Base, Alaska.

Class of 1994.

Major Daniel Dirnberger, USAF, MC, is a staff neonatalogist assigned to the U.S. Naval Hospital in Okinawa, Japan. Major Dirnberger is also an Assistant Professor in the USU SOM Department of Pediatrics.

Lieutenant Commander Staci (Valenzuela) Kelley, MC, USN, is currently serving as the Head of the Inpatient Mental Health Division of the Naval Hospital located at Great Lakes, Illinois.

Lieutenant Commander John Kennedy, MC, USN, a member of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team, assisted at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001; the team provided supportive services to 2,000 active duty and civilian employees on the Navy staff.

Lieutenant Commander Susan Lippold, M.D., USPHS, is assigned with the Health Resources and Services Administration in Chicago, Illinois. On September 21, 2001, Lieutenant Commander Lippold was deployed to New York City for two weeks to serve as the Medical Officer in the Field - the supervising physician at what was being termed "ground zero." By the time Lippold arrived, five clinics had been established and four PHS Disaster Medical Assistance Team (DMAT) teams were rotating through the area. The mission was to provide medical care for the rescue and recovery workers on scene. During her second week at the site, the number of patient visits peaked at around 500 per day. The physical stresses were many and constant: sleep deprivation; cold and wet weather; sore blistering feet; walking around the site, often in the dark, through or near foul smelling plumes of smoke (utilizing hard hats and respirators); and, not knowing the extent of the environmental hazards. Lieutenant Lippold reported it as an honor to assist so many during such a difficult time.

Major Mike Wynn, MC, USA, completed a company command position with A Company, 168th Medical Support Battalion, Camp Red Cloud, Republic of Korea during 2001. The unit is the most forward deployed medical support company in South Korea. He is currently working in the Family Practice Teaching Program at Fort Belvoir, Virginia.

Class of 1995.

Lieutenant Commander Christine Casey, M.D., USPHS, was on duty at her new assignment at the Centers for Disease Control and Prevention in Atlanta, Georgia, when news of the terrorist attacks on the World Trade Center reached her. Lieutenant Commander Casey is the Project Officer for the Clinical Immunization Safety Assessment Network. She is also a member of a Public Health Service Disaster Medical Assistance Team (DMAT), trained to provide emergency medical care during a disaster or other catastrophic events. Deployed to New York City for twelve days, she found that the learning curve was not as steep as it would have been without the USU curriculum and specifically the USU training in identifying chemical agents. Her assignment was to care for the rescue workers; patients included law enforcement officials, firefighters, sanitation workers, telephone repair crews, Red Cross workers and anyone else working at the scene. The medical team treated eye injuries, reactive airway diseases caused by the dust, viral infections, foot injuries (including blisters caused by molten steel burning through work boots), chemical burns, chest pains, and hypertension. Psychiatric debriefings were done while checking feet or suturing cuts to save time.

Class of 1996.

Captain Daniel Irizarry, MC, USA, is the Regimental Surgeon for the 325th Airborne Infantry Regiment, 82nd Airborne Division, at Fort Bragg, North Carolina. He graduated in June of 2000 from the Womack Army Medical Center Family Practice Program at Fort Bragg.

Major Russ Kotwal, MC, USA, was the Army recipient of the 2000 Chairman of the Joint Chiefs of Staff Award for Excellence in Military Medicine. The selection, which recognizes a medical department officer in any branch of service in grades 0-3 through 0-5, is based upon achievements in military medicine which promise contributions to the health and well-being of service members and their families. Among his many accomplishments, Major Kotwal developed a Combat Trauma Simulation Center, maintains an Army Ranger Battalion of more than 80 Nationally Registered EMT-Bs (a minimum of one in every Ranger squad), and ensures Ranger medics have state-of-the-art equipment available to treat casualties.

Lieutenant Commander John M. McCurley, MC, USN, an internist, is serving as a staff physician in the Office of the Attending Physician on Capital Hill.

Lieutenant Commander John Mohs, M.D., USPHS, is assigned to the Northern Navajo Medical Center in Shiprock, New Mexico; he is the Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic. As such, he is responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

Lieutenant Commander Kimberly Mohs, M.D., USPHS, is assigned to the Northern Navajo Medical Center in Shiprock, New Mexico; she is the Chief of Internal Medicine. As such, she oversees a department of six internists who provide primary care as well as cardiology and pulmonary related procedures and endoscopy. Her department also holds a number of specialty clinics, including hypertension, tuberculosis, renal disease,

gastroenterology, and a uranium miners clinic which she also runs. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

Lieutenant Colonel Peter Weina, MC, USA, was completing a fellowship in infectious disease at the Walter Reed Army Medical Center in August of 2001, when he rescued a hiker who had slipped on wet rocks and fell into the Potomac River. Lieutenant Colonel Weina was kayaking upstream when the victim was swept downstream in white-water rapids. Hearing calls for help, Weina turned around and went after the victim. An experienced kayaker, he quickly reached the man and pulled him to shore, where he gave him a quick physical examination. After persuading the man to get back into the river because the shore they had landed on offered no route to safety, Lieutenant Colonel Weina lashed the man to the side of his kayak and guided it downriver through the rapids. About 300 yards downriver, they reached rescue boats, one of which took the victim on board. In addition to the Walter Reed fellowship, Lieutenant Colonel Weina is the Acting Chief of Pharmacology in the Division of Experimental Therapeutics at the Walter Reed Army Institute of Research, where he is working on developing drugs for new antimalarials.

Class of 1998.

Captain Christopher Lettieri, MC, USA, received two Resident Teacher of the Year Awards at the Tripler Army Medical Center in Hawaii, from both the Department of Medicine and the entire hospital. He will be the Chief Resident in the Department of Medicine for the 2001-2002 Academic Year.

Class of 1999.

Captain Theresa (McFall) Goodman, USAF, MC, is the first recipient of the Sherry Henderson Award for Excellence in Clinical Communication. The USU SOM Department of Family Medicine, in cooperation with the Uniformed Service Academy of Family Physicians, established the award to recognize a resident who has demonstrated excellence in communication skills. Captain Goodman is a Family Practice Resident at Andrews Air Force Base in Maryland. The award is named for Sherry Henderson, M.D., a former member of the USU SOM Department of Family Medicine.

Captain Mary McNerney Klote, MC, USA, was selected as one of 50 outstanding young medical professionals to receive the American Medical Association (AMA) Foundation Leadership Award. The award is annually given to 25 medical students and 25 resident and fellow physicians for their exceptional leadership among their peers and achievements in non-clinical community activities. Captain Klote served as President of the Military Medical Student Association, a national service organization, through which she helped students from the Health Professions Scholarship Program (HPSP) gain access to uniformed program directors from across the country. She also served as Editor-in-Chief of the Journal of the Military Medical Student Association. Captain Klote is an internal medicine resident at the Walter Reed Army Medical Center. The AMA Foundation Leadership Award covers the winner's expenses related to attending the AMA's National Leadership Conference and provides additional opportunities to participate in a series of training sessions specially designed to address the students' needs as future leaders.

Captain Bob Mabry, MC, USA, had his research paper, "United States Army Rangers in Somalia: An analysis of combat casualties on an urban battlefield," published in the September 2000 issue of The Journal of Trauma. Captain Mabry also spoke on Somalia at the Annual Conference of the Association of Military Surgeons of the United States in Las Vegas, at a trauma meeting in San Antonio, and at a military medicine conference in Australia. Captain Mabry, who received the Major John H. Gillespie Award as the Outstanding Transitional Intern of the Year at the Brooke Army Medical Center in San Antonio, was also awarded the Army Commendation Medal for his Somalia research.

Captain Jeff Mikita, MC, USA, was named the Intern of the Year for the Department of Medicine at the Tripler Army Medical Center in Hawaii.

Class of 2000.

Captain Matt Bonzani, USAF, MC, helped to save the life of a 3-day-old baby who suddenly stopped breathing while her parents had dinner at a San Antonio restaurant. Captain Bonzani, an anesthesiology transitional intern at the Wilford Hall USAF Medical Center, and two nurses ensured that the baby had a clear airway and administered CPR. When an ambulance arrived shortly after, the baby had regained a pulse and regular pupil response; she was taken to a local hospital for further treatment.

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Selected Profiles of USU School of Medicine Graduates.

Army.

Brigadier General William Fox, Jr., MC, USA, USU SOM Class of 1981. USU's second flag officer, Brigadier General Charles "Bill" Fox, is now triple-hatted as the Corps Surgeon for the XVII Airborne Corps, Commander of the 44th Medical Command, and Director of Health Services at Fort Bragg, North Carolina.

Brigadier General Fox is a board-certified Urologic Surgeon and has served in a variety of Army command, staff and surgical positions including: 5th Special Forces Group Surgeon, Fort Bragg; Company Commander, Company F. (Airborne), Fort Sam Houston, Texas; Commander, 1st Forward Surgical Team (Airborne), Fort Bragg; Chief of Urology at Womack Army Medical Center, Fort Bragg; Commander, 212th Mobile Army Surgical Hospital, Wiesbaden, Germany; Army Special Operations Command Surgeon, Fort Bragg; Commander, U.S. Army Hospital and Joint Readiness Training Center Surgeon, Fort Polk; and, Commander of the 30th Medical Brigade, headquartered in Heidelberg, Germany. During this period, the 30th Medical Brigade, under the leadership of Fox, sustained medical care to NATO forces in Kosovo and Macedonia as part of Operation Joint Guardian. The Brigade also deployed task forces to the Ukraine, Poland, the Republic of Georgia, Mauritania, and Nigeria; and, it supported all V Corps and United States Army Europe exercises and major training events.

Brigadier General Fox, a native of California, attended the second SOM class at the USU SOM in 1977, where he received his Doctorate of Medicine and Alpha Omega Alpha selection in 1981. He is a veteran of the Gulf War where he served as the executive officer of a medical task force in support of the 1/24th Infantry Division in Desert Storm. He was recognized as the Army LTC Physician of the Year for 1994 and received the Chairman of the Joint Chiefs of Staff Distinguished Essay Award for Senior Service Colleges in 1997. He is a graduate of the Command and General Staff College and the U.S. Army War College. Brigadier General Fox is the first USU SOM graduate to achieve the rank of general officer in the Army since the inception of the University.

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Lieutenant Colonel Paul Mongan, MC, USA, USU SOM Class of 1987, was selected to serve as the new Chair of the University's Department of Anesthesiology during 2001. He was appointed to his position following a nation-wide search process.

Lieutenant Colonel Mongan is the USU SOM first graduate to become the Chair of a USU SOM Clinical Department. He is the co-author of nearly 30 publications and more than 30 abstracts. Lieutenant Colonel Mongan also helped to write three chapters for a new book, A Handbook of Cardiovascular Anesthesia. He was elected to the Alpha Omega Medical Honor Society while a student at USU. Lieutenant Colonel Mongan is a member of the Association of University Anesthesiologists, the American Society of Anesthesiologists, and the International Society of Anesthesiologists. He received his Bachelor of Science Degree in 1983 and was named to the Phi Kappa Phi Honor Society. Lieutenant Colonel Mongan succeeded Sheila Muldoon, M.D., who will remain in the Department as a Professor of Anesthesiology.

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Navy.

Lieutenant Stewart Kerr, MC, USN, USU SOM Class of 1998, participated in an Arctic, 19-day, biomedical research expedition with four other individuals who completed, what is now referred to as, the "One Million Steps Expedition of 2001." The One Million Steps Expedition, endorsed by the Royal Canadian Geographical Society, was planned to test the effects of exercise in extreme weather; Lieutenant Kerr was chosen to serve as the physician on the expedition. His selection was due to the fact that he is exceptionally physically fit, trained in cold weather survival, and is serving as a diving medical officer with the Naval Special Warfare Center, where he oversees the medical care of trainees participating in the Navy's physically and mentally demanding Basic Underwater Demolition/SEAL, or BUDS, Training Course. With the approval of his command, Lieutenant Kerr spent nearly three weeks trekking across Lake Winnipeg in Southern Manitoba, Canada; the five-member team completed the final portion of their journey near Matlock, Canada. Their expedition was designed to test the effects of exercise in extreme weather in an arctic-type terrain and to study the human response to heavy work under extreme conditions. Lieutenant Kerr explained that in preparation for the trip, he planned to combine his knowledge of science and operational medicine to effectively maintain the health of the members of the expedition and to improve the understanding of cold-related stress during military deployments. Lieutenant Kerr and the other team members spent the first days pulling 200 pound sleds and walking an average of eight hours per day, from 14 to 19 miles. Among his equipment, Lieutenant Kerr hauled research gear, an extensive medical support bag, antibiotics, commonly used medicines, and treatments for burns and musculoskeletal problems. The temperatures averaged between 20 to 45 degrees below zero, without factoring in the wind chill. The team members underwent testing on the thirteenth and fourteenth days of their trip when a group of researchers from the University of Manitoba met them and collected breath and blood samples, measuring their metabolism throughout the day. In addition to PBS radio broadcasts, the public was kept informed of their progress through a web site set up via the University of Manitoba. The team also had a satellite phone for emergency evacuation. It is hoped that the "lessons learned" from this expedition will be delivered back to military planners for clothing, equipment, dietary, acclimatization, navigational and logistical modifications, to ultimately improve battlefield performance in austere environments. Lieutenant Kerr was grateful to the Navy and to the Naval Special Warfare Center for allowing him to participate in the expedition; he will remain with the special warfare community through most of 2002. To learn more about Lieutenant Kerr's experiences and to follow future outings via the Internet, visit *http://www.umanitoba.ca/outreach/lakewinnipeg/*.

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Air Force.

Major Lisa Desvigne, USAF, MC, USU SOM Class of 1989, is a plastic surgery fellow at the Wilford Hall USAF Medical Center at Lackland Air Force Base, Texas. During 2001, Major Desvigne was part of a nine-member plastic surgery team which performed life-changing surgeries for indigent Honduran families at the Santa Teresa Public Health Hospital in Comayagua. The team stayed in rooms at nearby Soto Cano Air Base and was supported by the U.S. Southern Command element at the base. Southern Command directed the mission after receiving a request for aid from the U.S. Embassy in Honduras. Assistance included translators and physicians from the base who had advertised that the team was coming and screened for potential patients. Only those deemed indigent were seen by the highly specialized medical team. Major Desvigne and the other physicians had to improvise and deal with harsh conditions, including the tropical heat, unexpected power outages, bottled water and unsanitary conditions. Although six of the nine medical staff had never deployed on a humanitarian mission, they all quickly took on the challenge of setting up efficient operating and recovery rooms under the austere conditions at the hospital, which was not air-conditioned. The surgeons and anesthesiologists screened more than 80 patients and selected 30 for surgery. They also treated severe burn injuries and congenital deformities. Unlike many charitable medical teams, Army and Air Force teams have been providing such services for 17 years, to include maintaining records on their patients and performing follow-up surgeries as appropriate. After her first day of surgery, Major Desvigne reported that she felt good about what she had done because her patients would never have received the surgeries that they needed so badly. In addition to Wilford Hall, other doctors on the team came from the Brooke Army Medical Center in San Antonio, Texas, and the hospital at Sheppard Air Force Base, Texas. A half-ton of medial supplies were provided by Wilford Hall.

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Colonel Bryon Hepburn, USAF, MC, USU SOM Class of 1987, was directly involved with the medical evacuation and treatment of the wounded sailors following the attack on the USS Cole. During the Winter of 2001, Colonel Hepburn, the Senior Flight Surgeon for the evacuation mission, joined in a subsequent review of that response for possible improvements. The retrospective analysis was to include reviews of actions at the local, operational, and strategic levels. Colonel Hepburn visited USU on October 26, 2001, to brief the USU SOM students on the medivac operations. Two C-9 Nightingales from the 75th Airlift Squadron at Ramstein Air Base in Germany carried medical teams from Ramstein's 86th Aeromedical Evacuation Squadron and two Critical Care Air Transport Teams from Landstuhl Regional Medical Center to Yemen and Djibouti. The teams provided the resources and medical care required for the evacuation of patients to Landstuhl. The French doctors in Djibouti were appropriately concerned about letting their critically injured patients make the trip to Germany for care. However, Colonel Hepburn, one of two physicians who could speak fluent French, assured his French colleagues that the wounded would be safe in the hands of the Air Force medical teams.

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United States Public Health Service.

Captain Scott R. Lillibridge, M.D., USPHS, USU Class of 1981, was chosen to lead the Department of Health and Human Services (HHS) Coordinated Bioterrorism Initiative. Before he was named to the HHS post in July of 2001, Captain Lillibridge coordinated the Centers for Disease Control (CDC) and Prevention efforts for bioterrorism response. He had been with the Centers since 1990 and had led the Bioterrorism Preparedness and Response Program since 1998. In 1995, he led the U.S. Medical Delegation to Japan after the saran gas attack that killed ten people in the Tokyo subway. He also participated, as the lead physician for the U.S. Public Health Service, in the federal public health assessment following the Oklahoma City bombing in 1995. During the 1996 Olympics, he served as the PHS Science Advisor to the multi-agency task force assembled to protect the public against biological and chemical terrorism. He has worked in 14 nations on epidemiology and other public health issues. He has three books in press and has authored or co-authored 25 publications on bioterrorism and various other public health issues. Prior to joining the CDC, he served in the Indian Health Service in Oklahoma and Arizona.

Secretary Tommy G. Thompson, HHS, upon the appointment of Captain Lillibridge stated the following: "I can think of no one better qualified for this critical responsibility than Doctor Lillibridge. He will provide leadership to ensure we can respond swiftly and decisively should some vicious act of bioterrorism be inflicted upon the American People." As the Special Assistant for Bioterrorism, Captain Lillibridge will coordinate anti-terrorism efforts across the Department and will report directly to Secretary Thompson. A vital component of the federal government's response to a bioterrorism event, HHS has responsibilities which include detecting the biological agent, investigating the outbreak, and providing stockpiled drugs and supplies. He will also support the Surgeon General of the United States in his efforts to revitalize the corps and its readiness force.

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FACULTY OF THE SCHOOL OF MEDICINE.

Composition. The School of Medicine has 304 full time assigned faculty members: 195 civilians; and, 109 uniformed officers. There are approximately 3,702 non-billeted/off-campus faculty who assist in the USU programs of which 1,096 are civilians and 2,606 are uniformed officers.

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SOM Clinical and Consultative Services Generate an Estimated $9.1 Million in Cost Avoidance for DoD in Fiscal Year 2001. The affiliated Medical Treatment Facilities (MTFs) in the National Capital Region (the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Malcolm Grow Air Force Medical Center (MGMC) use the services of the USU faculty for the provision of health care.

The USU SOM civilian and military clinical faculty members, as a part of maintaining their credentials and level of proficiency, provide medical services and consultation to the hospital patients and staff and teach and supervise residents. In order to meet national accreditation standards, all teaching hospitals must provide both patient care and teaching/supervision of medical students, interns, and resident physicians. Cost avoidance in the Department of Defense (DoD) is generated by the hours of clinical service and medical expertise provided by the USU civilian and military faculty. Thirteen USU SOM academic departments (Anesthesiology, Dermatology, Family Medicine, Department of Medicine, Military and Emergency Medicine, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics, Preventive Medicine and Biometrics, Psychiatry, Radiology and Nuclear Medicine, and Surgery) provided clinical and consultative support to DoD that totalled some 131,327 hours in 2001, with an estimated cost avoidance of $9.1 million.

Without the patient care and special services provided by the USU SOM faculty throughout the DoD medical facilities, the military hospitals, clinics, and other facilities would find it necessary to augment their medical staffs by 131,327 work hours in order to maintain the level of patient care within the direct care system.

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USU SOM Faculty Achieve National and International Recognition. The SOM faculty members are regularly selected to serve on various study sections for the National Institutes of Health and for other research-granting agencies. Many faculty members, due to their national/international reputations are: 1) selected for editorial boards; 2) designated to serve as consultants or advisors to the White House, the Office of the Secretary of Defense, international schools of medicine (e.g., China, France, Japan, Mexico, Poland, Russia, Thailand, etc.), and numerous Federal Agencies; 3) requested to give invited lectures; and to serve on Federal, national, and international committees; and, 4) recognized as senior officers in a wide variety of professional organizations. A number of basic science and clinical faculty hold senior and deputy editor positions on journals representing their disciplines and specialties. Overall, the SOM faculty has clearly achieved recognition with its peers across disciplines and specialties. USU SOM faculty are routinely chosen to serve on university, military, and Federal and professional organization committees in a variety of leadership and service capacities. Due to the unique

nature of the USUHS SOM mission and certain of its departments, faculty in the Departments of Military and Emergency Medicine, Preventive Medicine and Biometrics, Psychiatry, and Medical History have achieved national and international recognition (Appendix C Provides Examples of Individual Achievements and Recognition).

The majority of SOM clinical faculty are located at the teaching hospitals. The large number of enthusiastic, well-trained primary care and specialist clinicians, based at the hospitals throughout the Military Health System, is an invaluable resource for teaching medical students. Under the oversight and guidance of clinical clerkship directors, this large faculty does an excellent job of medical student clinical training, based on surveys of both students and department chairs. A number of the hospital-based faculty are also involved in clinical research programs through the active clinical investigation programs based at the teaching hospitals. To further enhance communication and cooperation between the USU SOM and its affiliated teaching facilities, the Office of the Associate Dean for Clinical Affairs has completed an updated series of memoranda of understanding between the University and its affiliated teaching and research institutions which clearly defines areas of responsibility and accountability. Outcome data such as student-reported satisfaction, student performance on National Board examinations, hospital commanders' overall satisfaction with the performance of USU graduates, and the large percentage of operational and leadership positions held by USU graduates throughout the Military Health System, indicate that the SOM faculty is performing a stable and highly satisfactory job of educating medical students for the Uniformed Services.

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Collaborative Efforts.

Teaching. Cooperation in teaching has been systematically developed within the departments, between departments, and within subspecialties, to improve the educational experience of both medical and graduate students (the SOM faculty also provides the instructional base for the Graduate Education Programs at the University). The composite curriculum in behavioral sciences, drawing on Neurology, Psychiatry, and Medical Psychology, is a significant example of interdepartmental cooperation in undergraduate medical education.

The graduate programs in Neuroscience, Molecular and Cell Biology, and the newly established Interdisciplinary Graduate Program in Emerging Infectious Diseases illustrate a sound cooperative relationship in research and graduate education. The Tumor Biology Program, an interdepartmental effort between the Departments of Pathology and Surgery, serves as a bridge between basic science and clinical practice in Medical Oncology. The special interest groups in curriculum studies have resulted in basic science input into the hospitals, with collaboration in research, and more importantly, with collaboration in teaching, as the basic scientists provide science instruction to the medical house officers and junior faculty within certain subspecialties of mutual interest. (Information was drawn from the SOM 1999 Self-Study, Section VI, pages 7, 9, 14, and 16.)

New Department of Anatomy, Physiology and Genetics. A significant change took place over the past two years in the academic structure of the USU SOM. The Department of Anatomy and Cell Biology and the Department of Physiology were formally merged to create the Department of Anatomy, Physiology and Genetics (APG). The philosophy of the newly formed department conforms with the mission and goals of the USU Strategic Plan. The philosophy is based upon a commitment to the highest level of excellence in teaching,

research, and administration. The departmental merger has consolidated the teaching, research, and administrative functions of a substantial component of the University within a single faculty group under the leadership of a single Department Chair. One result of this action is that one half of the first year medical curriculum is now offered by the Department of Anatomy, Physiology and Genetics. Integration of the formerly separate anatomy and physiology curricula is resulting in a single, cohesive and dynamic course which spans the entire first year of medical education. At the same time, the Department Chair and APG Faculty have recommitted to serving the Graduate School of Nursing (GSN) and will continue to provide didactic training for the GSN students in the areas of physiology and neuroscience. As expected, the departmental merger is yielding benefits beyond the immediate outcomes of curriculum integration. The joining of a diversified faculty is empowering the Department of APG in its on-going efforts to recreate its program in graduate education and has provided the environment for the formation of new and productive research collaborations. One outcome of this process is the evolution of an educational track in "Human Biology and Genetics." The goal of this Ph.D. track is to provide students with a state-of-the-art understanding of technologies in genetics, genomics, proteomics and bioinformatics, and molecular and cell biology, assembled around a fundamental understanding of human anatomy and physiology in both normal and disease states. Another outcome is the creation of a research team and program project grant to support diseased-based multidisciplinary research. Further, the efficiency gained in departmental administration is enabling the Department Chair and APG faculty to play leadership roles in the evolution of vital interdepartmental programs including those in Medical Genetics and Applied Human Biology. Both of these nascent programs have been recognized for their intrinsic academic value and for their direct relevance to the needs of the Uniformed Services. While additional time is required to fully realize the total benefits of the departmental merger, it is clear that increased efficiency, functional integration, and enhanced collegiality will continue to be constant hallmarks of the outcomes.

Interdisciplinary Research Programs. The research and development goals of the USU strategic plan are to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. Currently, there are three interdisciplinary research programs: 1) **Emerging Infectious Diseases.** Initially, a special interest group from the USU SOM Departments of Microbiology and Immunology and Preventive Medicine and Biometrics, to include faculty from other departments who are interested in infectious diseases, began meeting and successfully submitted a proposal for an NIH training grant in this area. This effort led to the establishment of the Emerging Infectious Diseases (EID) Graduate Program. The EID Program has three academic tracks within the field of emerging infectious diseases: microbiology and immunology; pathology; and, preventive medicine/parasitology, with primary interest in the pathogenesis, host response, pathology, and epidemiology of infectious diseases. The research training emphasizes modern methods in molecular biology, cell biology and interdisciplinary approaches. The inaugural graduate student class of 10 matriculated in the Fall of 2000; the second class of 12 students entered in the Fall of 2001; two full-time uniformed service applicants have also been accepted for the Fall of 2002; 2) **Molecular and Cell Biology.** A second Interdisciplinary Program, in Molecular and Cell Biology (including Genetics), has been developed to contribute to cross-disciplinary interactions and to develop critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. program. This interdisciplinary Ph.D. program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Research areas include molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways, exocrine

secretory processes, and gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Two students entered the program in the Fall of 2001; and, 3) **Neuroscience.** The Interdisciplinary Program in Neuroscience and its Ph.D. graduate program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series, and flexible program of courses and research areas for graduate students and postdoctoral fellows. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. Seven students entered the program in the Fall of 2001.

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Selected Profiles of USU School of Medicine Faculty.

USU SOM Dean Announces Retirement. During 2001, **Val G. Hemming, M.D., Dean, USU SOM,** announced his retirement date of May 19, 2002. Dean Hemming has served as the Dean of the School of Medicine since May of 1996; he had previously held the position of Chair, Department of Pediatrics, since his retirement from the Air Force in October of 1990 through May of 1996. Dean Hemming was first assigned to the Department of Pediatrics in 1980; while on active duty, he was appointed as Chair of Pediatrics in 1987. From 1983 through 1990, he also served as the Specialty Consultant in Pediatrics to the Air Force Surgeon General; and, from 1987 through 1990, he served as the Consultant in Pediatrics to the Assistant Secretary of Defense for Health Affairs. His academic and research interests have included the pathogenesis of Lancefield group B streptococcal infections in the neonate, pathogenesis of lower respiratory tract bacterial, viral infections in infants and young children, and pediatric education for undergraduate medical students. Most significant has been his research in Respiratory Syncytial Virus (RSV) Infection; this research resulted in a biological product for the prevention of RSV infection for children which was approved by the Food and Drug Administration in January of 1996. Dean Hemming was awarded the Doctor of Military Medicine, Honoris Causa, at the USU Commencement on May 19, 2001. The citation for the honorary degree recognized Dean Hemming as a physician, teacher, scientist, military officer, humanitarian, husband, father, and grandfather. Also, the University award recognized Dean Hemming's "lifetime of pursuing multiple goals... always guided by a core principle of service... to family, church, and country..." Dean Hemming changed the SOM curriculum through a caring and thoughtful style of management and by doing so, ensured the full accreditation of the SOM by its accrediting organizations. The University's gratitude toward Dean Hemming for his accomplishments and contributions to the SOM and to the entire University are reflected in the standing ovation paid to him as he accepted the Honorary Degree of Doctor of Military Medicine. Following Dean Hemming's announcement of his retirement plans, a nation-wide search for his replacement was initiated. Captain Larry W. Laughlin, MC, USN, was chosen to be the fourth Dean of the SOM; Dr. Laughlin joined the University in 1991 and has served as the Chair of the SOM Department of Preventive Medicine and Biometrics since 1998. Captain Laughlin currently holds the Sanford Chair in Tropical Medicine, named in honor of the first Dean of the SOM, Jay P. Sanford, M.D.; he will retire from active duty in the Navy and assume responsibilities as Dean of the SOM in May of 2002.

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USU President Selected by U.S. Medicine as the 2001 Recipient of the Frank Brown Berry Prize in Federal Healthcare. James A. Zimble, M.D., President, USU, was selected as the 2001 Recipient of the Frank Brown Berry Prize in Federal Healthcare. The annual award, named after the first Assistant Secretary of Defense for Health Affairs, honors individuals who are part of that segment of medical professionals who labor hard but reap little personal financial gain from their accomplishments. U.S. Medicine cited that Dr. Zimble "led USU to significant growth, academic excellence and increased recognition from the civilian academic medical community. He led the transformation of the University from a medical school to an academic health center for the MHS. His leadership helped to tailor the curriculum at all levels to meet the unique demands of military medicine." Dr. Zimble has donated the $10,000 prize which accompanies the award to create a new endowment with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Foundation subsequently established

the Endowment for Military Operational Medicine. The endowment will provide a fund to support efforts within the MHS for research, teaching, and other activities specifically related to military operational medicine.

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USU Faculty Develop New Humanitarian Assistance Courses. Humanitarian missions have been occurring at an accelerating pace over the past decade, and fall largely outside of the realm of traditional medical education. A definite requirement exists for training to prepare non-USU graduates for deployment. The development of the Humanitarian Assistance Courses at USU is supported by a congressional grant through the USU SOM Department of Military and Emergency Medicine.

Department of Pediatrics. The Dean of the School of Medicine and the Department of Pediatrics took the lead in developing and providing interactive training to better prepare military health care providers to care for victims of humanitarian emergencies. The Pediatrics-generated Military Medical Humanitarian Assistance Course is an intensive two-day course. It involves refocusing the health care approach to a population emphasis, specifically concentrating on those populations living in austere environments following natural or man-made disasters. In addition to didactic sessions, instruction is carried out by utilizing case scenarios and simulated case management exercises based on real world experiences previously encountered by military providers. The course climaxes in hands-on skills stations where attendees learn and demonstrate their newly acquired knowledge and skills in dehydration/diarrhea, malnutrition, and infectious diseases. This unique, one of a kind, interactive course sponsored by the Education Section of the Department of Pediatrics, under the direction of **Lieutenant Colonel Jeffrey L. Longacre, MC, USA, Assistant Professor of Pediatrics**, has now graduated over 400 health care providers who are better prepared to care for victims of humanitarian emergencies should the need arise. On average, the course is given monthly throughout the United States; it is sponsored by the USU Office of Continuing Education for Health Professionals.

Department of Medicine. **Lieutenant Colonel Michael J. Roy, MPH, MC, USA, Associate Professor, Department of Medicine**, is the USU SOM Department of Medicine Course Coordinator and Director of the Division of Military Internal Medicine. Major Roy's three-day course prepares medical residents and junior staff for deployment on humanitarian assistance missions. Some of the lectures included in the course are already available in PowerPoint slides on the department's web site at *<http://www.usuhs.mil/med/milmedlect.htm>*. Major Roy has coordinated the Department of Medicine's efforts to focus on military relevance through research, faculty development, and curricular reform. The course has two major elements: 1) to prepare participants for working in an environment that may differ greatly from what they are accustomed to - limited medications and capabilities, different diseases and considerations, and colleagues from many nations and non-governmental organizations; and, 2) to refresh internists on the basics of medicine outside of their usual practice (adult primary care), and teach the essentials of field pediatrics, obstetrics and gynecology, orthopedics and dermatology. Twelve participants took the course on March 26-28, 2001. The attendees earned continuing medical education (CME) and were particularly impressed with the coverage of pre- and post-deployment issues, the care of amputees, and the overall depth and diversity of the material presented.

Department of Military and Emergency Medicine. **Lieutenant Colonel John M. Wightman, USAF, MC, FS, Associate Professor, Department of Military and Emergency Medicine**, recently completed a three-day pilot curriculum to prepare military emergency medicine residents for humanitarian missions. Lieutenant Colonel Wightman and his colleagues will evaluate and complete the curriculum for nationwide dissemination during 2002.

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Past University Faculty Member Named Navy Surgeon General. Vice Admiral Michael Cowan, who served as Vice Chair of the Department of Military and Emergency Medicine and Chief of Operational and Emergency Medicine at USU from 1982 through 1985, became the Navy's 34th Surgeon General on August 10, 2002. Previously, the Chief of Staff for the Assistant Secretary of Defense for Health Affairs, he succeeded retiring Vice Admiral Richard Nelson. As Surgeon General, Admiral Cowan will continue his close ties with the University as an ex-officio member of the Board of Regents and as a member of the USU Executive Committee. Admiral Cowan also received the University Medal and presented the Commencement Address during the USU Graduation on May 19, 2001.

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SOM Off-Campus Faculty Member, Department of Surgery, Becomes the Nation's 40th Army Surgeon General. Lieutenant General James B. Peake, MC, USA, was sworn in as the Army's 40th Surgeon General on September 22, 2001; he was also named as the Commander of the U.S. Army Medical Command, Fort Sam Houston, Texas. (In both positions, he replaces **Lieutenant General Ronald Blanck**, who retired from active duty after 32 years of service and nearly four years as the Surgeon General of the Army.) Following service in Vietnam where he was awarded the Silver Star, a Bronze Star with "V" device and the Purple Heart with oak leaf cluster, General Peake entered medical school at Cornell University in New York and received his medical doctorate in 1972. He is a board-certified thoracic surgeon and a Fellow of the American College of Surgeons, a Fellow of the Society of Thoracic Surgeons, and a Fellow of the American College of Cardiology. He is also a 1988 graduate of the Army War College. As the Surgeon General of the Army, General Peake serves on the USU Board of Regents as an ex-officio member; and, he also serves as a member of the USU Executive Committee.

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Department Chair of Family Medicine Retires and new Chair is Selected. Colonel Jeannette South-Paul, MC, USA, Chair, Department of Family Medicine, retired on July 9, 2001, after more than 15 years with the University. Among her many accomplishments as the Department Chair, Colonel South-Paul successfully provided oversight for the initial establishment and implementation of the University's faculty development program; a program that her Department continues to sponsor in coordination with the Associate Dean for Faculty Affairs; during 2001, courses and seminars were provided for 250 USU attendees who earned over 300 hours of continuing education credit. Additionally, in 1991, Colonel South-Paul became the first USU Vice President for Minority Affairs. Under her leadership recruitment strategies, support programs, and diversity activities were established and implemented. Upon her retirement, Colonel South-Paul has been selected for the position of Chair, Department of Family Medicine, at her alma mater, the University of Pittsburgh. Following an

extensive search, **Lieutenant Colonel Brian Reamy, USAF, MC**, was selected to serve as the new Chair of the Department of Family Medicine and began his assignment on September 4, 2001. Lieutenant Colonel Reamy received his Bachelor's Degree from Georgetown University; he completed his residency in Family Medicine at the David Grant Medical Center, Travis Air Force Base, California; and, he has completed a fellowship in faculty development and academic medicine at the University of California, San Francisco. He is also a recent graduate of the Air Force Air War College.

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Department Chair of Military and Emergency Medicine Moves to New Position. On September 24, 2001, **Craig Llewellyn, M.D., Professor and Chair, Department of Military and Emergency Medicine (MEM)**, stepped down after serving as the Chair of the Department for 14 years (1987 through 2001). Dr. Llewellyn will remain at the University as a tenured professor and also as the **Director of the Center for Disaster and Humanitarian Assistance Medicine (CDHAM)**, within the Department of Military and Emergency Medicine. Dr. Llewellyn first joined the University in 1982, when he was selected to serve as the Commandant of Students from 1982 through 1987. He also holds appointments as Professor of Surgery and Professor of Preventive Medicine and Biometrics. At his retirement ceremony, it was noted that "Dr. Llewellyn's patience and willingness to share his expertise over the past eleven critical years have played a significant role in the development of the intellectual content that was successfully used to justify both the continuation of the University and the Joint Meritorious Unit Award presented to USU by the Secretary of Defense on December 11, 2000. Dr Llewellyn has served as a foundation for the University in its continuous efforts to effectively respond to the special needs of military medicine." Dr. Llewellyn was also honored at the 107th Annual Meeting of the Association of Military Surgeons of the United States when he received the Richard A. Kern Lecture Award for his lecture, "Military Medicine in the New Millennium: Will it be Relevant?" **Colonel Clifford Cloonan, MC, USA, SOM Class of 1983**, is serving as the Interim Chair for the Department of Military and Emergency Medicine. Colonel Cloonan previously served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, for three and one half years; and, he continues to serve as the current Emergency Medicine Specialty Consultant to the Army Surgeon General.

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USU SOM Department Chair Plays a Significant Role Following September 11, 2001. Robert Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director of the USU Center for the Study of Traumatic Stress, and Recipient of the Lifetime Achievement Award from the International Society of Traumatic Stress, was widely sought and quoted in the media following the terrorist attacks of September 11th; Newsweek, The New York Times, The Washington Post, and The Wall Street Journal sought Dr. Ursano's views in his capacity as an international expert in traumatic stress. In addition, Dr. Ursano's Editorial on Post-Traumatic Stress Disorder was also published in the January 2002 issue of the New England Journal of Medicine. Dr. Ursano appeared on ABC News, NBC News,and the National Public Radio to discuss the psychological and behavioral effects of the September 11th terrorist attacks on the Nation. In addition, he was an invited participant on the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) panel on planning for bioterrorism, and the World Psychiatric Association Symposium on Disaster and Terrorism. Dr. Ursano also serves on a 12-member task force, RED-NUFF, for the Secretary of Defense. Within hours of the terrorist attacks in New York and at the Pentagon, Dr. Ursano and his Center for the Study of Traumatic Stress

provided: 1) immediate, on-going consultation to the hospitals, medical care planners, and elected leaders of New York City, the State of New York's Response Management Team, the Pentagon's Response Planning Team, and the Arlington Hospital (42 casualties were received from the Pentagon) on staff stress/interventions; 2) continuous manning for the Stress Support Office at the White House/Executive Office Building; 3) on-going provision of resources and information packets for the USNS COMFORT deployment teams for stress related to body handling, concern over families, and terrorist activities; and, 4) a Disaster Care Resources site on the USU Trauma Center Web Page.

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Outstanding Biomedical Graduate Educator Award Presented to the USU SOM Associate Dean for Graduate Education. Michael N. Sheridan, Ph.D., Associate Dean for Graduate Education and Professor, Department of Anatomy, was selected to receive the Outstanding Biomedical Graduate Educator Award during May of 2001. This award recognizes the outstanding contributions of a member of the biomedical graduate faculty in the USU SOM. The recipient must have demonstrated commitment to graduate education through his/her extensive and outstanding contributions to the education of students in the doctoral training programs. The award also recognizes excellence in teaching, mentoring of graduate students, administering of graduate programs, and promoting the interests of graduate education. Dr. Sheridan served as a Professor in the USU SOM Department of Anatomy from 1980 through December of 2001 when he retired from the University.

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SOM Department Chair Selected for Mastership in the American College of Physicians - American Society of Internal Medicine. Robert E. Goldstein, M.D., Professor and Chair, USU SOM Department of Medicine, was selected for Mastership in the American College of Physicians - American Society of Internal Medicine. Induction was announced for April of 2002. Dr. Goldstein also served as a Visiting Professor at the Tripler Army Medical Center in Honolulu, Hawaii, where he made a presentation on rheumatic heart disease, participated in a teleconference with the Royal Thai Military Hospital on the subject of dengue fever, and gave a cardiology conference for the housestaff. Dr. Goldstein continues to review frequently for the Annuals of Internal Medicine, JAMA, and multiple cardiology journals.

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SOM Department Chair Receives the Distinguished Service Medal of the Commissioned Corps of the United States Public Health Service. Captain William H.J. Haffner, M.D., USPHS, Professor and Chair, USU SOM Department of Obstetrics and Gynecology, retired from the Commissioned Corps of the United States Public Health Service (USPHS) on August 1, 2001; his retirement recognized a completion of a 30 year career which included major duties and responsibilities with the Indian Health Service, the National Naval Medical Center, and USU. Upon his retirement, The USU Distinguished Service Medal was presented to him by the USU Board of Regents. Dr. Haffner had earlier been presented with the Distinguished Service Medal of the Commissioned Corps of the USPHS. In March of 2002, he became the Secretary-Treasurer of the Association of Professors of Gynecology and Obstetrics and in April of 2002, he was awarded the Distinguished Service Medal

of the American College of Obstetricians and Gynecologists. Dr. Haffner competed again for his position as Chair, Department of Obstetrics and Gynecology, and following a national search, he was reappointed as Chair of the SOM Department on August 6, 2001.

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A Patient Care Research Program Is Established by SOM Department Chair. Colonel Bahman Jabbari, MC, USA, Professor and Chair, USU SOM Department of Neurology, established a patient care research program at USU which focuses on reducing the damage to the spinal cord/spinal column after initial injury and investigates strategies to alleviate the resulting symptoms. The research program is a combined Army/ Navy venture; the clinical arm of the program is being conducted in close collaboration with the program managers at the affiliated hospitals: **Lieutenant Colonel Jim Eckland, Chief, Neurosurgery Service, and Lieutenant Colonel Robert Labutta, Chief, Neurology Department, at the Walter Reed Army Medical Center; Captain Bertrand DuVal-Arnould, MC, USN, and Commander Frederick W. Foote, MC, USN, Neurology, at the National Naval Medical Center; and, Lieutenant Colonel Geoffrey Ling, Vice Chair, Department of Neurology, at USU. Dr. Cinda Helke, USU SOM Associate Dean for Graduate Education**, provided leadership during the implementation of the basic science arm of this program. Colonel Jabbari was also the guest speaker at the University of Bolognia, Italy, in August of 2001. He presented the "Results of the Epilepsy Surgery for Refractory Epilepsy from DoD's comprehensive Epilepsy Program." Colonel Jabbari was also the invited speaker at the 38th Interagency Botulism Research Conference hosted by USAMRMC which was held on October 17-19, 2001, in Easton, Maryland. Colonel Jabbari served on the National Institutes of Health Fellowship Education Award Committee and on the Technology Committee of the American Epilepsy Society. His research introducing "A New Modality of Treatment for Low Back Pain," was published in Neurology in May of 2001; and, it received extensive media coverage on CNN News, the Canadian Television Network, and Time Magazine.

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Proposal by USU SOM Department Chair Is One of 14 Finalists. The proposal, "Mental Stress as a Trigger of Cardiac Electrical Instability in Altered Autonomic Responses in Health Failure," written by **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology**, has been selected by The Charles A. Dana Foundation as one of 14 finalists for development of a full proposal. The Charles A. Dana Foundation is a private philanthropic foundation with principal interests in health and education. The founder's abiding beliefs were in the capacity and responsibility of individuals to shape and advance their lives and in the singular role of philanthropy to help them to do so.

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President of the Faculty Senate Honored by the USU Board of Regents and Selected to Receive the 2000 AAMC Humanism Award. Merrily Poth, M.D., Professor, USU SOM Departments of Pediatrics and Neuroscience, was recognized during 2001 when she was presented the USU Distinguished Service Medal for her service as President of the Faculty Senate from July of 1999 through June of 2000. Dr. Poth was recognized

for her service to the faculty and USU as an effective spokesperson through her efforts in presenting the views and meeting the requirements of the faculty. She met regularly with senior USU management officials and the Board of Regents to maximize communication across the University. Her coordination resulted in the development of curriculum on computer and Internet technology, the establishment of the Carol Johns Award for Outstanding Faculty Members, and the implementation of the USU Nursing Mother's Program. In addition, Dr. Poth was recognized as one of 47 physicians from across the Nation who were selected by medical students to receive the 2000 Association of American Medical Colleges (AAMC) Humanism Award on October 28, 2001, in Chicago, Illinois. The AAMC and the Pfizer Medical Humanities Initiative sponsor the award and annually honor medical school faculty physicians who embody the qualities of a healer who teaches healing. Honorees are nominated based upon their positive mentoring skills, compassion and sensitivity, collaboration, community service activity, and observance of professional ethics.

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USU Professor Serves on the DoD Prevention, Safety, and Health Promotion Council. Neil Grunberg, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology, has been appointed to a two-year term on the Alcohol Abuse Tobacco Use Reduction Committee. The committee comes under the DoD Prevention, Safety, and Health Promotion Council (PSHPC). Dr. Grunberg is a leading researcher for DoD on tobacco use. He has been a scientific editor on two U.S. Surgeon General Reports on Smoking and a consultant to the Army, Navy and Air Force Surgeon Generals. The PSHPC is an executive-level group of the DoD, service secretariat, service leaders, and the Interagency Military and Veterans Health Coordinating Board; the council supports the goals of the Military Health System Strategic Plan to advance health and safety promotion in peacetime and during contingency operations. In July of 2001, Dr. Grunberg was quoted in a Reader's Digest article, "The Unfiltered Truth." Dr. Grunberg pointed out that because "very few people knew women who died young of smoking-related causes, there has been a tremendous misimpression that women don't suffer heart and respiratory problems from smoking." Dr. Grunberg has been studying gender differences in smoking since the early 1980's.

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Department of Medicine Selects new Vice Chair for Research Programs. Colonel George Tsokos, MC, USA, Professor, Department of Medicine, was selected to serve as the Department of Medicine's new Vice Chair for Research Programs during 2001. He is responsible for optimizing the overall research performance of the department, as measured by peer-reviewed publications, funding, and scientific distinctions which support the core missions of USU and the Department of Medicine. Colonel Tsokos continues to serve as the Director of the Department of Medicine's Division of Rheumatology/Immunology and Chief of the Department of Cell Injury at the Walter Reed Army Institute of Research. He will also continue to provide grant writing advice and assistance and to make recommendations on the Department of Medicine's research policies. During 2001, Colonel Tsokos was appointed as Section Editor for the Journal of Immunology. He was also elected to serve as the Councilor of the Clinical Immunology Society; this five-year term leads to the position of president-elect after three years, and then full presidency of the Society after another year. The mission of the Society is to promote the interests of clinical immunologists. Colonel Tsokos has been a Professor of Medicine at the USU SOM since 1991.

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Department of Energy Grants $2.4 million to USU Researcher. Michael Daly, Ph.D., Assistant Professor, SOM Department of Pathology, currently has six active grants totalling over $3.5 million supporting a research program dedicated to understanding and exploiting DNA repair processes in the extremely radiation resistant bacterium "Deinococcus radiodurans." Daly's two most recent grants were awarded by the Department of Energy in September of 2000 ($1.2 million) and September of 2001 ($1.2 million). This research is aimed at supporting the development of radiation resistant bacteria for decontamination of radioactive wastes. The bioremediating organisms and techniques already developed by his team were accepted for review by the U.S. Patent Office during 2000, with legal expenses carried by the Henry M. Jackson Foundation. In the last two years, Dr. Daly has published ten papers on a range of topics including genomic informatics, bioremediation, DNA repair and bioterrorism. A review of his progress in the areas of genomic informatics and "Deinococcus" work in the Department of Pathology has received international attention and was published in Microbiology and Molecular Biology Reviews in March of 2001. According to a cover story in U.S. News and World Report during 2000, Daly's work promises to substantially reduce the estimated $150 billion cost for cleaning up toxic wastes such as those found at nuclear waste sites. The exposure by the media has place Dr. Daly in demand as an invited speaker as well as a consultant to scientific bodies; for example, Dr. Daly was appointed a Planetary Task Group Member (National Academy of Sciences) to advise NASA on protecting Jupiter's moon, Europa, from forward contamination by future exploratory missions, and most recently, protecting Earth from back-contamination following NASA's planned 2008 Mars Sample Return Mission. Dr. Daly teaches part of the USU Graduate Course, The Emerging Threat of Biological Weapons and Bioterrorism, where he lectures on the emerging impact of genomic informatics on the development of such weaponry.

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Professor of Family Medicine Recognized by the University of Tennessee. Cindy Cox Wilson, Ph.D., Professor and Director of Faculty Development, SOM Department of Family Medicine, received the Robert H. Kirk Distinguished Doctoral Alumni Award in Health and Safety; the award was presented on March 30, 2001, at the University of Tennessee Reception and Social during the Annual Convention of the American Alliance for Health, Physical Education, Recreation and Dance. In addition, Dr. Wilson's enthusiastic leadership and coordinating efforts with the SOM Associate Dean for Faculty Affairs led to the presentation of courses and seminars during 2001 which were attended by 250 USU SOM faculty members who earned a total of 300 continuing medical education credits.

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Professor Emeritus of Medical History Selected to Receive Award. Robert J. T. Joy, M.D., Professor Emeritus of Medical History, was informed during 2001 that he had been selected to receive the 2002 Nicholas E. Davies Memorial Scholar Award from the American College of Physicians - American Society of Internal Medicine. The Davies Award is presented to an individual for outstanding contributions to humanism in medicine and recognizes the person's scholarly activities in history, literature, philosophy, and ethics. Dr. Joy was one of the University's first faculty members; he served as a Professor and Chair of the SOM Department of Medical History from 1976 until his retirement in 1996. As Professor Emeritus, he continues to lecture medical students on the history of military medicine. Additionally, Dr. Joy was the first USU SOM Commandant from 1976 to 1981; he retired at the rank of Colonel from the Army in 1981. Before coming to USU, he was the Director and Commandant of the Walter Reed Army Institute of Research.

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USU SOM Uniformed Faculty Member Selected as One of Ten Outstanding Young Americans for 2001. Lieutenant Colonel George E. Peoples, Jr., MC, USA, Assistant Professor, Department of Surgery, was selected as one of the Ten Outstanding Young Americans for 2001 by the United States Junior Chamber of Commerce. Lieutenant Colonel Peoples was recognized for: his contributions in the field of cancer research and the development of preventative vaccines which prove applicable to lung, colon, breast, prostate, ovarian, and pancreatic cancer. The award exists to honor 10 Americans each year who exemplify the best attributes of the Nation's young people, aged 21 through 39. Winners are selected on their achievements or contributions in categories ranging from scientific and technological advancements to philanthropic contributions or voluntary services. Past honorees include John F. Kennedy, Gerald Ford, John D. Rockefeller, and Bill Clinton. Dr. Peoples began working in the field of cancer vaccinations while at the M.D. Anderson Cancer Center in Houston, Texas.

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USU SOM Faculty Member Receives the Doris Duke Clinical Scientist Development Award. Thomas Darling, M.D., Assistant Professor, Department of Dermatology, was the 2001 recipient of the Doris Duke Clinical Scientist Development Award for his research, "Tumorigenesis in Multiple Endocrine Neoplasia Type I." He was one of nine faculty-level awardees to receive research funding for up to five years. The Doris Duke Charitable Foundation seeks to improve the quality of people's lives by nurturing the arts, protecting and restoring the environment, seeking cures for diseases, and helping to protect children from abuse and neglect.

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USU Professor Leads Team Searching for Clues to the Cause of Bone Loss. USU Department of Medicine Professor, Jay Shapiro, M.D., is a team leader for bone studies at the National Space Biomedical Research Institute. He is searching for clues to the cause of bone loss or osteoporosis in astronauts after returning from space travel. Dr. Shapiro says the condition has become so prevalent that NASA considers osteoporosis an inherent risk for those participating in the space program. Dr. Shapiro is studying spinal cord injury patients at the National Rehabilitation Hospital in Washington, D.C. He has pointed out that once an individual loses muscle function, he/she also loses bone. This is true in space for astronauts because their muscles no longer have to function against gravity. He is currently studying zoledronate, a newly approved and powerful bisphosphonate, which slows the rate of bone absorption; he believes zoledronate could help staunch astronauts' bone loss. Dr. Shapiro also heads the Inter-Departmental Center for Space Medicine at USU which promotes education and research in this area.

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Appendix C provides selected examples of billeted and off-campus members of USU Departments and Programs and Department Activities receiving special recognition during 2001.

RESEARCH CENTERS AND PROGRAMS.

We will optimize our role in military and federal medical education and research.

We will effectively communicate the right information to the right people at the right time.

- Goals 5 and 7 of the USU Strategic Plan.

Research is Directed Toward Military Requirements. As discussed in the "Strategic Planning and Research Administration" sections of Part I of this report, the majority of the research programs and projects currently taking place at USU are focused on meeting the needs of the Uniformed Services. Research protocols throughout the SOM study diseases of high military relevance for troop deployment and sustainment. In 2001, the USU intramural program consisted of 80 militarily relevant protocols. These research projects support the military mission by advancing the understanding of both the transmission and the internal mechanisms of a spectrum of pernicious and/or common diseases which may be faced by warfighters. For example, technological advances by USU researchers have made it possible to predict mosquito population levels and transmission risks for a range of mosquito-borne diseases such as malaria, even within precise areas and time frames. By using satellite imaging and remote sensing devices, USU researchers assist in predicting high-risk locations for the occurrence of malaria and similar diseases. These predictions focus disease-control operations and conserve scarce finances as well as human resources. Research contributed by SOM faculty relating to combat casualty care continues to provide rapid diagnostic methods and treatments which ensure military readiness. In addition, the research of the SOM faculty is also directed toward military operational medicine. The following SOM Centers, Activities, and individual researchers are provided as selected examples of the research and consultative services taking place throughout the School of Medicine.

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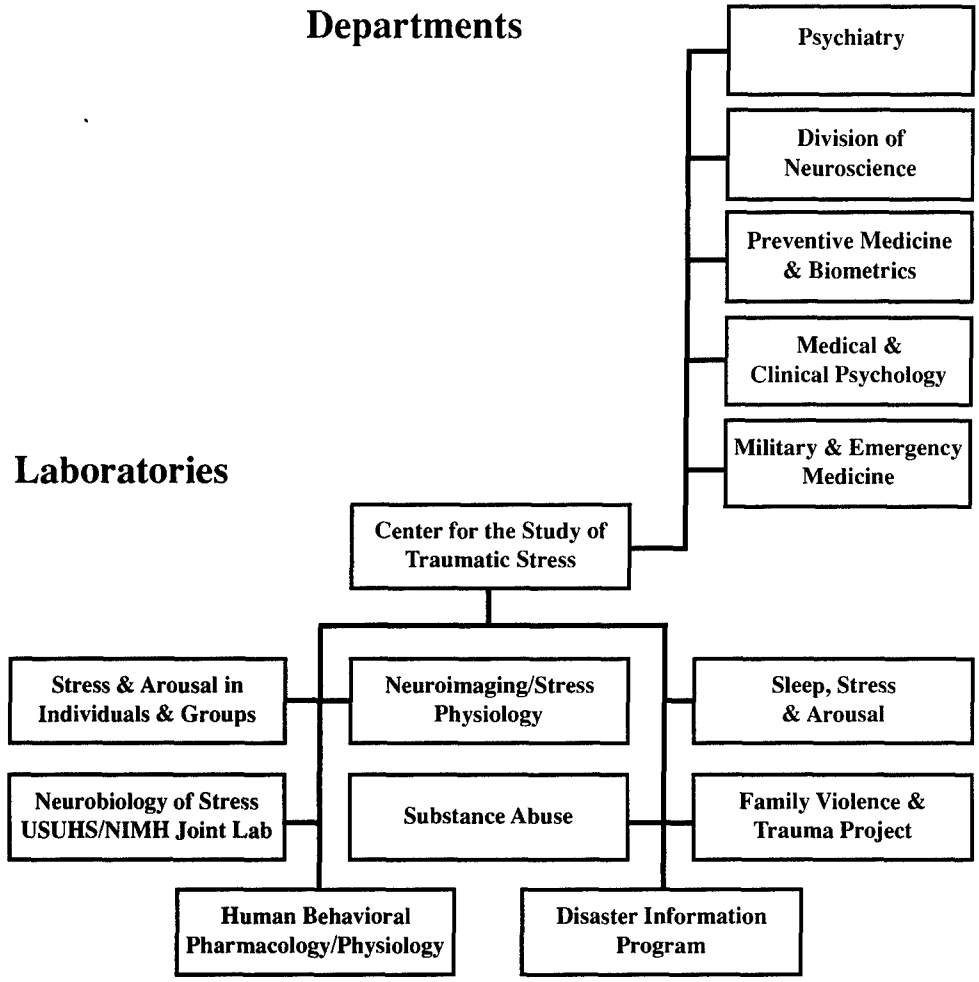
SELECTED PROFILES OF SOM CENTERS AND PROGRAMS

(See Appendix C for Additional Examples of Individual Achievements and Recognition)

USU School of Medicine Department of Psychiatry and the Center for the Study of Traumatic Stress.



Establishment. The terrorist attacks at the World Trade Center and at the Pentagon on September 11, 2001; hostage events; the poison gas attack on the Tokyo subway; the Oklahoma City, Africa, and USS Cole Bombings; and, disasters such as Japan's Kobe Earthquake which left 6,000 dead, 30,000 injured, and 300,000 homeless; as well as, more common traumatic events such as motor vehicle accidents, hurricanes, tornadoes, and physical assaults are all substantial health risks to both those who serve our Nation in the Uniformed Services and the

general population of the United States. As the Academic Health Sciences Center for the Uniformed Services, USU is both nationally and internationally recognized for its consultative services to government and private organizations in times of disasters and critical incidents. USU is well situated to assist in meeting the needs of the Military Health System and of the Nation in the area of traumatic stress.

The USU Center for the Study of Traumatic Stress was established in 1987 as a center of excellence for responding to DoD's long-term concerns over the substantial health risks resulting from the traumatic impact of: 1) the possibility, or actual use, of weapons of mass destruction (WMD) during combat, acts of terrorism or hostage events; 2) combat, peacemaking, peacekeeping, and operations other than war; 3) natural disasters such as hurricanes, tornadoes, or floods; and, 4) more common stress producing events such as physical assaults and motor vehicle, shipboard, or airplane accidents. At present, investigators from the four USU SOM Departments of Psychiatry, Preventive Medicine and Biometrics, Military and Emergency Medicine, and Medical and Clinical Psychology, and the SOM Division of Neuroscience are collaborating on extensive studies of traumatic stress. The Center's scientists are involved in a wide range of projects including responses to natural, man-made, and environmental disasters; the studies examine community responses to loss of life and property, community displacement, and organizational leadership. In addition, the Center projects involve the examination of the physiologic change after trauma and the neurobiology of stress.

Mission. Today, the Center for the Study of Traumatic Stress, as a cutting-edge scientific endeavor, continues to increase the military's medical knowledge (epidemiology, psychological, biologic, origins, and treatment) of the consequences of bioterrorism, trauma, and disaster and to apply that knowledge in addressing the real world problems and requirements of homeland defense, the response to terrorism and disaster, and humanitarian assistance. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, serves as the Director of the Center.**

Core Military Competency. The location of the Center within the multi-Service environment of USU, with its emphasis on education and development, studies, research, and on-going clinical and operational practice is critical to the development and sustainment of the Center's ability to provide its core competency - **the capability to ensure the continued provision of critically required military-unique, medical expertise and consultative support in response to the impact of traumatic stress during and following activities related to crisis management, disaster response, and homeland defense.** The successful assessment and management of the behavioral, psychological, and social consequences of WMD-related and other national security contingencies is essential to DoD during the organization of effective responses to such events. Failure to attend to the consequences of WMD may lead to panic or demoralization and could undermine the confidence of the Armed Forces and American citizens in their government and its institutions.Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students at both the undergraduate and graduate levels, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers in the study of traumatic stress. The Center's unique military medical capability to assess and manage the traumatic impact of WMD and other disaster-related contingencies provides direct support to Homeland Security and Defense.

Response on September 11, 2001. Within hours of the terrorist attacks in New York and at the Pentagon, the Center provided: 1) immediate, on-going consultation to the hospitals, medical care planners, and elected leaders of New York City, the State of New York's Response Management Team, the Pentagon's Response

Planning Team, and Arlington Hospital (42 casualties were received from the Pentagon) on staff stress/interventions; 2) continuous manning for the Stress Support Office at the White House/Executive Office Building; 3) on-going provision of resources and information packets for the USNS COMFORT deployment teams for stress related to body handling and concerns over families and terrorist activities; 4) a Disaster Care Resources site on the USU Trauma Center Web Page; 5) OSD-coordinated and immediate responses to requests for consultation and expertise from Newsweek, ABC News, The Washington Post, and, The New York Times; 6) information packets to the Body Recovery Teams in both New York and Washington, D.C.; and, 7) membership on the Secretary of Defense's 12 member Task Force, "RED NUFF."

National and International Recognition of the Center's Leadership. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry**, is internationally recognized as an expert in traumatic stress. In November of 2000, Dr. Ursano received the Lifetime Achievement Award, the highest award given by the International Society for the Study of Traumatic Stress. This award is given for outstanding and fundamental contributions to the understanding of traumatic stress; the award citation made particular note of Dr. Ursano's national and international contributions. Following September 11th, Dr. Ursano was widely quoted in the media including The New York Times, The Washington Post, and The Wall Street Journal; he also appeared on ABC News, NBC News, and the National Public Radio to discuss the psychological and behavioral effects of the September 11th terrorist attacks on the Nation. In addition, he was an invited participant at the DoD Terrorism Task Force, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Panel on Planning for Bioterrorism, and the World Psychiatric Association Symposium on Disaster and Terrorism. Dr. Ursano; **Colonel Ann Norwood, MC, USA, USU SOM Class of 1981, Associate Professor and Associate Chair, USU SOM Department of Psychiatry; Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry**; and, **Captain Thomas A. Grieger, MC, USN, USU SOM Class of 1987, Associate Professor, USU SOM Department of Psychiatry**, participated as subject matter experts in an International Consensus Conference on Acute Interventions following Mass Violence and Trauma.

Dr. Ursano and his colleagues in the Center for the Study of Traumatic Stress and the Department of Psychiatry published the following articles during 2001: 1) the "Effects of Exposure to Death in a War Mortuary on Posttraumatic Stress Disorder Symptoms on Intrusion and Avoidance," 2001 issue of The Journal of Nervous and Mental Disease, Volume 189, pages 44-48; 2) "Factors Associated with Depression on a Hospital Ship Deployed during the Persian Gulf War," 2001 issue of Military Medicine, Volume 166, pages 248-252; and, 3) "Gender Differences on Posttraumatic Stress Disorder after Motor Vehicle Accidents," 2001 issue of The American Journal of Psychiatry, Volume 158, pages 1486-1491.

In October of 2001, Dr. Ursano and Colonel Ann Norwood participated in a panel discussion on "The Commitment and Role of Psychiatrists in Disasters - Lessons from the September 11th Disasters," organized by the International Congress of the World Psychiatric Association.

Areas of Study. Twelve major projects are currently funded with over six million dollars from the following sources: the Department of the Army; the National Alliance for Research on Schizophrenia and Depression; the National Alliance for the Mentally Ill Research Institute; the National Institute on Drug Abuse; the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services; the Stanley Foundation; and, the U.S. Marine Corps. Ongoing studies include the following areas: psychological and behavioral responses to weapons of mass destruction; combat stress; the prevention of stress-related disease;

shipboard fires and emergencies; relocation stress; prisoners of war; leadership of those suffering from grief; medical personnel in disasters; traumatic stress and the immune function; community responses to disaster; identification of high risk populations; chronic stress; medical treatment following trauma; biomedical responses to stress; family violence; and, others.

Recently funded studies include: combat stress in Bosnian-deployed troops; stress among emergency workers after an air disaster; psychological stress in the U.S. military deployed to Desert Storm/Shield; family violence and trauma; stress and women's health; combat, deployment, contingency operations, and trauma; basic neurobiology of genetic and second messenger stress responses; stress and arousal symptoms in individuals and groups using the Persian Gulf War symptoms as a paradigm; disaster psychiatry education; natural disasters and health outcome: adult and adolescent responses to Hurricane Andrew; genetic risk for substance abuse and cognitive processing; and, animal models for the study of the neurobiology of trauma responses and depression.

Focus of the Center's Nine Laboratories. The Center has nine research laboratories which concentrate on the following areas of study: stress and arousal in individuals and groups; neuroimaging/stress physiology; sleep, stress and arousal; social function in high stress environments; neurobiology of stress; family violence and trauma; human behavioral pharmacology/physiology; substance abuse; and, disaster information.

Scope of Research/Consultative Efforts. The Center's staff serve as consultants to a large number of federal and non-federal institutions involved with the understanding of responses to traumatic events and in the development of health policies. The Center's collaborative efforts in education and clinical research respond to the following entities: **Federal Consultations** - the United States Army, Navy, Air Force, and the Marine Corps of the Department of Defense; the Department of Veterans Affairs; the Department of State; the Agency for International Development; the National Aeronautics and Space Administration; the National Institute of Mental Health; the National Transportation Safety Board; and, the Peace Corps; **Private Sector Consultations** - The American Medical Association; the American Psychiatric Association; the American Red Cross; the American Psychological Association; the Montgomery County (Maryland) School Systems and Police Departments; the Maryland Office of Motor Vehicles; the Oklahoma State Department of Health; and, the Los Angeles earthquake areas; **International Consultations** - the World Health Organization (consultation to Yugoslavia); the Armenian Ministry of Health; the Singapore Armed Forces; the Disaster Stress Center of the University of Oslo, Norway; the University of Beirut, Lebanon; and, the Traumatic Stress Center of the Hadassah Medical Center, Jerusalem, Israel. Scientists from the USU Center for the Study of Traumatic Stress and their international collaborators from Norway, Israel, and Russia are performing studies at USU to better understand the individual, community, national, and international responses to traumatic events.

Fellowship Programs. The Center sponsors two trauma and disaster-related fellowship programs: the Visiting Science Fellowship Program and the Military Psychiatry Fellowship Program. Graduates of these programs serve as catalysts to research, educational, and clinical programs throughout the world. During 1998, the Center sponsored a visiting scientist from the Japanese National Defense Medical College. Since October of 1998, the Center has hosted a total of eight scientists from numerous nations, to include Japan, Singapore, Korea, and Germany.

Educational Activities. Another effort of the Center is its sponsorship of trauma and disaster-related programs. During 2001, the Center conducted a conference, **Planning for Biological Events: Responses to Terrorism & Infectious Disease Outbreaks**. The Center for the Study of Traumatic Stress, the USU SOM Department of Psychiatry, and the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, Department of Health and Human Services, sponsored a three-day conference. Attendees included internationally known scientists, public health and mental health leaders from the state and local levels, and representatives from the state executive branches. The conference was organized to: examine how communities perceive their needs for behavioral and mental health response preparedness in anticipation of bioterrorism and infectious disease outbreaks in the wake of training provided by DoD and the Department of Justice; develop recommendations for behaviorally and psychologically informed interventions to maintain and restore community function; provide recommendations on health communication and risk appraisal to state and local community leaders and others in order to respond more effectively to the mental health consequences of terrorist attacks; and, develop recommendations for education, training, and resource requirements to assist state and local officials to prepare for the mental health aspects of infectious disease outbreaks. The conference included four major presentations: 1) Learning from the Past: The 1918 Influenza Pandemic; 2) Biological Agents of Terror and Community Response; 3) State and Local Response Plans; and, 4) the New York City Experience. The conference extensively discussed how biological agents are the "atomic concern" for the New Millennium. The anthrax attacks demonstrated the ability of agents such as bacteria, viruses, and prions to create substantial disruptions. Future management of bioterrorism requires a multidisciplinary approach to understanding the effects of these agents on nations, communities, families, and individuals.

Preservation of Lessons Learned. The health implications of traumatic stress are a focused interest immediately following each trauma or disaster, but the data tends to be lost from institutional memory because of the lack of an organized center for the maintenance and development of the resulting information. The USU Center for the Study of Traumatic Stress has served the Military Health System by capturing, organizing, and maintaining relevant information following disasters, terrorist events, and wars. Currently, the Center's basic computer data base (accessible to the Uniformed Services) provides over 15,000 items on traumatic stress.

Accomplishments of the Center's Family Violence and Trauma Project. The Center's Family Violence and Trauma Project (FVTP) will enter its seventh year in October of 2002. The Center's FVTP provides support to command including the Army Community and Family Support Center Headquarters and Staff; the Headquarters, Department of the Army Family Advocacy Committee; the Family Advocacy Research SubCommittee; Family Advocacy Program Managers; Chiefs of Social Work Services; and, Army Social Workers. The FVTP has provided immediate responses, briefings, papers, and staff studies to the Headquarters Department of the Army Family Advocacy Program Managers and the Family Advocacy Research SubCommittee reference issues involving the scientific and medical aspects of child and spouse abuse.

In addition, the FVTP has completed its analysis of two major surveys of active duty soldiers and spouses to investigate the relationship between deployment and spouse abuse. Also, an analysis was initiated on the Army's Transitional Compensation data base, which lists cases of soldiers who have been discharged from the Army where spouse or child abuse has been a part of the discharge. Joining Forces, a quarterly newsletter of the FVTP, brings important research to the field and enjoys strong popularity within the Army and the DoD. The FVTP has also continued to add to its scientific literature data base of family violence articles. This data base is

used for scientific reference to improve the development of family violence research protocols and to further the research education of Army military and civilian research social workers. Many of these articles have been sent to investigators and program managers in the Army's Family Advocacy Program (FAP) and FAP-related programs such as the military police school for teaching police to respond to incidents of family violence. During 2001, the Project responded to 37 different requests for various studies of FAP populations.

The Center Is Positioned to Respond to Future Requirements of the Military Health System. The USU Center for the Study of Traumatic Stress, with its acknowledged experts and collaborative network of national and international scientists, is positioned to continue in its response to the special needs of the Military Health System and the Nation as requirements are identified in areas such as 1) adaptation, recovery, and resiliency; 2) posttraumatic and terrorism-related psychiatric illness; 3) neurobiology of stress; 4) medical illnesses developing as a consequence of traumatic stress; and, 5) the impact of traumatic stress on the health of individual family members, family units, and organizational and community functioning.

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The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health.

Graduate Education in Preventive Medicine and Public Health. The SOM Department of Preventive Medicine and Biometrics (PMB) offers programs of study leading to the graduate degrees of Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (PhD) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2002, PMB has graduated 397 individuals and granted 357 MPH, 2 MSPH, 25 MTM&H, 1 MS, 8 DrPH, and 8 PhD Degrees. During 2001, 29 Preventive Medicine and Biometrics students were awarded advanced degrees: 1 Doctor of Philosophy; 4 Doctors of Public Health; and, 24 Masters of Public Health. The PMB Graduate Programs have undergone considerable growth over the past years and have approximately 41 students in the current class. With its stated mission "to produce knowledgeable and highly skilled public health professionals in support of the health and global mission of the Uniformed Services," the PMB Department has sought to be responsive to the needs of its customers; and, this is reflected in the types of programs and training offered. During 2001, PMB continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the Army/ USPHS Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program.

The class composition, as of April 2002, for the Graduate Programs in Public Health consists of 41 Master-level students (MPH, MTM&H, and MSPH). Thirty-eight of these students are in the Uniformed Services and three are civilians. The mix of the 41 health professionals reflects the following: 22 physicians; 6 veterinarians; 3 Army Medical Service Corps (MSC) officers; 3 Air Force Biomedical Science Corps (BSC) officers; 1 Canadian medical officer; and, 6 USPHS officers. First-year residents in General Preventive Medicine/Public Health, Occupational and Environmental Medicine, and Laboratory Animal Medicine take courses and meet all of the requirements for the MPH or MTM&H Degrees as part of their residency training. At the doctoral level, 11 individuals (2 uniformed officers; 9 civilians) are Doctor of Public Health candidates and four individuals (2 uniformed officers; 2 civilians) are Doctor of Philosophy candidates.

The Graduate Education Programs offered by the PMB Department, as an integral part of the SOM and the SOM Office of Graduate Education, are included in the full accreditation granted by the Commission on Higher Education of the Middle States Association of Colleges and Schools to the University. In addition, the PMB graduate programs are nationally accredited by the Council on Education for Public Health (CEPH). Additionally, the PMB Department has the distinction of being one of only seven accredited resources approved for course work in tropical medicine in the United States. The PMB Department is affiliated with the United States Army and Navy Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. The MTM&H Program includes a six-week overseas clinical experience in tropical medicine; the students find excellent opportunities at these overseas laboratories. A research program also exists under an agreement with the Ministry of Health in Belize. Several doctoral students have found considerable opportunities to do research in these various locations.

Following the CEPH accreditation process in 1998, an ad hoc committee was established to articulate the mission, goals, and objectives of the PMB graduate programs. This document has since become part of a dynamic process of program review and evaluation for continuous quality improvement. In addition to curriculum review and evaluation, attention is also being paid to measurable teaching and learning outcomes for the assessment of program effectiveness.

In response to the CEPH requirement for a practicum or field experience as part of the MPH program, a new departmental program office was established to direct graduate student activities related to the practicum experience and the required MPH independent project. For the practicum, students have the opportunity to apply knowledge and skills learned in the classroom within various "real world" settings at public health agencies and other health-related organizations offering practical experiences as a planned, supervised, and evaluated educational activity. Examples of practicum sites include the following: Headquarters, United States Air Force Safety Center; the National Security Administration; the Pentagon, Defense Medical Oversight Committee; the Food and Drug Administration, Center for Veterinary Medicine; the State of Maryland, Department of Health and Mental Hygiene; the United States Consumer Product Safety Commission; the Office of the Assistant Secretary of Defense for Health Affairs, Clinical and Program Policy; and, the White House Commission on Complementary and Alternative Medicine Policy. Additionally, greater emphasis has been placed on the research methodology for MPH independent projects. Each June, the Department sponsors an annual Public Health Colloquium to feature the four or five best independent projects. A growing number of student projects eventually culminate in publications in peer-reviewed journals. **Tomoko (Tonie) I. Hooper, MD, MPH, Assistant Professor, Department of Preventive Medicine and Biometrics,** is the Director of Graduate Research and Practicum Programs; and, she is also the Deputy Director for the Department of PMB's Graduate Education Programs.

Outstanding Responsiveness to the Continuing Medical Education Requirements of the TriServices. A new PhD Program in **Environmental Health Sciences** was recently established in response to the identified needs of the Uniformed Services and has admitted its first student, an active duty Navy officer. In addition, the MSPH Program graduated its first two degree candidates in 2000, with two other individuals expected to complete the program in June of 2002. The two-year MSPH program is designed for the non-physician practitioner planning a career in one of four specialty areas of public health: *environmental health*; *industrial hygiene*; *health physics*; or, *medical entomology*. Students have the opportunity to design and develop research protocols leading to a Master Thesis. **Following the September 11, 2001, attack on the Pentagon, two MSPH students and one PhD student, as well as the PMB Department staff, assisted the Army and the Environmental Protection Agency (EPA) to set up a command unit for chemical detection.**

Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, a new area of concentration was established, **the Occupational Ergonomics Concentration in the Department of Preventive Medicine & Biometrics Master of Public Health Program**; the first student will enter this program in July of 2002. Finally, the Air Force Surgeon General identified a need for *international health specialists* which resulted in an additional new area of concentration within the MPH Program. Four entering students will begin this program during the 2002-2003 Academic Year.

In response to the request of the Military Health System, **the TriService Advanced Military Tropical Medicine Course** was first offered at USU during the Summer of 1996. The course resulted from a consolidation of the Walter Reed Army Institute of Research's Tropical Medicine Course and the Navy's Medicine in the

Tropics Course. **Under the auspices of the USUHS-SOM Department of Preventive Medicine and Biometrics, Department of Defense personnel receive education and training in tropical infectious diseases as an integral part of their medical readiness training for foreign military operations.** The four-to-seven week Military Tropical Medicine Course is held annually in July. During 2001, 69 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided 122.5 hours of didactic instruction. The course included parasitology, bacteriology and virology laboratories; one medical entomology laboratory; and, one outbreak investigation laboratory taught by multiple PhD instructors. Military medical officer students have traveled on numerous field missions to oversea sites with PMB faculty members. They have been able to observe, examine, diagnose and treat patients with tropical diseases in their local settings. To date, approximately 300 students have completed the course.

Additionally, training in **Tropical Medicine and Travelers' Health** is offered as a 12-week course during the Spring Quarter of the MPH program. **It includes a comprehensive lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health.** To date, seven medical officers have completed the course, including six who have subsequently taken and passed the certification examination.

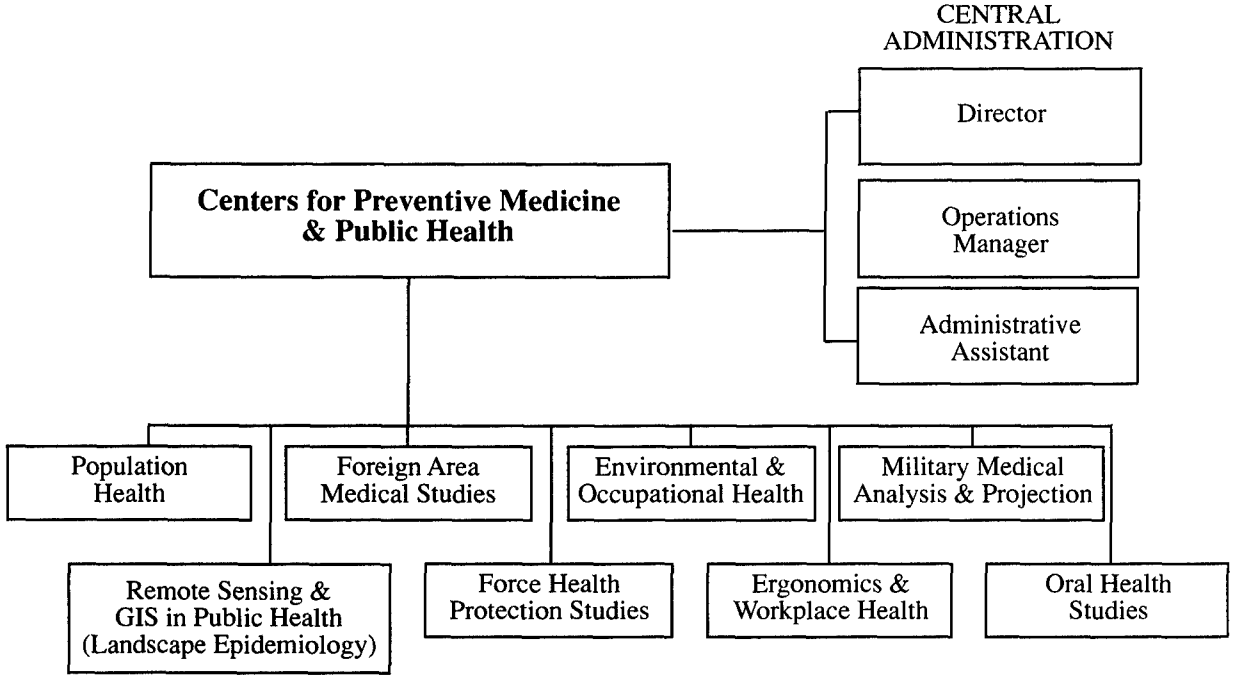
The **Diagnostic Parasitology Course** is offered as **a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans**. Military and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: U.S. Embassy personnel from Asian and African countries sent by the U.S. State Department; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health- related organizations. Since 1988, over 222 individuals have taken the course; to include 14 individuals who took the course during 2001.

Medical Executive Skills Training: Integrating Clinical Managerial Decisions to Improve Population Health is a five-day training course held four times each year. **It was established in 1995 in response to the Congressional mandate requiring current and prospective DoD health care leaders to receive training in health care management and administration.** The program integrates lectures, hands-on computer laboratory exercises, and web-based distributed learning approaches. Continuing Medical Education credit has been approved by the following: the Accreditation Council for Continuing Education; the American Nurses Credentialing Center's Commission on Accreditation; the American Academy of Family Physicians Commission on Continuing Medical Education; and, the American College of Healthcare Executives. **To date, 24 sessions have been held in the TRICARE regions and approximately 700 senior officers have been trained.**

PMB Laboratory Animal Medicine Residency Program. The Department of Defense (DoD) and the United States Public Health Service (USPHS) have identified a critical need for veterinarians trained and board-certified in the field of laboratory animal medicine. The U.S. Army, which is the Executive Agent for Veterinary Services in the DoD, and the USPHS both require a constant influx of well-trained veterinarians to meet their mission requirements. **The USU Laboratory Animal Medicine Residency Program (USULAMRP) is currently the primary mechanism by which the unique training requirements for veterinarians trained in laboratory animal medicine are met.** The USULAMRP is a 24-month program approved by the American College of Laboratory Animal Medicine (ACLAM) Training Program Recognition Committee, which allows graduates of this program to apply for board eligibility under the formal training option. First year residents take courses in the MPH Program, which provides them with the necessary knowledge and skills to effectively manage a wide variety of animal care and use programs. In addition to the academic foundation provided by the MPH core courses, students are required to complete an independent project having public health relevance by the end of their first year. As part of their residency requirements, students additionally complete a preceptorship at a federal biomedical research facility, conducting research resulting in a first-author manuscript in the field of laboratory animal medicine; the manuscript must be accepted for publication in a peer-reviewed scientific journal by the end of the second year. Graduates of this residency program are prepared for a challenging career, which may include practicing laboratory animal medicine, developing and managing animal care and use programs, advising Institutional Officials on compliance issues, and supporting animal-based biomedical research. Since its first class in 1996, the USULAMRP has become one of the premier laboratory animal medicine residency programs in the world and has set the standards for academic and practical excellence. **The pass rate of the USULAMRP graduates on the ACLAM board-certifying examination has consistently been far above the national average.** This program is a vital link in the continued ability of the United States Army and the USPHS to continue to meet legal and regulatory requirements for conducting animal-based research.

Centers for Preventive Medicine and Public Health. The Centers for Preventive Medicine and Public Health (CPM/PH) are an entity within the USU SOM Department of Preventive Medicine and Biometrics. The eight Centers operate under terms of a Memorandum of Understanding with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Centers combine broad expertise in research, consultation, education, training, and clinical preventive medicine and public health; this expertise is used to develop data bases and analytic methodologies, prepare innovative curricula, and evaluate processes and outcomes in clinical practices. The following eight Centers provided consultative, research, and educational services to the TriServices during 2001:

1) The Center for Application of Remote Sensing and Geographic Information Systems (GIS) in Public Health (Landscape Epidemiology);
2) The Center for Environmental and Occupational Health;
3) The Center for Ergonomics and Workplace Health;
4) The Center for Force Health Protection Studies;
5) The Center for Foreign Area Medical Studies;
6) The Center for Population Health;
7) The Center for Military Medical Analysis and Projection; and,
8) The Center for Oral Health Studies.



The eight PMB Centers serve program managers and policy makers in the Department of Defense, other federal agencies, local governments, and private organizations concerned with health policies and services. The Centers coordinate the resources of multiple separate centers of excellence to ensure that the appropriate collective expertise is applied. The PMB Centers enhance the stability and long-term effectiveness of USU and the Defense Health Program by: attracting, retaining, and providing for the professional growth of outstanding faculty and staff; providing high quality educational experiences for both medical and graduate students; and, promoting excellence in research and clinical preventive medicine and public health. **Kenneth E. Kinnamon, D.V.M., Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director for the eight PMB Centers.**

Examples of Research/Consultative Efforts.

The Center for Application of Remote Sensing and Geographic Information Systems in Public Health (Landscape Epidemiology).

Background. Remote sensing has an increasingly prominent role in the improvement of public health programs; therefore, graduate students in public health are seeking formal training and experience in remote sensing technology. The Center's earlier NASA-supported research equipment, along with additional equipment provided by a recent NASA grant for the purchase of hardware and software, have both been used to establish a Center in which remote sensing technology is applied to emerging and re-emerging infectious diseases and environmental health.

Mission. The Center provides faculty expertise and the software and hardware necessary for students and faculty to engage in basic landscape epidemiological research utilizing remote sensing (RS), geographic information systems (GIS), and other technologies to protect the environment and improve public health. The Center compiles satellite and earth-based data to identify relationships between environmental parameters and human health. This information is used to predict the temporal and spatial distribution of diseases, as well as the impact of environmental perturbations on health. **Donald R. Roberts, Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director for the Center, specializing in remote sensing and geographic information systems.**

Educational Activities. The Center offers a four-hour credit course entitled, "Remote Sensing and GIS Methods in Public Health," and non-credit training classes in remote sensing and GIS to students and faculty. Both credit and non-credit courses cover the basic elements of remote sensing and geographic information systems (GIS) with emphasis on the areas most relevant to public health (such as classification, raster GIS modeling, and integrating field maps with remotely sensed images). The credit course is offered in the Fall Quarter as part of the MPH curriculum and has been enthusiastically received by the students. It covers remote sensing, image processing, GIS, and spatial analysis methods as applied to the field of public health. The goal of the course is to provide students with a combination of theoretical background, applications in the published literature, and hands-on experience in using hardware and software to apply the techniques discussed in class. The lectures cover types of remote sensing imagery, image processing, photointerpretation of various imagery types, application of remote sensing to public health, the overview and history of GIS, GIS data structures, GIS data entry, geographic analysis, cartographic presentation, and applications of GIS to public health. The laboratory provides students with hands-on experience in the public health uses of image processing and GIS software. The Center computers are being used to support research activities for several projects including malaria research in Belize, Thailand, and Korea,

as well as for a Bartonellosis project in Peru. For example, the computers are utilized to create maps and analyze the spatial data of the project sites; these maps can be printed and used in the field. The next presentation of the course is scheduled for the Fall Quarter of 2002.

Malaria Prevention in Korea. A small remote sensing project to study malaria prevention in Korea was completed by a graduate student as part of his doctoral dissertation. The student used medium and high resolution satellite images to map the mosquito larval habitat for two military bases in Korea. Cost estimates for the larviciding of the two Korean bases were determined using the area estimates for the size of the mosquito larval habitats; thus, information resulting from the graduate student's research project was directly used to benefit the two military bases.

Malaria Research in Belize. The Center has conducted research on malaria in Belize since 1995 with funding provided by NASA. The Center has recently received funding from the National Institutes of Health (NIH) along with the University of California, Davis, to continue its work in Belize. Research under the new grant is focused on studying human-induced change, such as deforestation along streams and changes in marsh vegetation due to agricultural runoff and the effect these changing environments have on the distribution of malaria in Belize. One DrPH student is currently using the historical malaria data collected during the earlier Belize research in her dissertation project. In addition, a candidate for a PhD in Medical Zoology is contributing to the mapping of deforestation along rivers under the Belize grant and will use this study as part of her dissertation. Thus, graduate research has been supported to study the spatial distribution of Bartonellosis in several local villages in Belize and the environmental variables which effect the distribution of malaria in Belize.

Bartonellosis Research in Peru. During 2001, work was continued on applications of remote sensing to study bartonellosis in Peru. Initiated during 1997, the work in Peru is a collaboration among investigators within the Division of Tropical Public Health in the USU SOM and the Navy researchers at the Navy Research Laboratory in Lima, Peru.

During 2000, a three-year grant was received from the National Oceanographic and Atmospheric Administration (NOAA) to study climate variables and the incidence of bartonellosis. This work is currently being conducted with two climatologists at NASA's Goddard Space Flight Center. In addition, another protocol funded by a five-year grant from the NIH, is being conducted to study the effect of human-induced change on the mosquito habitats in Belize. The Center computers are used in support of both research activities.

The Center for Environmental and Occupational Health.

Mission. The Center for Environmental and Occupational Health promotes excellence in programs focusing on environmental and occupational health by providing research, consultation, education, and training support to government entities and educational institutions. Areas of interest pertaining to environmental and occupational health include policy, education, and training; health risk and hazard assessment; standards setting; resource management; regulatory compliance; pollution prevention; and, environmental restoration. **David J. Louis, M.D., M.S., Col, USAF, MC, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director of this PMB Center.**

Research Activities. During 2001, one research focus was on the development and application of new analytical methodologies for field exposure assessment, such as supercritical fluid extraction, solid phase microfiber extraction, and solvating gas chromatography. Research was also conducted on skin and corneal effects of several lasers used in DoD operational systems.

Another example of the Center's activities is the "DoD Environmental Scholarships, Fellowships and Grants Program," which was initiated during 1994. Approximately two thirds of the appropriation was to be used for the development and implementation of environmental training. This training was to be conducted through a 16 geographically representative university-based consortia. A Report to Congress summarizing the accomplishments of the program from 1994 through 1997 was delivered to the Office of the Deputy Under Secretary of Defense for Environmental Security in January of 1998. The program has continued with its mandate through 1999, with full close-out responsibilities in November of 2001. To date, over 40,000 instructor hours of training have been delivered to more than 3,200 trainees by the various grantee institutions. The program provided a total of more than 447,000 trainee classroom hours, reflecting the duration of the course in weeks, the number of classes, the number of hours per class, and the number of participants in each class. A number of the grantee institutions have incorporated the training programs into their curriculum. The training delivered through this program continues to be quite diverse and includes one-day short courses, month-long certification programs, and full-year and degree completion programs. Most of these programs involve hands-on, work-based site learning, and frequently use military installations for field work or full training.

The remaining funds under the training grant were to be used to offer degree completion undergraduate scholarships or graduate fellowships, through the same consortia of 16. Awards to students were offered starting at the beginning of the 1995-96 Academic Year. All schools have now completed the grants with full funding distributed and all closeout reports have been filed. The first recipients to graduate from the Scholarships and Fellowships Program completed their degree programs in 1996 and others followed through 2001. There were 350 fully funded scholarship and fellowship awards made by participating institutions in environmental fields, and these awards covered from one to four years and represented wide geographic areas. Of these, 173 were undergraduate scholarships (45 at the associate level; 128 for a Baccalaureate Degree) and 156 were graduate fellowships (125 for Masters Degrees and 21 for Doctoral Degrees). To date, 329 students have completed degrees with assistance from this program; there are 15 students who remain in the program's education/employment "pipeline." While the number of awards granted is precise, the number of completed programs is more fluid. Many students do not complete degrees as predicted. At least half of these students are graduate students who are frequently engaged in research. As is often the case, the completion of research milestones does not necessarily follow a desired timetable. Students under the Scholarships, Fellowships and Grants Program have a "pay back" obligation to DoD through employment upon the completion of their degrees. A continuing effort has been made to develop a coordinated placement program within DoD for these individuals. Under the terms of the program, each student must sign an agreement to accept an offer of DoD employment upon graduation from the program, with the stipulation that such offers must be received within 90 days of their graduation. While many of these graduates eventually accepted positions in the private sector, one could well infer that graduates of this program, while not able to find a position with the DoD, are nonetheless, working at addressing the Nation's serious environmental issues as a result of the education provided through the program.

The other research activities carried out by the Center include the following: 1) the Indian Health Service Environmental Assessment Support Grant; 2) the Center for Health Promotion and Preventive Medicine (CHPPM) Risk, Hazard, and Information Management Grant; 3) the Development of Environmental Organic

Contaminant Sampling and Analysis Methods Grant (USUHS funded); and, 4) the Risk Assessment of the "Eye Safe Laser" Wavelength for Cornea and Skin Grant.

The Center for Ergonomics and Workplace Health.

Mission. The Center for Ergonomics and Workplace Health focuses on an integrated approach to ergonomics and occupational health, targeting both the civilian and military workplace. Research in the Center is directed at understanding the interactive roles of medical, biomechanical, organizational, workplace and individual psychosocial factors in the etiology, prevention, and management of prevalent occupational health problems. In addition to research activities, the Center is also involved in education, public policy, and consultation. The Center is a joint effort between the USU SOM Departments of Preventive Medicine and Biometrics, and Medical and Clinical Psychology. **Michael Feuerstein, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology, serves as the Director of the Center.**

Predictors of Health Care and Limited Duty in U.S. Army Soldiers. Currently, the Center conducts research on the mechanisms and the management of workplace musculoskeletal disorders. For example, a study of the Predictors of Health Care and Limited Duty in United States Army Soldiers was conducted to identify the differential contribution of a diverse set of risk factors for lost time in duty status among Army soldiers due to low back pain. A prospective study was conducted on the role of ergonomic and psychosocial stressors on physical exertion, back symptoms, health care utilization, and lost work time/limited duty status in active duty personnel working in jobs associated with increased disability for back-related issues. Results can subsequently lead to the development of empirically based interventions which directly address identified relationships and to the refinement of existing secondary prevention efforts for reducing the impact of low back pain on soldier readiness. The findings support the importance of early evaluation of ergonomic, workplace, and individual psychosocial variables which can affect the recovery process. The findings also suggest that effective interventions should be directed at reducing or eliminating ergonomic stressors, improving the work climate through supervisor training, as well as training directed toward employees to reduce or eliminate the sources of both job and life stressors. Such an approach should positively impact a range of outcome measures and reduce the burden of low back pain on both the worker and the employer. Two manuscripts were generated from this research; the first paper was based on the cross-sectional analyses and identified risk factors for individuals who had low back pain but were still working. The second paper examined the association between problem solving orientation and physical and mental health outcomes in soldiers reporting a history of low back pain in the past year. This project was supported by funds from the United States Army Center for Health Promotion and Preventive Medicine (CHPPM).

Self-Report Index for Upper Extremity-Related Ergonomic Exposure. This Ergonomics Demonstration Project seeks to evaluate the effectiveness of an ergonomic intervention for high risk and non-high risk active-duty soldiers in reducing the occurrence and severity of self-reported musculoskeletal symptoms, perceived level of physical exertion, clinic utilization, lost work time, limited duty status, and self-reported exposure to ergonomic stressors. Ninty-two symptomatic office workers completed a web-based questionnaire measuring demographic variables, ergonomic exposures, pain, job stress, and functional limitations. Comparisons of internal consistency, construct validity, and discriminative and predictive abilities were made between the self-report index and an observational exposure assessment checklist. Results indicated that the self-report index had acceptable

measurement properties. Furthermore, higher levels of self-reported ergonomic exposures were associated with upper extremity pain, symptom severity, and functional limitations. In contrast, higher levels of observed exposure were only related to lower levels of general physical function. The self-report measure has potential for use in occupational health surveillance programs for office work environments and as an outcome measure of ergonomic exposure in intervention trials. These results also suggest the need for utilizing multiple methods when assessing ergonomic exposures. This project was funded by a grant from the Occupational Ergonomics Research Committee. A paper was submitted and is currently under review. Additionally, an abstract was submitted to the annual Applied Ergonomics Conference and is also under review.

Predictors of Recovery in Occupational Low Back Pain in Primary Care. The Predictors of Recovery in Occupational Low Back Pain in Primary Care is an on-going investigation designed to develop a screening tool for predicting functional and health outcomes in a military primary care setting. Military personnel and civilians between the ages of 18 and 55 who present with a new onset of back pain (no back pain over the past year) and seeking medical care at the military primary care clinics at Fort Hood and Fort Bliss were invited to participate in the study. Study participants were given a baseline survey which assessed ergonomic exposure, function, general physical health, and general mental health in addition to demographic, individual psychosocial, job stress, work organization, and medical history information. Follow-up data regarding the presence of health care visits for low back pain and limited duty status will be collected for three months following the initial clinic visit using the Ambulatory Data System database. A 12-month follow-up may also be obtained. The study will also develop a screening tool to identify those individuals who may be at an increased risk for delayed recovery. This tool should assist primary care practitioners to identify problem areas which are likely to impact recovery from low back pain and institute appropriate triage procedures and early intervention. This, in turn, may result in improved functional status and reduce the impact of low back pain on military readiness. 450 patients enrolled to participate in the study. Using the Ambulatory Data System (ADS) administrative database, 368 cases did not have a prior medical visit according to the ADS administrative database. According to self-report and confirmation by the ADS database, 304 cases did not have a previous low back pain-related medical visit. Using path analysis of data three-months post baseline survey, job stress factors including innovation, involvement, and supervisor support at work, mental health, previous visits, and ergonomic exposure were components of a model which significantly predicted the occurrence of a clinic visit for low back pain. A 12-month follow-up is planned. This investigation is supported by funds from the U.S Army Center for Health Promotion and Preventive Medicine.

The Center for Force Health Protection Studies.

Mission. The Center for Force Health Protection Studies promotes the use of a systematic process to prospectively evaluate disease and non-battle injuries in military and veteran populations for guiding health policy development. The Center's goal is to enhance the scientific knowledge base for military deployment health and to develop recommendations for preventive health interventions. The Center develops databases, analytic methodologies, and models for predicting health outcomes, as well as for identifying and evaluating or designing specific interventions for preventing injury and illness. The Center disseminates information to promote force health protection and participates in interagency research and development programs. It also provides consultation to program managers and executives in the health-related components of the DoD, the Department of Veterans' Affairs, other Federal agencies, local governments, and private organizations. **Tomoko I. Hooper, M.D., MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director of the Center.**

Research Activities. The focus of the Center's research is on studies which collect, manage, and integrate health-related data for purposes of risk assessment and risk communication to protect individuals who serve our Nation during peacetime and during war. The Center conducts a comprehensive research program on the short-term and long-term health outcomes and experiences associated with training, deployment, combat, and humanitarian/disaster relief operations. For example, current efforts are underway to distill the findings of research across disciplines on the health outcomes associated with service in the Gulf War..

Medical Events During Periods of Isolation: The U.S. Navy Submarine Force Experience. A NASA-funded study, "Medical Events During Periods of Isolation: The U.S. Navy Submarine Force Experience," characterized medical conditions occurring among enlisted personnel and officers assigned to United States Navy submarines between January 1, 1997 and September 30, 2000. Medical encounter data from the Navy's Shipboard Non-Tactical ADP Program Automated Medical System (SAMS) was downloaded onto floppy disk by submarine Independent Duty Corpsmen (IDCs) following each underway period of ten days or greater. Medical and demographic data was extracted from SAMS using a download process designed for health studies. These data along with an official Sailing List were sent to study investigators for processing and analyses. SAMS data collection continued through September of 2000; data was received from a total of 249 submarine patrols. Four were excluded from analyses because patrol dates were outside of the study period and nineteen because of insufficient data. Data from the remaining 226 patrols were processed and included in the master database. Incidence density rates were calculated for specific medical conditions occurring during underway periods. The total number of person-days underway was used as the denominator for these rates. Results from the overall study were presented at the USU Research Day; two papers have been published and three others have been submitted for publication. In addition, two graduate students (one Occupational and Environmental Medicine resident and one General Preventive Medicine resident) used data from this study for their MPH projects; and, one project resulted in the submission of a manuscript for publication.

Epidemiologic Support of Health-Related Research Pertaining to Military, Veteran, and Dependent Populations. Collaborative research and consultative activities also continue under a working agreement with the Naval Health Research Center (NHRC) in San Diego, California. The program, Epidemiologic Support of Health-Related Research Pertaining to Military, Veteran, and Dependent Populations, is in its sixth year. USU faculty provide administrative and consultative support to the NHRC research program. The original protocol was amended in August of 2000, to reflect the evolution in the scope of the research program from the initial seven epidemiologic studies of Gulf War veterans to a more broad-based, public health-related research program involving active duty military and veteran populations. New research protocols have been developed in the following areas: 1) emerging illness research; 2) deployment health research; and, 3) other research involving military personnel, such as studies of anthrax and pneumococcal vaccines, complementary and alternative therapies, and pregnancy outcomes. Currently, 31 studies are in various stages of completion. These studies will add to the scientific knowledge base on a wide range of public health-related topics, including epidemiologic methodology for population-based studies, reproductive outcomes, vaccination policy, predictors of social and family dysfunction, and tobacco cessation programs.

The Center for Foreign Area Medical Studies.

Mission. The Center for Foreign Area Medical Studies advances the tenets of preventive medicine and public health in the tropics and in developing regions, with specific reference to health-related operations and interests of the DoD, other Federal agencies, local governments, and private organizations. The Center promotes, facilitates, and implements programs of research, consultation, education, and training in the related disciplines of tropical public health, tropical medicine, and environmental health in the developing world. **Larry W. Laughlin, M.D., Ph.D., CAPT, MC, USN (Ret.), Professor and Former Chair, USU SOM Department of Preventive Medicine and Biometrics, served as the Director of this Center during 2001.**

Education and Training. The "International Research and Training in Emerging Diseases" grant was awarded $959,000 over six years. Also, the sixth presentation of the Tropical Medicine and Traveler's Health Course was a resounding success; the course is accredited by the American Society of Tropical Medicine and Hygiene (ASTM&H). All members of the class plan to sit for the ASTM&H Certificate of Knowledge Examination. Although there is a great deal of interest in next year's course, the greatest impediment to larger classes is the amount of time required to complete the course (12 weeks). The required density of the curriculum precludes any significant reduction in time. The PMB Director of Tropical Public Health is currently reviewing the curriculum of the 12-week course with a view toward combing for efficiency while maintaining standards for accreditation.

The Interservice Training Review Organization (ITRO) consolidation of the Army and Navy Tropical Medicine Training Programs is complete; and, the fifth iteration has been completed at USU with great success. The course will continue to be housed and sponsored by USU; but, it remains an official function of the TriService system, with the Navy as the lead agent.

A major effort has been initiated to transition the tropical medicine courses into a distance learning format; a grant submission is pending to fund this effort.

Malaria Research. The major thrust of this program has turned toward DNA vaccine development, in conjunction with major new fundings from the Office of Naval Research. A new five-year grant has been implemented to meet this change in focus. A significant genomics effort has been expanded under recent leadership.

Bartonellosis Research. A major new expansion effort has been initiated in the "Epidemiology of Bartonellosis," including a consortium of USU grant submissions to study human, animal and vector population of areas endemic for Bartonellosis in Peru. A new area of study (epidemic site - Cusco, Peru) has been added in association with an epidemic documented in late 1998. Preliminary data was presented at a meeting on Bartonellosis in Montana during August of 2001.

Climate and Health. The relationship of climate and vector-borne infectious diseases has been suggested, but little supporting data is available. As climatic activity can be predicted by remotely sensed satellite images, the Center hypothesizes that predictive climatology can lead to the optimum use of insecticides in vector-borne disease control programs. Funding from a new grant will allow the association of current clinical disease activity with predictable climate changes.

Filariasis Chemotherapy. The development of an effective non-toxic drug for the chemotherapy of several tropical diseases is a major objective of the DoD and the World Health Organization (WHO). Based upon biological results obtained with experimental compounds evaluated in human and animal systems, data are examined in light of existing knowledge to further select and refine chemical structures which are progressively more effective against a given disease organism. An inventory of over 250,000 compounds held by the Walter Reed Army Institute of Research (WRAIR) is a major source of new experimental agents. Compounds for evaluation are selected and sent to be tested by WHO at the University of Georgia. Approximately 400 compounds have been evaluated during this reporting period.

Chagas' Disease Chemotherapy. If military forces are required to operate in areas which are endemic for Chagas' Disease, the occupation should be of critical concern. These areas, located in Central and South America, are many. The matter is of particular importance because no suitable drug exists to treat individuals who contract the disease. In a manner similar to that described above for filariasis, compounds have been selected from the WRAIR inventory and sent to a test system operated by the WHO at the University of Georgia. Compounds, which have been evaluated, have resulted in four scientific publications by the Center during the past year.

Leishmaniasis Diagnosis and Treatment. The DoD is tasked with the diagnosis and clinical management of military personnel having exposure to tropical diseases to include Leishmaniasis. The Walter Reed Army Medical Center (WRAMC) is designated as the diagnostic and treatment center for Leishmania Disease DoD-wide. WRAMC personnel are assisted by the personnel at the WRAIR in this endeavor. Pentostam, a pentavalent antimonial, is the only drug available to DoD for the treatment of Leishmaniasis patients; the resistance to this treatment has been well documented. Thus, the development of alternative therapy is a DoD priority. The collaboration of USU, WRAMC, and WRAIR in facilitating new approaches to the diagnosis and treatment of the disease are significant. During the past year, an improved antibody for the detection of specific IgM and IgG antibodies in patient sera samples of Leishmaniasis (human visceral, human cutaneous, and canine) was developed.

The Center for Population Health.

Mission. The Center for Population Health (formerly the Center for Health Care Quality Assessment) is an integral part of the research, service, and educational activities of the PMB Division of Health Services Administration. The Center provides expertise and experience in assessing the quality of health care for populations, analyzing large databases to determine trends in population health and the efficiency and effectiveness of care delivery, and the relationship of practice patterns to outcomes. The Center also develops innovative educational curricula and provides training to Federal health care executives and managers to create, manage, and improve high quality health systems. Through the skills and expertise of its personnel, the Center provides consultation and assistance in health care quality assessment, performance improvement, and policy analysis. These functions are carried out through the two major Centers within the Center for Population Health: the Center for Performance Analysis and the Center for Patient Safety. **Galen Barbour, M.D., FACP, FACHE, Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director for the Center.**

Center Activities. The Center is specifically **designed to enable Federal health care providers and administrators to access comprehensive, integrated, population-based performance information to facilitate quality improvement and cost reduction and demonstrate the value and power of the combined Federal health care systems to the American public.** The following was included in the Center's summary report for 2001:

Obstetrician and Gynecologists Workforce Model. An analysis of obstetrics and gynecology workforce resources, conducted with the support of the American College of Obstetrics and Gynecology, looked at obstetric and gynecological practice profiles and projected workforce composition and distribution. This study led to the development of an Obstetrician and Gynecologists Workforce Model.

The Otolaryngologist Workforce Study. The Otolaryngologist Workforce Study examined workforce trends and provided supply projections through the year 2050. Upon the completion of the study, an article was submitted and accepted for publication.

The Medical Executive Skills Distance Learning Program. The Medical Executive Skills Distance Learning Program continues to be presented four to five times a year throughout the MHS. Several of the previous presentations have been developed into distance/distributed learning formats and are presented prior to the formal on-site class via web-based mechanisms. Learning accomplishments of the presentations are measured and reflected in the changes seen from a pre-test and post-test analysis using qualitative questions derived from the material in the on-site and web-based presentations. Future years' plans call for the full implementation and evaluation of the Medical Executive Skills Distance Learning Program to include 10 to 14 on-line modules. Additional studies which will follow on-going research on workforce modeling and quality assurances are expected. Complete on-line registration and student pre-tests were incorporated into two traditional courses this past year and are now routine procedures. It is anticipated that a total of 6 to 8 distance learning modules will be up and running during June of 2002.

Application of the Tools of Clinical Epidemiology in Health Service Management. The Center sponsors training programs for senior DoD physicians in the application of the tools of clinical epidemiology in health services management. This program has expanded to include mid-level military health care professionals. Additionally, the Center plans to pursue research in small area analysis regarding visit intervals for chronic diseases; the relationship of costs to visits in the MHS will also be examined.

The Center for Performance Analysis and the Center for Patient Safety. The Center staff are developing plans for infrastructure support and funding for their two Centers (Performance Analysis and Patient Safety). Plans are also included for the development of the capability of the Center to access and evaluate all Federal health care databases; the Center for Patient Safety applied for grant support from two organizations during 2001.

The Center for Military Medical Analysis and Projection.

Mission. The Center for Military Medical Analysis and Projection provides a focus of expertise and experience in military medical data analysis and projection for research, consultation, validation, and education relating to the incorporation of available data into decision-making processes. The Center conducts epidemiologic

research in military health, particularly relating to the hazards of military training and deployment, medical and health surveillance, and health data quality, coherence, and relevance to disease prevention and medical readiness evaluation. Most of this research focuses on the consolidation and evaluation of existing health, medical, and personnel information, rather than on generating new data. The Center provides opportunities for students and others to participate in specific projects, analyses, and evaluations. The Center works closely with the Center for Force health Protection Studies. **David H. Trump, M.D., MPH, CAPT, MC, USN, Associate Professor, USU SOM Department of Preventive Medicine and Biometrics, serves as the Director of the Center.**

Center Activities. Nine areas of study were conducted during 2001, as reported in the Center's activities summary for 2001.

The Assessment of Field Exposure to CS Gas (ortho-chlorobenzalamalonitrile) in United States Marine Amphibious Reconnaissance Training. Although funding ended in September of 2000, a study to provide an estimate of the levels of CS gas to which the trainees were actually exposed was completed and a manuscript submitted to the Journal of Applied Occupational and Environmental Hygiene; the case report of the original CS exposure in Marines was submitted to Military Medicine.

A Review of Syphilis Data, 1987-1999, in Navy and Marine Corps Personnel. This was an unfunded project; the Center authors completed their analysis of syphilis cases reported among Navy and Marine Corps personnel and submitted a manuscript to Military Medicine.

Alcohol Use in Military Personnel and Military Readiness. This was an unfunded project; the Center investigators and their collaborators completed a study and prepared a manuscript entitled, "Mission Readiness and Alcohol Consumption among U.S. Navy Shipboard Sailors." Also, a USU MPH student completed a secondary analysis of the 1998 DoD worldwide survey of health behaviors to explore the relationship between alcohol use and risk-taking sexual behaviors; this manuscript awaits Navy public affairs clearance.

Post-Deployment Self-Assessment of Health. The Center investigators initiated a research project to examine military members' self-assessment of health at the conclusion of a deployment and their subsequent health outcomes and health care use; they have analyzed data from over 17,000 military members who returned from deployments in 1999. The DoD Medical Surveillance System (DMSS) provided person-level data from DD Form 2796 Post-Deployment Health Assessment, military personnel systems, and military in-patient and out-patient data reports. CAPT Trump presented a poster at the Fourth Annual Army Force Health Protection Conference, held in Albuquerque, New Mexico; and, he gave an oral presentation for a USU faculty seminar. A manuscript is in preparation; CAPT Trump will pursue additional USU grant funding to continue this line of research.

Collaboration with the Veterans Affairs Medical Center (VAMC), Washington, D.D., Center for the Study of War-Related Illnesses (CSWRI). The VAMC proposal to establish a center of excellence for research, education, risk communication, and clinical care in deployment/war-related illnesses was approved by

the Department of Veterans Affairs. Initial funding of the VAMC CSWRI is for approximately $5 million over three years. USU collaboration will be in the areas of epidemiologic research and the development of clinical education experiences for medical students and residents at VAMC and through clinical simulations.

Toxicological Assay Methods and Chemical Exposures among Marines in the Gulf War. CAPT Trump is a co-investigator on this Naval Medical Research Center/Centers for Disease Control and Prevention study. Pre- and post-deployment sera collected from a cohort of United States Marines during the Gulf War will be analyzed for selected toxic chemicals and mixtures using newly developed biomonitoring/biomarker methods and models. The United States Army Medical Research and Materiel Command has funded the study through 2002.

Navy Occupational Lung Disease Assessment Project. Two Center investigators are members of the DoD advisory committee for the Congressionally-mandated Navy Occupational Lung Disease Assessment Project. This study is being conducted by the Naval Health Research Center (NHRC) and the Armed Forces Institute of Pathology (AFIP). USU hosted the initial meeting of the NHRC and AFIP investigators, the civilian scientific and public policy advisory committees, and the DoD advisory committee on September 10-11, 2001. This study is funded through 2002.

Exertional Heat Illness in Marine Corps Basic Training. During 2001, an article entitled, "Long-Term Follow-Up after Exertional Health Illness During Recruit Training," was published in Medicine & Science in Sports & Exercise, Volume 33, pages 1443-1448. This work was the product of projects funded in prior years. Numerous other manuscripts related to exertional heat illness in Marine Corps recruit training have also been produced. For example, Center investigators completed a book chapter, "Clinical Diagnosis, Management, and Surveillance of Exertional Heat Illness," for the Textbook of Military Medicine volume entitled Medical Aspects of Harsh Environments.

Preventability of Exercise-Related and Infectious Disease Deaths. This grant from the Global Emerging Infections Systems, Walter Reed Army Institute of Research, provided starter funds for the collection of medical information on all deaths of military members on active duty. Funding through USU and the Center ended in September of 2001. The project will continue under the auspice of the MoD Medical Mortality Registry at AFIP.

The Center for Oral Health Studies.

Mission. The Center for Oral Health Studies provides oral health care services information and dental public health education to the DoD, the TriService Dental Corps Chiefs, and other interested organizations. The Center gathers, synthesizes, and distributes management information needed to develop oral health care policies and programs necessary to optimize the oral health of DoD beneficiaries and the dental readiness of service members. **Andrew K. York, DMD, MPH, CAPT, USN, DC, serves as the Director of the Center for Oral Health Studies.**

Center Activities. The Center has continued to be very active in two major areas: 1) the DoD Dental Patient Satisfaction Survey; and, 2) the 2000 TriService Recruit Comprehensive Oral Health Survey. The Center is responsible for the administration, analysis, and reporting of data from the DoD Dental Patient Satisfaction Surveys which are administered at 260 Dental Treatment Facilities (DTFs) worldwide. Each DTF returns approximately 100 completed surveys each month; and, over 415,000 surveys have been analyzed since September of 1999. The survey instrument takes advantage of optical scanner (bubble sheet) technology to facilitate data collection and analysis. Each of the 260 DTFs has a designated local survey administrator who is responsible for the distribution and collection of the 100 surveys each month. The Center developed and deployed a PC-based software tool for the survey administrators to use to ensure that a random sample of patients is selected each week to complete the survey immediately following their dental appointments.

The DoD Dental Patient Satisfaction Survey is currently an integral part of the measurement of overall Military Health System (MHS) performance. The quarterly results for each DTF, regional commands, services, and the MHS are reported on the TRICARE Operational Performance Statement (TOPS). The web site is <*www.tricare.osd.mil/reptcard/tops/topsrept.html*>. TOPS allows each organizational level to benchmark against other facilities, both military and civilian; and, TOPS also identifies trends from one quarter to the next. TOPS and the DoD Dental Patient Satisfaction Survey are effective in assisting the MHS in its continual efforts to improve performance in the delivery of dental care and services.

The 2000 TriService Recruit Comprehensive Oral Health Survey was conducted from January through July of 2000. The calibration course for the dental examiners was held in Bethesda, Maryland, during December of 1999; and, it was conducted by the USU Center. Over 4,300 Recruits were examined during this time frame at seven different sites. The sites were Lackland Air Force Base, Texas (Air Force); Fort Knox, Kentucky (Army); Fort Leonard Wood, Missouri (Army); Fort Jackson, South Carolina (Army); Great Lakes Naval Training Center, Great Lakes, Michigan (Navy); Marine Corps Recruit Depot, Parris Island, South Carolina (Marines); and, the Marine Corps Recruit Depot, San Diego, California (Marines). This survey allows for a direct comparison of the 1994 Survey of Recruits to determine if there are differences in oral health levels, prevalence of tobacco use, level of education, and dental readiness. In its summary of 2001, the Center reported that the overall DMTF Index for 2000 Recruits was 5.4 and for the 1994 Recruits it was 6.6. This indicates that overall, the 2000 Recruits had less (**D**)ecayed, (**M**)issing, or (**F**)illed (**T**)eeth than the 1994 Recruits.

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The USU School of Medicine Department of Military and Emergency Medicine and the Casualty Care Research Center.

The CCRC Mission is to serve as a unique national resource by providing quality research, education, and expertise in the delivery of good medicine in bad places.

- Mission Statement Approved by the President, USU, 1995.

Establishment and Mission. The Casualty Care Research Center (CCRC) was established in July of 1989 under the USU SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research.

In keeping with the overall mission of USU, the scope of the CCRC activities includes the following: 1) conducting research and investigations on issues relating to injury control, casualty care, operational, and disaster medicine; 2) providing a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas to medical students, graduate physicians, and other uniformed medical personnel; 3) serving as a repository of resources and information relating to injury control, injury epidemiology, and operational medicine for the Uniformed Services; and, 5) providing research, resource and educational support, technical assistance, and other community service to USU, the Uniformed Services, and other Federal, state, and local elements. The Center operates entirely on extramural funding; it employs 11 full-time personnel and is supplemented by 19 part-time civilian volunteers and military officers loaned on an intermittent basis by their parent commands. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CCRC based on their professional interests and as their teaching and clinical responsibilities permit. The Center's efforts fall into three categories: research, training, and consultative/operational support. **Mr. Joshua Vayer, Research Assistant Professor, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

Core Military Competency. The location of the CCRC within the multi-Service environment of USU with its emphasis on education and development, scientific studies, research, and on-going clinical and operational practice is critical to the development and sustainment of the CCRC's ability to maintain its core competency - **the capability to provide military-unique, medical expertise and experience required by both uniformed and civilian emergency/health care responders to weapons of mass destruction (WMD)-related and other national security contingencies.** Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students at both the undergraduate and graduate levels, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers. The University ensures continuity and leadership for the MHS; and, the CCRC's core competency plays an essential role in that equation.

Contributions to Homeland Security - The Integrated Medical Response Program. Since 1989, the CCRC has successfully served as a bridge between DoD and Civilian Emergency Responders for the coordination and sharing of critical, military-unique medical knowledge, technology, and expertise. Initially, the CCRC Program

was a cooperative effort between USU, the Department of Defense Office of Drug Enforcement Policy and Support, the Henry M. Jackson Foundation for the Advancement of Military Medicine, and the Department of Interior, United States Park Police Special Forces Branch. From 1990 through 2001, the CCRC Program was continuously funded by the Office of Drug Enforcement Policy and Support which reports through the Assistant Secretary of Defense for Special Operations/Low Intensity Conflict. Currently, the Program has been supported through special congressional funding for Chemical/Biological/Radiation/Nuclear/Explosive (CBRNE) Training. The Program's policies are governed by a Board of Directors representing military medicine, law enforcement, and pre-hospital care communities.

The Program focus is on crisis management response to: weapons of mass destruction (WMD); counter terrorism; protective operations; hostage rescue; explosive ordnance disposal; maritime operations; civil disorder; and, major national security events. To date, the CCRC Program has trained over 5,000 civilian emergency personnel from 750 agencies through collaborative support agreements with law enforcement organizations from all 50 States, the District of Columbia, Guam, and Puerto Rico. Forty local, state, and Federal law enforcement agencies mandate this CCRC certification-based training as a condition of employment for their SWAT medics. It teaches skills which reduce the risk of death or serious injury during counter terrorist operations, drug raids, hostage situations, and other high risk operations. This Program has received the endorsement of and/or continuing medical education credit from: The National Tactical Officers Association; the National Association of Emergency Medical Technicians; and, the Continuing Education Coordinating Board for Emergency Medical Service. The Program provides military-unique, national standard, assessment-driven curricula; certification; and, a quality assessment process that exists nowhere else. Its unique Special Operations Injury Epidemiology Database, the only database of its kind, ensures both effectiveness and relevance during the generation of assessment-driven curricula; and, it provides information/data for research on injuries incurred during the crisis management of domestic contingency operations. Thus, the data derived through this CCRC Program is utilized by DoD to explore the epidemiology of injury and the impact of various medical interventions.

The Program's maturing relationship with the law enforcement community has resulted in the transfer of valuable knowledge, experience, and technology for military medical application. This information is used to guide the educational components of the CCRC Programs and to explore similarities and differences between the experiences of the civilian law enforcement communities and the military special operations forces. For example, during 1996, these collaborative efforts led to a significant change/enhancement in the training programs for the Navy SEALS.

As the CCRC's largest training program, The Integrated Medical Response Program offers the following medical/evidence-based courses: EMT-Tactical; the Advanced School; the Commanders Course; the Medical Directors Course; and, the Instructor Development School. These CCRC courses receive maximum attendance. For example, the Medical Directors Course, presented at the 2001 Annual Meeting of the National Association of EMS Physicians, received unprecedented attendance. Participants in these courses also include medical students, graduate physicians, special operations medics from all of the Services, and selected Federal law enforcement medics. **The location of this CCRC Program within the University ensures academic oversight and credibility for the Congressionally mandated collaboration between DoD and the civilian emergency personnel community.**

WMD Scientific Training Programs. The CCRC provides a family of seven WMD medical educational programs to meet the needs of a variety of communities. These include **Responding to WMD for Health Care Facilities**, **Responding to WMD for Health Care Providers**, and **WMD Awareness: What Everyone Needs to Know**. These programs have been highly acclaimed because of their effectiveness and efficiency; and, they are being reviewed as a model for Military Treatment Facility (MTF)-based training.

The Wound Data and Munitions Effectiveness Team (Vietnam) Database (WDMET) - A Unique Resource. The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) is maintained by the CCRC. It contains information on the tactical engagement, weapons employed, resulting injuries, and treatment in the pre-hospital and hospital environments on approximately 8,000 combat casualties. It is the only collection of its kind in the world. Photographs, medical records, X-rays, recovered bullets and fragments make this a unique resource which has been studied extensively, resulting in numerous scholarly publications since the establishment of the Center.

CCRC Mission Support Center - Consultative Support. In agreement with the philosophy that teachers and scholars must maintain an active practice in their areas of expertise to ensure competency, the Operational Medical Support Programs of the CCRC provide consultation and support to multiple organizations, including the White House Medical Unit, a considerable majority of the Federal law enforcement community, and numerous national security contingencies. These activities are carried out under appropriate Memoranda of Understanding. On the average, the CCRC Mission Support Center responds to at least one request for support each day; it is staffed by uniquely trained personnel who provide medical informatics, consultation, planning, and threat assessment support on a round-the-clock basis. These support-related activities serve as a suitable vehicle for USU faculty, both billeted and off-site, to develop and maintain their expertise in operational medicine. Participation in actual missions lends important credibility to teaching and research and provides a living laboratory where concepts, techniques, and technology can be evaluated. The Secretary of Defense commended the CCRC for its contingency support of the Republican National Convention, the Presidential Inaugural, and the direct service support to the Departments of State, Treasury, Interior, and Justice. Based upon the similarities between military medicine and selected types of civilian emergency medical support, lessons learned can be applied from one to the other. The increasing frequency of military operations other than war, including responses to terrorist activities, makes the law enforcement special operations experience critically relevant to military medicine.

CCRC Emergency Medicine Resident Rotation. The CCRC's Emergency Medicine Resident Rotation in Operational Medicine Course, initiated in 1992, is a five-week elective for military emergency medicine residents. Seventy-five active duty emergency medicine residents, six active duty staff physicians, and two physician assistants have completed the course. It consists of successful performance in the one-week Counter Terrorism Operational Medical Support School and four weeks of temporary duty at the CCRC. While assigned to the CCRC, the emergency medicine residents deploy on actual support missions, complete short research projects, and generate "white papers" on topics such as antibiotic selection, malaria prophylaxis in high risk special operations, and field laboratory diagnostics for chemical, biological, and radiological incidents. In 1998, the three Surgeons General suggested that the elective be made a required rotation for all military emergency medicine residents.

CCRC Military Medical Field Studies Rotation. The Military Medical Field Studies Rotation at the CCRC accommodates up to twenty first-year medical students with prior service for the required military experience between the first and second years of medical school; if required by the Services, this number could be increased. Up to six fourth-year medical students complete an elective rotation in operational medicine research at the CCRC each year; again, the number of students could be increased if required by the Services. The operational experiences of the CCRC Medical Support Teams are integrated throughout the medical school curriculum as tangible demonstrations of the medical science being taught. For example, a large part of the USU SOM curriculum on blast injury uses the first-hand experiences of the CCRC faculty acquired during their response to the embassy bombings in East Africa.

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USU School of Medicine Department of Military and Emergency Medicine and the Center for Disaster and Humanitarian Assistance Medicine.

Establishment and Mission. The Center for Disaster and Humanitarian Assistance Medicine (CDHAM) was established in September of 1998 under the USU SOM Department of Military and Emergency Medicine to advance the understanding and global delivery of disaster medical care and humanitarian assistance. The Center ensures specialized expertise, consultation, training, education, and research for medical support activities which impact homeland defense, terrorism and disaster response, and humanitarian assistance.

Uniquely positioned as an academic center within USU, CDHAM is actively developing relationships with governmental, non-governmental, and private volunteer organizations. The Center serves as a focal point in the Military Health System for: new developments in the areas of disaster and humanitarian assistance medicine; improving relief efforts; augmenting the training of military medical officers; and, providing humanitarian assistance. The CDHAM is actively engaged in various studies supported by the Department of Defense, the military Commanders in Chief (CINCs), and other Federal agencies. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CDHAM based on their professional interests and as their teaching and clinical responsibilities permit. **Craig H. Llewellyn, M.D., Professor and Former Chair, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

The CDHAM uses training, technology, and best management practices to improve military medicine's capabilities and readiness for humanitarian missions, especially in partnership with the inter-agency process, the international medical community, and the host nation medical infrastructure and beneficiary populations. The CDHAM works closely with the Unified Commands as its primary mission. Such efforts generally involve direct liaison with other DoD humanitarian assistance centers such as the Center of Excellence (COE) for Disaster Management and Humanitarian Assistance under the United States Pacific Command (USPACOM) in Honolulu, Hawaii, and the Center for Disaster Management and Humanitarian Assistance (CDMHA) under the United States Southern Command (USSOUTHCOM) in Miami, Florida.

In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other United States government agencies such as the Office of Foreign Disaster Assistance (OFDA) and the United States Agency for International Development (USAID), as well as international organizations such as the Pan American Health Organization (PAHO) and the World Health Organization (WHO). A summary of the CDHAM's activities during 2001 follows.

Research and Operations.

Measures of Effectiveness. The DoD has the World's finest deployable medical system, and as such, it is routinely engaged in providing international medical humanitarian assistance. Scenarios in which military personnel provide medical humanitarian assistance range from deliberately planned theater engagement activities, to contingency operations, and complex human emergencies and military operations other than war. **The CDHAM Measures of Effectiveness Study is focused on medical humanitarian assistance** as defined by U.S. Code, Title 10 authority, sections 2561, 401, and 2547, commonly known as Humanitarian Assistance (HA), Humanitarian

Civic Action (HCA), and Excess Property (EP) Programs, respectively. Recommendations from the CDHAM study to improve military medical humanitarian assistance include: joint doctrine planning and evaluation criteria; specific quantifiable measures of effectiveness; better coordination with local and other international providers of health care; project follow-up to determine outcomes; mandatory after-action reporting; and, a user-friendly information retrieval system. These measures, structured within the logical framework approach successfully used by many private and non-government organizations which provide humanitarian health care, can be used with performance metrics to meet recognized performance standards for humanitarian assistance.

Rapid Assessment. The analysis of DoD personnel involved in conducting rapid assessments following natural and man-made disasters describes a CDHAM study sponsored by the Office of the Assistant Secretary of Defense, Special Operations Low Intensity Conflict, Peace Keeping and Humanitarian Assistance (OASD SO/ LIC). The efficient means of assessing the effects of a disaster event are essential for directing coordinated relief efforts. **Rapid assessments document the immediate needs of an affected population, the ability of local authorities to meet those needs, and actions which should be taken by the international community to support the local authorities.** The priorities of the rapid assessment are to determine what has to be accomplished in the immediate future to alleviate suffering, to prevent loss of human life, and to lay the foundations for a cohesive and effective disaster response. While DoD assets can be tasked to conduct disaster assessments and can be an integral part of international disaster response efforts, there are strict guidelines governing the use of DoD personnel and assets in disaster relief operations.

Gorgas Laboratory. A collaborative study between the CDHAM and the Instituto Conmemorativo Gorgas de Estudios de la Salud is being funded by the United States Southern Command to identify possible health research improvements and capacity enhancements to strengthen the local capacity for prevention and response before, during, and following man-made or natural disasters. The goal of the study is to support the development of national and regional capabilities and cooperative training activities, as well as to strengthen the United States government programs in Panama in areas such as: disease and injury surveillance; prevention of infectious diseases; humanitarian and disaster relief assistance; and, control of health threats associated with the accidental/incidental release of hazardous substances and toxic industrial compounds.

Donation of Excess Medical Property to Mexico. The CDHAM oversaw the donation of over $2.5 million in excess medical property warehoused in DoD facilities in Pennsylvania to the Mexican Red Cross, the Children's Hospital, and the General Hospital in Mexico City, Mexico. This project represented the culmination of over two years of efforts in support of the United States Joint Forces Command. The humanitarian donation of medical and non-medical items of equipment and supplies, especially disaster preparedness items, to civilian organizations providing humanitarian relief and emergency medical services, especially post-disaster, has helped the CDHAM and USU to develop cooperative relationships with military medical personnel in Mexico.

Telemedicine Operations and Technology Cell. The CDHAM serves as a clearinghouse for pertinent information related to all areas of disaster medicine and humanitarian assistance. The Center maintains access to expertise in the field of telemedicine and medical informatics as it relates to the austere environment. Some current, and recently completed, activities are described below.

Mercy Project. The Mercy Home Health Project sought to determine if telemedicine could be used for home health care monitoring and for general military service. Equipment was selected under the following requirements: ability to meet all safety requirements; capability for home use; simplicity of use for individuals not trained in the use of computers; provision of a data collection schema for the consulting health care provider and the patient; requirement of little or no cost for the patient; capability of integral video teleconferencing; and, physiological parameters as outlined within the proposal. This project demonstrated that using non-complex telephone system technologies is possible and that the volunteer patient response was overwhelmingly positive.

Yemen De-Mining Project. The United States Central Command established the Yemen National De-Mining Project, Victims Assistance Program Office as a fundamental component of its operations to help in the assessment and distribution of directed victim assistance. Personnel from the CDHAM assisted in developing the office under a memorandum of understanding between the United States Central Command Humanitarian De-Mining Office and USU. The effort includes: a Victim Injury Data Collection database developed by CDHAM to input, store and retrieve injury and disability information; medical training and deployment for planning; site visits to assess medical facilities; and, training of medical personnel in the treatment of specific types of landmine injuries. A Fiscal Year 2001-2002 plan to support on-site ophthalmological surgery teams had to be cancelled due to the terrorist bombing of the USS COLE. Proposed future activities to be conducted by the CDHAM, after appropriate security measures are resumed, will be to supplement the ophthalmological training component of the Victims Assistance Program.

Telemedicine for the Mexican Medical Military Academy. Current portable information technology information systems are well suited for integration into any disaster management kit due to their size and affordability. Uniquely positioned to introduce information technology systems, the CDHAM has a proposal to demonstrate state-of-the-art, lightweight and durable telemedicine systems for use in austere disaster response settings to the Mexican Medical Military Academy (La Escuela Medico Militar de Mexico). The program will include three days of instruction in the operation and clinical application of telemedicine systems in disaster and other humanitarian assistance operations.

Eritrea Landmine Project Proposal. For 30 years, Eritrea fought to gain its independence from Ethiopia. During this time, landmines were used extensively throughout the nine provinces of the country. The United States Central Command is re-initiating plans to develop a truly effective humanitarian de-mining organization. Under CDHAM's existing memorandum of understanding with the United States Central Command, a proposal to assess host nation treatment facilities/capabilities in mine-populated areas is under development. Several non-government organizations have expressed interest in collaborating with the United States Government to support developing a program to address the needs of persons with landmine injuries. The mine injury data collection process used in the Yemen military health care system attracted key international donors. A rehabilitation system developed by Movement and Sports Specialists, Inc., which improves physical rehabilitation of mine amputees through the use of new prosthetics, has also been installed at the Handicap International facilities in Aden and Taiz and in the Physiotherapy Department of the Aden General Hospital. The CDHAM hopes to be able to commit further humanitarian and rehabilitative assistance for landmine victims throughout the region.

Training.

Combined Humanitarian Assistance Response Training (CHART) Course. The CDHAM hosted training for 120 attendees for the CHART Course in May of 2001. Over 110 certificates of training, as well as continuing medical education credits, were awarded to military and non-military attendees from various in-country and overseas commands, including physicians from at least three foreign governments training in the United States. The CDHAM staff also participated in an organizational meeting sponsored by the Office of the Assistant Secretary of Defense, Special Operations Low Intensity Conflict, to review CHART training and to communicate new ways for the Center of Excellence to present the CHART Course.

Medical Preparedness for Manmade Disasters. The CDHAM hosted a three-day, pre-conference symposium for community emergency/first responder civil authorities, border health workers, and military personnel of the United States and the Mexican Armed Forces as part of the 59th Annual Conference of the United States-Mexico Border Health Association. While global medical communities have a growing understanding, capacity, and capability to provide life-saving care following natural disasters, the unique challenges of man-made disasters, ranging from accidents to terrorism, and from hazardous materials exposures to emerging infections, pose new challenges to science, medicine, and international partnerships. Speakers invited to address the symposium examined recent man-made disasters through the use of case studies and lessons learned, and evaluated fundamentals of emergency medical planning and practice. Over 75 persons shared experiences during the symposium in order to gain an understanding of "first principles" which may be common across events and cultures.

Military Medical Humanitarian Assistance Courses. Using the model of a course developed by the USU SOM Department of Pediatrics, the CDHAM is funding the development of a family of specialty-specific, intensive, three-day courses across the spectrum of medical, nursing, and veterinary medicine specialties. A one-day symposium was held during which Program Directors from at least seven of fifteen subspecialties provided status reports on efforts to develop training courses. The information presented included dates of pilot course presentations, "beta" course presentations, and estimated project completion, as well as plans for the submission of final course materials. When finished, the CDHAM will promulgate courses on-line to support the education and training of personnel for participating in humanitarian or disaster relief activities.

Kerkeshner and Bushmaster. The CDHAM supports the education of USU medical students during the first year of medical school (Kerkeshner) and fourth year (Bushmaster) operational training courses. Live demonstrations of telemedicine equipment and medical informatics in relation to the austere environment are presented under actual field operating conditions.

Public Service Recognition Week. The CDHAM staff participated in two days of hands-on demonstrations for the public during the annual Public Service Recognition Week hosted by DoD on the Mall in Washington, D.C. Demonstrations of telemedicine equipment and medical informatics as it relates to the austere environment were provided to the thousands of visitors who participated in the Public Service Recognition Week.

CDHAM Consultative Support. Telephone and on-site consultation are available for organizations requiring timely expertise in all phases of disaster mitigation. Aid with response planning, vulnerability assessment, needs assessment, medical care, and epidemiological surveillance are available.

Memorandum of Understanding with the Center for International Emergency, Disaster and Refugee Studies. A memorandum of understanding was implemented between the CDHAM and the Center for International Emergency Disaster and Refugee Studies at Johns Hopkins University in Baltimore, Maryland, to establish institutional support, education and training programs in humanitarian assistance, disaster relief and management, weapons of mass destruction management, and civil-military operations. This agreement will provide opportunities for both institutions to benefit from a balanced civilian/military class representation in educational and training venues and will ensure participation in joint research initiatives addressing critical civilian/military issues.

Non-Government Organizations Guide. As part of an apparent need to facilitate coordination of disaster and/or humanitarian assistance relief between DoD and non-government and private volunteer organizations, the CDHAM established a study to identify and categorize the names, locations, and principal activities, and points of contact for major organizations in these categories. When completed, the guide will be promulgated via the CDHAM web site for rapid access by anyone seeking information on organizations which support disaster relief and/or humanitarian assistance activities. As a web-based resource, the information will be updated on a regular basis.

CDHAM Web Site. Following the terrorist attacks of September 11, 2001, on the World Trade Center and the Pentagon, the definitions of disaster and weapons of mass destruction were forever changed. Since that event, the need to empower citizens, emergency services, and health care providers through the provision of quality information on the Internet has become critical. At a time when using a search engine to look for references to biological or chemical warfare generates over 400,000 results from nearly 40,000 unique web pages, identifying quality information is a daunting task. The CDHAM has already established a web link on the USU home page to assist in the dissemination of quality information relevant to the medical management of injuries caused by chemical, biological, radiological, nuclear, and/or high explosive weapons used in warfare and terrorism. Sections on disaster preparedness and management and the psychological impact of terrorism and other disasters are included. This web link is a work in progress which will be continuously upgraded with the latest in policy and news. Web mail lists are also being planned to facilitate the exchange of information. On a parallel front, a proposal for a second CDHAM web link has been funded; it will use search engines to mine data across a wide range of international and national, government and private, Internet resources to rapidly point interested users towards critical information for use in planning and responding to humanitarian assistance and/or disaster relief needs on a worldwide basis.

Other Activities and Relationships.

Medical Support following the Earthquake in El Salvador. The CDHAM provided funding support to three fourth-year USU SOM students who accompanied a United States Air Force Infectious Disease/Public Health Medical Support Team from Wright Patterson Air Force Base, Ohio, to El Salvador. One student, bilingual

in Spanish, assisted the medical officer staff in the triage and treatment of the local patient population. The other two students conducted various support functions as part of the team, ranging from logistics, to the management of medical supplies and coordination of patients seen during the team's ten days of operations in El Salvador.

Medical Support to a Medical Readiness Training Exercise in Mozambique. The CDHAM provided funding support to one first-year USU SOM student who participated in a Medical Readiness Training Exercise in Mozambique, Africa. In order to provide a skill as part of the team, the student trained and was certified to administer immunizations to the local patient population.

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USU School of Medicine Department of Surgery and the Center for Prostate Disease Research - A TriService Effort.

Background. The Center for Prostate Disease Research (CPDR) is a United States Department of Defense Program located in Rockville, Maryland. The CPDR was established in 1991 by the United States Congress in an effort to combat the increasing rate of occurrence of prostate cancer. Current figures released by the American Cancer Society reveal that over 198,100 American men will be diagnosed with prostate cancer each year and that approximately 31,500 of those men will die from the disease. The CPDR continues to meet the challenge of discovering new molecular markers in its Basic Science Research Program to combat this "silent killer." The CPDR is a USU Program which is administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Center is also affiliated with the Armed Forces Institute of Pathology (AFIP) in Washington, D.C., as well as with **nine** TriService Medical Centers around the country. The CPDR, with over 81 researchers and team members (15 active duty military and 66 civilians) is becoming even more widely recognized as one of the most prominent prostate cancer research programs in the Nation and in the World. With the establishment of two endowed chairs for prostate research for the CPDR at USU and the overall endowment funding mechanism administered by USU and the Henry M. Jackson Foundation, the CPDR remains a permanent and significant part of the research endeavors at USU.

Mission. The CPDR integrates basic and clinical science to develop detection techniques and treatments for prostate cancer and disease. The CPDR is unique in that it incorporates multiple and distinct areas of prostate disease research into one comprehensive program: the Clinical Research Center; the TriService, MultiCenter National Prostate Cancer Patient Database; the Basic Science Research Program; Education and Training; and, the Prostate Cell Center of the Basic Research Program. **Judd Moul, COL, MC, USA, Urologic Oncologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery, and David G. McLeod, COL, MC, USA, Urologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery, serve as the Directors of the Center for Prostate Disease Research.**

Center Activities During 2001.

Clinical Research Center. The CPDR Clinical Research Center located at the WRAMC in Washington, D.C., combines prostate screening, data collection, clinical diagnosis, education and counseling, as well as prostate disease clinical trial research in a distinctly patient-oriented setting. In the Clinical Research Center, **CPDR Directors, Colonel Judd W. Moul, MC, USA, Professor, USU SOM Department of Surgery,** and **Colonel David G. McLeod, MC, USA, Professor, USU SOM Department of Surgery,** and their team provide state-of-the-art care to military beneficiary patients affected by prostate disease, while particularly emphasizing enrolling military beneficiaries in clinical trials.

TriService, MultiCenter National Prostate Cancer Patient Database. The CPDR Patient Database is one of the largest, most comprehensive prostate cancer patient databases in the country. After informed consent, patients provide comprehensive data about their care which is maintained in a state-of-the-art relational computer database. **Leon Sun, M.D., Ph.D., MultiCenter Database Administrator, Research Assistant Professor,**

USU SOM Department of Surgery, and **Colonel Judd W. Moul, MC, USA,** direct this monumental project which is administered by principal investigators and database managers at nine TriService Military Medical Centers across the Nation. **The CPDR database has evolved into a valuable research tool for both clinicians and scientists working in the field of prostate disease. Currently, there are almost one-half million records on over 14,000 patients in the database.** Recently, CPDR was awarded a 3-year (2002 through 2005) DoD Prostate Cancer Research Program (PCRP) Grant in the amount of $410,000 to add technological advancements to the CPDR TriService Multicenter Database. Under the direction of Dr. Leon Sun, these models will be posted on the CPDR web site and accessible to both military personnel and the general public as well.

Basic Science Research Program. The Basic Science Research Program, under the direction of **Shiv Srivastava, Ph.D., CPDR Scientific Director, USU SOM Research Associate Professor, Department of Surgery,** studies the molecular genetics of prostate cancer.

For the Basic Science Research Program of the CPDR, 2001 proved to be yet another year of research productivity. Headed by Dr. Srivastava, the Basic Science Research Program of the CPDR now includes over 25 cancer researchers including an Associate Director, five Senior Investigators, a Laboratory Manager, Post-Doctoral Fellows, WRAMC Urology Residents, Research Assistants, and USU Graduate Medical Students. The Basic Science Research Program Team has developed a vigorous long-term research program and unique bio-resources with a team of dedicated researchers to address molecular genetic alterations during the on-set or the progression of prostate cancers. **Collaborative efforts between Dr. Srivastava and Colonel Judd Moul, CPDR Director, have led to the integration of basic and clinical research activities at the CPDR.** This allows the rapid translation of basic research discoveries into the clinical arena (e.g., the evaluation of biomarkers for prostate cancer progression and the identification of new targets for therapy). Also, prostate cancer gene discovery efforts using state-of-the-art global gene expression profiling and positional cloning strategies at the CPDR are uncovering novel gene alterations in prostate cancer.

Notable 2001 highlights include the continued research on PCGEM1, a novel prostate-specific gene originally identified by the CPDR researchers as a gene abnormality thought to be important in prostate cancer. PCGEM1 is a novel non-coding RNA that is over-expressed in about 40 percent of prostate cancer specimens; and, PCGEM1 expression is induced by androgens. Recent experiments have established that over-expression of PCGEM1 has growth promoting effects on NIH3T3 cells. Experiments are underway to define the functions of PCGEM1, which along with another prostate-specific gene, DD3, represents a new class of prostate-specific genes which do not code for a protein and may function as RNA. A comprehensive 3-year study of PCGEM1, supported by a National Institutes of Health RO1 grant (May 2000 through May 2003) is currently underway.

Another highlight is the discovery of PSGR, a highly prostate-and tissue-specific G-protein coupled receptor. It was discovered through the collaborative efforts of the CPDR and Human Genome Sciences. PSGR is over-expressed in about 65 percent of prostate cancer specimens. Adenovirus-PSGR expression vector has been generated to evaluate biologic and biochemical functions of PSGR. Tumor-associated expression of PSGR is evaluated on tissue micro-arrays and by real-time PCR (polymerase chain reaction) assays. Recently, CPDR was awarded a 3-year (2002 through 2005) DoD Prostate Cancer Research Program Grant in the amount of $440,000. This new grant will be used for further studies of the structure and functions of PSGR and the role it plays in prostate cancer.

Scientists at the CPDR are also focusing on continuing work in the areas of definition of androgen signaling in prostate cancer. Expression profiling (screening of tissue samples for gene abnormalities thought to be important in prostate cancer) of androgen-regulated genes has defined endoplasmic reticulum (ER) stress response pathways as a novel component of androgen signaling in prostate cancer cells. This new discovery has potential to define how male hormones may promote prostate cancer under certain physiologic functions.

Education and Training. The CPDR fosters training and educational programs to raise public awareness about prostate disease. It sponsors the *US TOO, Inc. Patient Support Group* at WRAMC, which holds monthly meetings where patients' concerns and questions about prostate disease are addressed. The informal and diverse group of about 30 cancer survivors and wives from different backgrounds and regions provides an opportunity for the cancer survivors and their families to network with other individuals about their cancer and treatments. Each participant introduces himself and gives an account of his fight against prostate cancer. Moderators lead the group and refer participants to resources, relevant lectures about prostate cancer, and other patients or friends they know who have had similar experiences. The US TOO, Inc. Monthly Newsletter is also published on the CPDR web site which can be found at <*www.cpdr.org*>. The newsletter lists information about medications and clinical trials as well as names and phone numbers of peer counselors who are willing to listen and tell about their own experiences. US TOO, Inc. can be found in almost every community and can be contacted by the patients or their families for schedules of events, publications, and meetings. In addition, CPDR is actively involved in the education and training of medical students, uniformed residents, and USU Ph.D. students. The CPDR also provides molecular biology education and training for military urology residents and medical and graduate students from USU. Various internships in the Basic Sciences Laboratory and the Multi-Center Database are also available to qualified local high school and university students who are interested in careers in the field of cancer research.

Prostate Cell Center of the Basic Science Research Program. The Prostate Cell Center of the Basic Science Research Program is under the direction of **Dr. Johng S. Rhim, Associate Scientific Director, CPDR, and Research Professor, USU SOM Department of Surgery.** The Prostate Cell Center continues facilitating studies of new prostate cell lines. Established in January of 2000, in the renovated CPDR laboratory at the USU SOM Department of Surgery, Dr. Rhim and his team continue working towards the Center's goal which is the generation and characterization of cell lines from primary tumors of prostate cancer patients as well as normal prostate tissues of the same patients. This also includes cell lines from familial prostate cancer patients. **The Prostate Cell Center also serves as a resource center to provide primary cell cultures of epithelial cells derived from normal and malignant prostatic tissues to the larger scientific research community.** The availability of these cell cultures, as well as derived materials such as RNA, DNA, proteins and conditioned media, facilitates research by other investigators who do not have the means to establish primary cultures themselves. Dr. Rhim and his colleagues from the CPDR reported in leading cancer journals, Cancer Research and Oncogene, the discovery and characterization of two new prostate cancer cell lines.

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The USU School of Medicine Department of Pediatrics and the Center for Pediatric Molecular Medicine.

Background. Translational research has become extremely important to the fields of Pediatrics and Pediatric Research. Translational studies are designed to integrate the molecular basis and clinical aspects of disease into a focused investigation. Following the renovation of the Department of Pediatric laboratories in 1999 and 2000, the laboratory of the USU SOM Center for Pediatric Molecular Medicine currently supports all levels of molecular research. The Center's laboratory maintains the following: thermocyclers for polymerase chain reaction (PCR); "real-time" PCR equipment for quantitative PCR; automated immunostaining equipment; and, all of the equipment required for bacterial, viral, and cell culture work, to include small animal studies. The Center for Pediatric Molecular Medicine is available to medical students, house-officers, fellows, and faculty who wish to pursue Pediatric Research. The National Capital Consortium Fellowship Training Programs in the Pediatric Subspecialties of Endocrinology, Gastroenterology, Hematology/Oncology, Infectious Diseases, and Neonatology have extensive research requirements for their fellows and utilize the facilities at the USU SOM Center for Pediatric Molecular Medicine to a significant degree.

Current Activities. The Center for Pediatric Molecular Medicine has supported award-winning studies by USU medical students, residents, and fellows. This year, the prestigious Bockman Award for the most outstanding research by a graduating USU medical student was awarded to **Second Lieutenant Kevin Banks** for a study he performed in the Center. In addition, **Residents of the Pediatric National Capital Consortium Program, Ann M. Straight, Captain, MC, USA,** and **Craig Dobson, Captain, MC, USA,** were awarded travel grants to present their findings at the Lawson Wilkins Pediatric Endocrine Society Meeting. In addition, **Andrew J. Bauer, Major, MC, USA, Fellow, National Capital Consortium Pediatric Endocrinology Program,** was awarded the Thyroid Research Award from the Endocrine Society. **Captain Ann M. Straight, MC, USA,** also received the Howard Johnson Award from the Uniformed Services Section of the American Academy of Pediatrics for the most outstanding research performed by a house officer on active duty in the Uniformed Services of the United States.

This recognition of excellence at all levels, from the local to the international, attests to the quality of science performed at the USU SOM Center for Pediatric Molecular Medicine.

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The Establishment of the United States Military Cancer Institute at the University.

Background/Organization. The United States Military Cancer Institute is a component of USU; the Director of the Institute reports directly to the President of the University. In addition to the USU SOM, other components of the Institute are the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, the Armed Forces Institute of Pathology, and the Armed Forces Radiobiology Research Institute. The Institute has as its objective the enhancement of multi-disciplinary cancer research under the USU aegis; the ultimate goals are to advance the science of cancer prevention, diagnosis, treatment, and research and to achieve designation from the National Cancer Institute as one of the relatively few comprehensive cancer institutes in the Nation.

During 2000, the President of USU requested that a study be conducted reference the desirability and feasibility of establishing a cancer institute at the University. The results of that study were to be reported to the Board of Regents. **John F. Potter, MD, former Director of the Lombardi Cancer Center at Georgetown University,** undertook responsibility for the study. A survey was made in July of 2000, of the existing cancer institutes (centers) at medical schools across the United States. Institutes which met the stringent standards of the National Cancer Institute were found to exist at 45 medical schools; premier cancer institutes have been established at Universities such as Harvard, Yale, Duke, Stanford, and John Hopkins. These centers were established to promote education, research, and patient care.

In-depth interviews were held with University leaders and cancer scientists. These interviews included the Deans of the USU Medical and Graduate Nursing Schools, as well as the Commanding Officers of the Army North Atlantic Regional Medical Command (the Walter Reed Army Medical Center), the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, and the Director of the Armed Forces Institute of Pathology. USU faculty, both basic and clinical scientists, who were identified as cancer-research oriented, were questioned about their teaching, research, and clinical care activities. The interviews showed that all of the military hospital and regional commanders strongly supported the idea of establishing a cancer institute at USU; the USU faculty was also enthusiastic about the concept of a cancer institute. The study also substantiated that the quality of the research of the basic and clinical scientists at USU is outstanding and could support such an endeavor.

A ribbon-cutting officially ceremony opened the Headquarters of the United States Military Cancer Institute on June 25, 2001. The Surgeons General, Members of Congress, and Congressional staff attended the ceremony.

Mission. The mission of the United States Military Cancer Institute is to enhance the collaborative relationships among scientists in both basic and clinical research in an effort to address serious cancers which have struck more than 270,000 DoD beneficiaries during the past 14 years. The Institute will ensure quality care and cutting-edge discoveries and technology for the military communities through its capitalization of the talents of the basic scientists at USU to conduct translational cancer research with clinicians in the local military hospitals. **John F. Potter, M.D., Professor, USU SOM Department of Surgery, and former Director of the Lombardi Cancer Center at Georgetown University, serves as the Director of the United States Military Cancer Institute.**

Benefits of the Cancer Institute. Cancer remains a very significant issue for the DoD beneficiaries in the Military Health System. In the past 14 years, DoD beneficiaries have developed more than 270,000 serious cancers. In the past year, there were 1.2 million physician visits, and 11,500 hospital admissions for cancer diagnoses and therapy at a cost of more than $305 million. The United States, through its many Federal and private institutions, has committed itself toward better access to clinical trials to both improve the quality and the outcome of its fight against cancer, and to bring the DoD closer to reducing this threat to its military and associated communities.

There are a number of benefits which will result from the establishment of the Institute. The Institute will further enhance the academic prestige of USU and would position the University among the premier academic entities in the Nation. As a consequence, student applications to USU would be increased. Medical and nursing students will benefit from their involvement in multi-disciplinary patient care, which is the hallmark of state-of-the-art cancer treatment. The Institute will enhance the collaborative relationships among cancer scientists in both the basic science and clinical areas. The increased public awareness of the high quality of care provided to cancer patients in military treatment facilities will increase the flow of patients to military treatment centers. Post-graduate education must also have large numbers of patients for teaching purposes. This level is being threatened in some hospitals; a cancer institute will increase patient accessions. Moreover, these cancer patients present extremely challenging surgical and medical conditions. Caring for such patients maintains and enhances the skills of staff physicians, residents, and medical students. A cancer institute will stimulate the submission of grant applications to the National Institute of Health and other peer-review entities; an increase of such grant awards would be a clear indication of the high quality of research being conducted at the University. The Institute could also serve as a model for TriService collaboration.

The inclusive study, submitted on August 24, 2000, found that the establishment of the USMCI at USU is highly desirable and would further enhance the University's academic reputation. Given the extent and quality of its resources, such an Institute could well become one of the largest and most prestigious Cancer Institutes in the United States. On September 8, 2000, the USU Board of Regents voted to approve, in principle, the concept of creating the United States Military Cancer Institute at USU.

Achievements of the Institute. Since its inception, the Institute has accepted 65 candidates as members. These basic and clinical scientists have united to form multi-disciplinary research teams. A Committee of Scientific Advisors, composed of nationally distinguished cancer scientists, has met to review the progress of the Institute. At its most recent meeting, the Committee declared that it was impressed with the progress of the Institute and expressed renewed support for the focus of the Institute on cancer prevention and control. This theme was adopted because it will capitalize on the talents of the basic scientists of the USU SOM to conduct translational research with clinicians in the local military hospitals. Also, the wellness concept is in direct compliance with DoD's strategic goal for medical readiness.

Services Sign Memorandum to Combine Efforts in Cancer Research, Education, and Patient Care. The Commanders of four local military health care facilities signed a Memorandum of Understanding in February of 2002, to create the first TriService Institutional Review Board for the United States Military Cancer Institute. In the past, the necessity for an investigator to obtain Institutional Review Board (IRB) approval from each institution at which the investigator wished to perform research (which often amounted to the completion of approval processes with four or five entities) served as a substantial roadblock to collaborative research. However,

the signing of an agreement by the Commanders from the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Medical Center, and the President of USU will enable researchers to obtain the required reviews of their research protocols through a more streamlined process. Instead of being required to submit a protocol to the IRB sponsored by each individual institution, a researcher can now make one submission to one integrated Institutional Review Board. This will facilitate the work of the investigators and expedite cutting-edge discoveries and technology for the DoD communities.

Establishment of a Development Committee. A Development Committee has been established by the United States Military Cancer Institute. **H. Norman Schwarzkopf, General, USA, Retired, will serve as the Committee Chair.** Other members include **The First Lady of the United States, Mrs. Laura Bush,** and **The Honorable Frank Carlucci, former Secretary of Defense and National Security Advisor to the President of the United States.**

Congressional Recognition. Recently, the Congress of the United States recognized the United States Military Cancer Institute and mandated substantial funding for its operations.

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USU Establishes an Interdepartmental Center for Space Medicine.

Background and Establishment. During the past 50 years, space sciences and exploration have evolved from science fiction into scientific accomplishments. The 21st Century will be marked by extraordinary advances in space sciences and travel. In addition, altered gravity and radiation exposure in space present unique research opportunities to further medical knowledge. The Uniformed Services have, from the inception of space medicine, played an important role in the National Aeronautics and Space Administration (NASA) programs. Information sharing and collaborations among these scientists has continued to depend upon individual relationships and agreements. In conformance with the USU mission which includes the training of physicians, advanced nurses, and scientists for the Nation, USU faculty have been engaged with NASA for many years in space-relevant medical research.

The USU Interdepartmental Center for Space Medicine was initiated to: 1) foster interdisciplinary research and education in space medicine; 2) include areas of research such as the biological and psychological effects of extreme environments; and, 3) feature work on the effects of microgravity on cardiovascular, endocrine, neurovestibular, and gastrointestinal functions. The Center now serves as a liaison for space medicine for the University with DoD and government agencies such as NASA, as well as with other universities, research institutions and foundations. The USU Interdepartmental Center for Space Medicine has been located within the USU SOM Department of Medicine. Useful and current information on the USU Center has been available on the Center's web site: *<www.usuhs.mil/csm>* which is hosted by the Department of Medicine and managed by Solomon Levy, Deputy Chair for Administration.

Working and Executive Committees Are Established. A Working Committee consisting of over 20 health professionals across numerous disciplines was initially established to facilitate the development and long-term continuity of the Center. Some of the initial members included: 1) **Andre Dubois, MD, Research Professor, USU SOM Departments of Medicine and Surgery,** (Dr. Dubois is currently conducting NASA-funded research regarding gastrointestinal function in space); 2) **Joseph McCabe, Ph.D., Professor, USU SOM Department of Anatomy, Physiology, and Genetics**; 3) **Solomon Levy, MPH, Deputy Chair, Administration, USU SOM Department of Medicine**; 4) **Gregory P. Mueller, Ph.D., Professor, USU SOM Department of Anatomy, Physiology, and Genetics**; 5) **CAPT David Johanson, MC, USN, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**; 6) **Patricia A. Deuster, Ph.D., Associate Professor and Director, Human Performance Laboratory, USU SOM Department of Military and Emergency Medicine** (Dr. Deuster is currently conducting research on human endocrinological responses to stress that is relevant to space medicine); 7) **Terry Thomas, Ph.D., USU SOM Department of Preventive Medicine and Biometrics** (Dr. Thomas is currently studying extreme environments); 8) **Victor Schneider, MD, Associate Professor, USU SOM Department of Medicine**; 9) **Neil Grunberg, Ph.D., Professor, Department of Medical and Clinical Psychology** (Dr. Grunberg has conducted NASA-funded research on crew selection for ways to optimize performance and minimize stress); 10) **Richard Holt, MD**; 11) **Helen Santiago, Ph.D., Research Associate**; and, 12) **Roy Clymer, Ph.D.** The complete listing of members can be found at *<www.usuhs.mil/csm/csmcmtlist.htm>*. In addition, an Executive Committee, established for assisting and advising the Director of the Center, consists of the Director of the Center and four additional members of the Center; members are appointed by the Director and serve for a three-year term and represent as many academic departments within the SOM as possible.

Official Inauguration of the Center. The USU Center for Space Medicine was officially inaugurated at the University on November 21, 2000. The Center's inauguration included **NASA Astronaut Bonnie J. Dunbar, Ph.D., Assistant Director, University Research and Affairs, Lyndon B. Johnson Space Center** who was a featured speaker at the inaugural events for the Center. Her presentation was entitled, "From Apollo to the New Millennium: Human Space Flight Exploration." Also speaking was **NASA Flight Surgeon/Neurologist, CAPT Jonathan B. Clark, MC, MPH, USN, USU Class of 1980, Lyndon B. Johnson Space Center**; CAPT Clark's presentation was entitled, "Clinical Aspects of Space Medicine."

Mission and Leadership. As indicated above, the USU Center for Space Medicine was established to accomplish the following: 1) to encourage multidisciplinary space medicine research among the USU faculty; 2) to provide information about extramural funding opportunities; 3) to encourage and nurture individual research projects in space medicine at USU (e.g., cardiovascular, endocrine, neurovestibular, and gastrointestinal effects of microgravity); and, 4) to provide a Center to interact with other Federal and DoD space medicine programs. **Jay R. Shapiro, M.D., Professor, USU SOM Department of Medicine,** and **Head of the Bone Loss Team for the National Space Biomedical Research Institute, a NASA funded consortium of institutions working to prevent or solve health problems related to long-duration space travel, serves as the Director of the USU Interdepartmental Center for Space Medicine.**

Internationally Recognized Director. Dr. Shapiro is an internationally recognized scientist in the fields of endocrinology and bone loss due to prolonged exposure to microgravity environments. As the Center's Director, he is responsible for the day-to-day activities and administration of the Center; the communication of those activities to the Dean, SOM, and the USU President; and, the implementation, governance, and review of the Center's programs. In addition, Dr. Shapiro also represents the Center on appropriate committees and in appropriate settings as designated by the Dean, SOM, and the President of USU.

Information Transfer. Already existing space medicine information projects at USU include Spaceline (an on-line bibliographic data base of space life sciences research) and the Space Life Science Data Archive (data base from NASA-funded research). The Interdepartmental Center for Space Medicine: 1) communicates within the DoD about space medicine via electronic means and conferences; 2) acts as a liaison for space medicine with the DoD, universities, and other research institutions; and, 3) informs the USU community about space medicine electronically and, through seminars and discussion sessions.

Future Educational Activities. The USU Center for Space Medicine has established its educational activities and goals which include: 1) the education of USU medical and graduate students, faculty, and staff in space medicine; 2) the development of a fellowship in space medicine at USU for physicians in the Armed Forces; 3) the development of a USU postdoctoral space medicine fellowship for biomedical and behavioral scientists; 4) the provision of NASA-approved student summer programs; and, 5) the provision of part-time research opportunities for USU SOM medical students.

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The TriService Nursing Research Program - A Joint Program Under the Leadership of the Chief of the Army Nurse Corps and the Directors of the Navy and Air Force Nurse Corps.

Background. Nursing research investigates the many factors known to affect human health for the purpose of developing clinical interventions and activities which can be carried out by nurses. The TriService Nursing Research Program's primary objective is to expand the professional knowledge and expertise of military nurses and to improve the capacity of nurses to provide appropriate and high-quality health care for the Armed Forces.

Military nursing research addresses many areas: 1) the unique military environmental settings in which care is provided; 2) the mission readiness and development of military personnel; and, 3) the improvement of nursing structure (delivery systems) and those processes which enhance clinical outcomes, health status, and the quality of life for the diverse military populations and their beneficiaries (to include those communities which receive care during humanitarian, peacetime, and wartime missions).

The TriService Nursing Research Program (TSNRP) is a Congressionally authorized program targeted to support research conducted by military nurses (S.R. 102-154). Funding is available to all Active Duty, Reserve, National Guard, and retired Nurse Corps Officers. The TriService Nursing Research Program has continued to garner broad support; and, funding has grown incrementally since its inception. The TSNRP is under the direction of the Chief of the Army Nurse Corps and the Directors of the Navy and Air Force Nurse Corps. The continuing investment of resources and support for military nursing research has yielded valuable results; and, uniformed nurse investigators have begun to expand the scientific foundation for military nursing.

Mission. The mission of the TriService Nursing Research Program is to provide resources for the conduct and use of research to foster excellence in military nursing care. The program goals are to: 1) increase the capacity of military nursing research; 2) expand the breadth and depth of the nursing research portfolio; 3) develop partnerships for collaborative research; and, 4) build an infrastructure to stimulate and support military nursing research.

The TSNRP has designated five areas of research: 1) Deployment Health; 2) Developing and Sustaining Competencies; 3) Recruitment and Retention of the Work Force; 4) Clinical Resource Management; and, 5) Military Clinical Practice and Outcomes Management. Each of these areas can provide valuable clinical outcomes to enhance the care delivery systems for soldiers, sailors, airmen, and their families.

Resource Center for Excellence in Military Nursing. The Resource Center for Excellence in Military Nursing was established in 1997, through a grant to strengthen and expand the capacity of military nursing research into the future. This is in alignment with the recommendation of the 1996 Institute of Medicine Report to establish centers of excellence in military nursing research as part of the TSNRP's organizational structure. The establishment of the Resource Center for Excellence in Military Nursing is regarded as essential for ensuring the future success of military nursing research as well as the TriService Nursing Research Program. The major goals of the Center are to: 1) provide military nurse researchers with a repository of information for use in

designing, implementing, and disseminating military nursing research; 2) improve the quality and quantity of proposals submitted by military nurse clinicians; 3) facilitate the implementation of research findings into clinical practice; and, 4) promote the timely dissemination of military nursing research findings.

Investigator Initiated Grant Awards. All proposals submitted to the TSNRP for funding are subject to rigorous, peer-review designed to evaluate both scientific and programmatic merit. The Scientific Peer-Review Panel consists of scientists who are selected from the health care community; their selection is based on research experience, publications, and work experience. The panel evaluates the scientific and technical merit of each proposal.

The TSNRP Advisory Council, comprised of one representative from both the Active Duty and Reserve components from each branch of the Military Services, conducts the programmatic review. Council members assess the likelihood that a proposed study will meet TSNRP goals and priorities. Proposals must receive the approval of both the Scientific Peer-Review Panel and the TSNRP Advisory Council in order to be recommended to the Corps Chief and Directors for final approval. Since the establishment of the TSNRP in 1992, a total of 212 proposals have been funded. These research studies have focused on 16 major areas: 1) human response; 2) access to care; 3) women's health; 4) deployment health; 5) professional roles; 6) systems/delivery systems; 7) training/competencies; 8) outcomes; 9) military clinical practice; 10) operations (decision making); 11) equipment/ technology; 12) complementary medicine; 13) risk behavior; 14) family health; 15) pain; and, 16) prevention/ health promotion. The three most frequently cited areas were outcomes management, clinical practice, and equipment/technology.

Study areas which have been funded include: burns care; breast cancer care; wound healing; pain; tobacco use; depression; Reserve readiness; pregnant soldier intervention programs; informatics; econometrics; managed care environments; tele-health; nurse-managed clinics; and, distance learning. During 2001, 11 investigators were awarded funding. Selected examples of these studies include: the retention of trauma resuscitative skills in the field; increasing testicular examinations; pharmacokinetics and ginger safety; medication error reporting; work environments within Army hospitals and nurse-rated quality of care; bone density in female adolescents and the use of depot medroxyprogesterone; and, the role of the AVP receptor, Vasopressin Activating-Calcium Mobilization (VACM-1) in dehydration and hemorrhage.

Special Requests for Applications. Special Requests for Applications (RFAs) are occasionally made available by the TSNRP. RFAs have included distance learning projects, skill sustainment projects, studies on evidence-based care within the military health care system, retention and recruitment, and deployment health. Nineteen studies have been funded as a result of four RFAs.

Dissemination of Findings. Dissemination of findings to nurses in a global setting is a specific challenge being met by the TSNRP. The first dissemination conference held in August of 1997, brought military nurse researchers representing the three Services throughout the World. The conference provided a forum for the exchange of ideas, the discussion of critical issues, and reporting on research findings. TSNRP nurse researchers have disseminated their research findings at various conferences throughout the United States and abroad, to include the American Heart Association, the Aerospace Medical Association, the National Institute of Nursing Research Forum, the International Women's Health Conference, the Asia-Pacific Military Medicine Annual Conference, and the annual conference of the Association of Military Surgeons of the United States (AMSUS).

Results of TSNRP funded studies have been reported in refereed nursing and other health journals and by the national news media as well. Recently, STAN, the virtual reality simulator used in skills training at the Lackland Air Force Base in Texas, was featured in an Air Force Times news article. This simulated skills training project is part of the study, "Wartime Competencies and the United States Air Force Nurse: Training for Sustainment," currently being funded through the TSNRP.

Dissemination is imperative for the success of the program. Research findings from final reports are also found in the special interest category of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database.

Future Direction. The future of military nursing research is in the control of the military nursing community. To ensure success in the future, nurse investigators must have both a vision and a plan as a military nursing community. Advancing the practice of military nursing and its response to the requirements of military readiness and deployment remains both the mission and the priority of nursing research. The TriService Nursing Research Program serves as a catalyst for stimulating the synergistic endeavors of the three military nursing services to advance the science of military nursing. For the Year 2002 and beyond, the TriService Nursing Research Program is positioned to support those endeavors.

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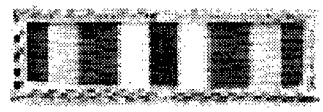
OPTIMIZATION

We need to maximize the national resources that already exist, such as the Department of Defense's Uniformed Services University of the Health Sciences... – The Honorable Christopher H. Smith, Chair, House Committee on Veterans' Affairs, during Hearings before the Subcommittee on Oversight and Investigations, November 14, 2001.

Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical students and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, and the American Association of Medical Colleges and the American Medical Association to accomplish these important and timely educational goals. Finally, the University will be a major contributor in the American Association of Medical Colleges' Health Education Coalition on Bioterrorism conference later this month. – The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs, Testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, November 7, 2001.

Thirteen USU School of Medicine academic departments and the Graduate School of Nursing provided clinical and consultative support to DoD which was projected to total over 134,990 hours in Fiscal Year 2001, for a documented total annual cost avoidance of $9,289,913 in manpower costs. Without the patient care and special services provided by the USU Faculty throughout the DoD medical facilities, the military hospitals, clinics and other facilities would find it necessary to increase their medical staffs by 134,990 work hours in order to maintain the level of patient care within the direct care system. – FACT Sheet on the Cost Avoidance Generated for DoD by USU, May 2001.

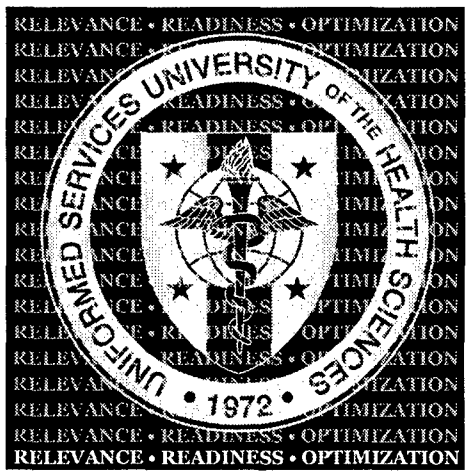


It is my pleasure to inform you that the Uniformed Services University of the Health Sciences (USUHS) was recently honored by the U.S. Department of Defense with the Joint Meritorious Unit Award... This notable award endorses and recognizes the multiple products and the critical cost effectiveness of the USUHS in maintaining the health and readiness of our Nation's Armed Forces. This remarkable institution, the West Point of Military Medicine, has graduated more than 3,000 military medical officers and advanced practice nurses since it was established by Congress in 1972. USUHS provides our Nation with physicians dedicated to career service in the military and the United States Public Health Service. The University educates highly qualified and highly skilled personnel to serve the needs of our Uniformed Services... the University continues to provide a corps of dedicated, career-oriented, military medical officers who will lead our military health care system of the 21st Century. – The Honorable Constance A. Morella, Member of the United States House of Representatives, letter to the Members of the House of Representatives, February 1, 2001.

Since the establishment of the USU School of Medicine Graduate Education Programs in 1977, a total of 668 advanced degrees have been granted by the University: 211 Doctors of Philosophy; 5 Doctors of Public Health; 67 Masters of Science; 356 Masters of Public Health; 2 Masters of Science in Public Health; 25 Masters of Tropical Medicine and Hygiene; and, 2 Masters of Military Medical History. During 2001, 25 uniformed officers received advanced degrees from the USU Graduate Education Programs (24 Masters Degrees and 1 Doctorate); at an average cost of $30,000 per advanced degree, the USU School of Medicine Graduate Education Programs generated $750,000 of cost avoidance for the DoD during 2001. – FACT Sheet on the Cost Avoidance Generated for DoD by USU, May 2001.

The Uniformed Services University of the Health Sciences distinguished itself by exceptionally meritorious service from July 1, 1990 through July 1, 2000... USUHS provided nearly 1.5 million hours of clinical service (to the Departments of the Army, Navy, and Air Force) at a manpower savings of $85 million and trained over 2 million defense personnel (200,000 per year) with an annual cost avoidance of over $21 million. – Citation to Accompany the Award of the Joint Meritorious Unit Award to the USU from the Secretary of Defense, December 11, 2000.

The USU is mandated by Congress to establish programs in continuing medical education for military members of the health professions... Because the USU Office of Continuing Education for Health Professionals (CHE) brings medical training to the medical health care professionals, cost avoidance of $1,502,516 was generated during the past Fiscal Year by eliminating extensive travel expenses and time away from the hospitals and clinics... DoD sites affiliated with the USU Military Training Network (MTN) are approved to conduct self-sustained resuscitative and trauma medicine training. This is cost-effective to the MHS because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. The cost avoidance generated for the DoD by the MTN during the past Fiscal Year was $9,890,579; the total annual cost avoidance generated by the CHE/MTN during the past year was $11,393,095. – FACT Sheet on the Cost Avoidance Generated for DoD by USU, May 2001.



III. THE GRADUATE SCHOOL OF NURSING

I wish to convey my congratulations to you, Dr. Abdellah, and the entire staff of the Graduate School of Nursing of the Uniformed Services University of the Health Sciences. Your outstanding performance was recently recognized by the National League for Nursing Accrediting Commission (NLNAC) in its report granting continuing accreditation for an impressive eight additional years.

I am particularly gratified by the following statement: "This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community."

The NLNAC conducted an exhaustive review before coming to the above conclusion, reviewing many documents, attending classes, and interviewing numerous staff, students and other stakeholders. One of the latter groups, the Federal Nursing Chiefs, was particularly complementary: "We are excited to see the quality of the students who graduate from this program... they are exceptional leaders."

This is a truly outstanding review of the school, which reflects great credit upon your entire staff and our Military Health System. Congratulations to all for a job exceptionally well done!

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs**, letter to the University President dated January 24, 2002.

ESTABLISHMENT

Legislative and DoD Direction. The establishing legislation of the University, the Uniformed Services Health Professions Revitalization Act of 1972 (Public Law 92-426), and DoD Directive 5105.45, both **direct that USU must meet the requirements of medical readiness and expand to meet the future needs of the Uniformed Services.** In accordance with those directives, the Graduate School of Nursing (GSN) was established at USU. During the Fall of 1992, the Department of Defense received the authority, along with an appropriation, to begin planning for the implementation of a nurse practitioner education program at USU. The intent of the legislation was to meet the needs for advanced practice nurses in the Uniformed Services (the Army, Navy, Air Force, and the United States Public Health Service). The Federal Nursing Chiefs initially identified the need for advanced practice nurses in two areas: Family Nurse Practitioner and Nurse Anesthesia. **Following the establishment of the GSN, the Federal Nursing Chiefs have acted as a Board of Advisors to the GSN since 1993.** The GSN Nursing Board of Advisors provides a means for the easy exchange of information and mutual assistance in the consideration of nursing issues and challenges. (**NOTE:** The Federal Nursing Chiefs include representatives from the Army, Navy, Air Force,

Public Health Service, and the Department of Veterans Affairs. The American Red Cross, although not a federal agency, has an honorary representative on the GSN Nursing Board of Advisors.)

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GSN Meets Legislative and DoD Mandates. In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners for the Uniformed Services. In compliance, the GSN Department of Nurse Practitioners (DNP) admitted its first students in August of 1993. The Department of Nurse Anesthesia (DNA), identified as a requirement by the Federal Nursing Chiefs, admitted students in June of 1994. The GSN's Departments of Nurse Practitioners and Nurse Anesthesia, are designed to alleviate shortages of health care providers in the Uniformed Services, as identified by the Federal Nursing Chiefs. The Federal Nursing Chiefs determined that these two advanced practice nurse specialties met the requirements of the Uniformed Services. On February 26, 1996, the GSN received official approval and recognition from the Office of the Assistant Secretary of Defense for Health Affairs.

Graduates from the GSN receive a Master of Science in Nursing (MSN) Degree and qualify to test for certification in their specialties. The Department of Nurse Practitioners has had seven graduating classes from 1995 through 2001, for a total of 70 graduates; the Department of Nurse Anesthesia has had six graduating classes beginning with the Class of 1996 through the Class of 2001 for a total of 87 graduates. **Since its first graduation in 1995 through April of 2002, a total of 157 advanced practice nurses have graduated from USU; and, 152 remain on active duty.**

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MISSION

As I begin my graduate studies for the Degree of Master of Science in Nursing, I dedicate myself to the scholarly pursuits which will enable me to become an advanced practice nurse. I will uphold the traditions of nursing as envisioned by Florence Nightingale, and apply the calm and resourcefulness of Clara Barton to my practice in the same way as she cared for soldiers serving in austere environments.

As an advanced practice nurse, I will endeavor to create an environment of caring for my patients and clients and at all times provide comprehensive nursing care to them and their families entrusted to me.

As a nurse scientist, I will ensure that my research is thorough, complete and honest. By example, I will endeavor to use my research findings to improve practice and communicate their benefits to the public. Above all else, I will treat all with whom I work with sincerity, compassion, and caring.

I solemnly pledge myself before this assembly to uphold the highest principles of the nursing profession and the practice of science throughout my life.

- From the Oath taken by each new class of students at the GSN; the oath, developed by the Dean and Faculty of the GSN, was revised during 2001.

Mission Direction. The Mission Statement for the GSN is derived from the overall Mission Statement of the University and is in compliance with DoD Directive 5105.45. The mission of the GSN includes five major themes: 1) the GSN is dedicated to providing quality education to prepare advanced practice nurses, at the graduate level, in the specialties of Nurse Practitioner and Nurse Anesthesia; 2) the GSN must produce graduates who are both qualified for, and dedicated to, the delivery of primary care (acute and chronic care), including anesthesia services, to active duty members of the Uniformed Services, their families, and all other eligible beneficiaries during peace, war and other contingencies; 3) the GSN is also directed to provide the Nation with graduate nursing professionals who are willing to commit themselves to a career of service in the Department of Defense and the United States Public Health Service; 4) the GSN must serve the Uniformed Services and the Nation as an innovative, responsive program with a world-wide perspective for leadership, education, research, and service; 5) the GSN must develop advanced practice nurses, with unique experience and skills, who can respond to the special requirements of the Uniformed Services for disaster relief, humanitarian intervention, and military readiness.

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Mission Accomplishment. In the short time since 1993, and with the strong cooperation and support of the Federal Nursing Chiefs, the GSN has: 1) recruited a qualified faculty; 2) successfully established curricula for the Family Nurse Practitioner and Nurse Anesthesia Programs; 3) identified accredited clinical practice sites and completed memoranda of understanding (MOUs) for those relationships with 19 military treatment facilities (MTFs) to include an additional 41 non-DoD, Federal, and civilian clinical sites; 4) developed and implemented an administrative structure which provides for faculty and student participation in the overall governance of the GSN; 5) submitted self-studies and received accreditation for its two programs from three professional accrediting entities (status of recent accreditations follows); 6) received approval from Health Affairs, Office of the Secretary of Defense, on February 26, 1996; 7) initiated, implemented, and continuously reviewed the outcomes evaluation process for both academic programs; 8) initiated curricula and governance reviews; 9) collaborated with the Department of Veterans Affairs and utilized new technology to establish distance learning programs which resulted in DoD's first virtual graduation at the advanced level; and, 10) graduated 157 advanced practice nurses, with 152 graduates remaining on active duty.

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GSN Nursing Philosophy. The philosophy of the GSN conforms with the mission and goals of the USU Strategic Plan. The philosophy is built on a foundation of nursing theory, research, and advanced practice which fosters critical thinking and a vision for the future health care requirements of the Uniformed Services. The GSN community believes that graduate nursing education builds on the foundation of the undergraduate nursing education already completed by the uniformed students. With that in mind, the GSN provides the Nation with nurses prepared at the Master Degree level, who pursue learning experiences

which will increase the breadth and depth of their knowledge base and enable them to specifically address the special needs of uniformed health care. The GSN prepares its students for collaborative and autonomous advanced practice roles with an emphasis on: health promotion and disease prevention (readiness); management and delivery of primary health care to families and individuals across the life span; case management for the chronically and stable acutely ill; anesthesia service; administration; and, unique expertise in emergency preparedness and military medical/nursing humanitarian assistance. Also, GSN students must achieve an advanced level of knowledge to perform and provide leadership as uniformed officers in a joint service environment. And finally, GSN graduates are prepared to participate in research or studies which will advance the Uniformed Health Profession and improve the practice of nursing as well as the welfare of patients throughout the Uniformed Health Systems.

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ACCREDITATION

Accreditation Granted by the National League for Nursing Accrediting Commission.

Background. In December of 1996, the Master Degree Program offered by the USU GSN was evaluated for accreditation by the Board of Review for Baccalaureate and Higher Degree Programs of the National League for Nursing (NLN). The NLN Board of Review voted to grant accreditation to the USU GSN Master Degree Program in Nursing and scheduled its next visit for reaccreditation during 2001. The GSN began the preparation for its required Self-Study scheduled in October of 2001.

Site Visit and Final Report of the NLNAC Site Surveyors. On October 30 through November 1, 2001, Site Surveyors from the National League for Nursing Accrediting Commission (NLNAC) visited the USU GSN. The following excerpt is taken from the final report of the NLNAC:

> **The accreditation visit was announced directly to the Nursing Chiefs of the United States Army, Navy, Air Force, and Public Health Service, who disseminated this information through written memoranda and verbal comments to staff at respective hospitals and installation sites. The Federal Nursing Chiefs met with the program evaluators and gave testimony to their support of the GSN. Comments during the meeting with the Federal Chiefs included: 1) we are excited to see the quality of the students who graduate from this program... they are exceptional leaders; 2) we are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions; and, 3) we are pleased to see that more faculty are completing doctoral degrees and support the actions taken by the Dean to give faculty release time to make it possible for them to accomplish this goal.**

In addition to meeting with the Federal Nursing Chiefs, the NLNAC also interviewed 17 individuals who represented the senior leadership at the University. Group conferences were held with the GSN faculty, the GSN Dean's Council, the GSN students; and the Nursing Chiefs of the Branches of the Uniformed Services and their Deputies. Numerous GSN classes were attended which included Neuroscience II, Basic Principles of Nurse Anesthesia Practice, and Advanced Health Assessment. Six agencies and USU facilities were visited which included: the Walter Reed Army Medical Center; the National Naval Medical Center's Family Practice Clinics; the National Capital Area Medical Simulation Center; the Anatomical Teaching Laboratory at USU; the USU Learning Resource Center; and, the Silver Spring Office Complex of the GSN.

Documents reviewed included: Policy and Precedent Statements; the VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program: From Concept to Graduation; the 2000 Edition of the USU Journal,the Program for Design Notebook for the proposed construction at the USU campus; the alumni survey tool and data summaries; the GSN Strategic Plan; Dean Abdellah's Curriculum Vita; Curriculum Vita for the entire GSN faculty; course syllabi and random selections from both the Nurse Practitioner and Nurse Anesthesia tracks; examples of students' scholarly projects; clinical site information; the GSN budget; most recent accreditation and approval reports; minutes from the GSN Faculty Council and Corps Chiefs Meetings, and Committee Meetings of the Evaluation, Student Promotion, Student Advisory, and Admissions Committees; and, extensive course materials.

Notification of Maximum Accreditation. On March 18, 2002, the Dean of the GSN was formally notified of the action taken by the National League for Nursing Accrediting Commission at its meeting on February 27, 2001. "The Commission approved the Master Degree Program for continuing accreditation and scheduled the next evaluation visit for the Fall of 2009." Patterns of strength affirmed by the Commission were identified as follows: the mission of the GSN; the Dean's exemplary leadership and expertise; and the learning resources. The rationale for granting accreditation for 8 years was provided in the NLNAC final report:

> **The Uniformed Services University of the Health Sciences GSN has met and exceeds all criteria for continuing accreditation. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations. This program is on the cutting edge of effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community.**

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Accreditation Granted by the Commission on Collegiate Nursing Education.

Background. An accreditation program for nursing programs was implemented by the American Association of Colleges of Nursing (AACN) Commission on Collegiate Nursing Education (CCNE). The GSN prepared and submitted material to meet the CCNE requirements for preliminary accreditation (a special accreditation for programs which had already received recent national accreditation from other organizations such as the NLN). That material was accepted and the AACN/CCNE granted preliminary accreditation on February 27, 1998. A site visit was scheduled by the CCNE for November of 2001.

Site Visit and Final Report of the CCNE Evaluation Team. On November 14 through 16, 2001, the Evaluation Team from the Commission on Collegiate Nursing Education (CCNE) visited the USU GSN. The following excerpts were taken from the final report of the CCNE:

> **The GSN faculty members are responsive to the needs of the Federal Nursing Chiefs of the Uniformed Services and are willing to work on program modifications suggested by this external community of interest. Communication between the GSN faculty and the Federal Nursing Chiefs is enhanced by monthly teleconferences and semi-annual meetings. In addition, the GSN has an accreditation committee that works to ensure that consistency and congruence between mission, philosophy, and goals/objectives occur within each program. Students described responsiveness of the faculty in assisting them to meet the objectives of the program and in making alterations as necessary in compliance with the mission of the school and university.**
>
> **Faculty members have extensive opportunities to participate in the governance of the USU GSN. Faculty identified professional and collegial collaboration between all military and civilian GSN faculty, as well as other faculty at the University level... USU provides a supportive environment for teaching, research, service, and practice... Support is given to faculty for**

development in areas such as time for clinical practice, service to national organizations, and pursuit of doctoral education... All faculty interviewed articulated an overwhelming commitment to the GSN, the students, and their jobs. They describe a genuine happiness with coming to work each day and preparing the best nurses for military service that can possibly be accomplished.

Students reported participation in GSN program decisions and open communication patterns with all GSN faculty. Their feedback is utilized, and the students reported that they are notified of program changes. Students were very articulate in describing the process used to provide input into program development. The GSN has an excellent educational environment with many state-of-the-art laboratory simulation rooms, library and resource materials, and technological support services. Most classrooms are equipped with technology such as computers or LCD players for PowerPoint presentations and Internet access. A state-of-the-art simulation center is available to the GSN and is equipped with 12 fully-equipped patient treatment rooms with computer, video, and audio equipment. In addition, the simulation center has a distance education teleconference room, a computer laboratory, and an operating room simulation laboratory with manikin simulators and anesthesia equipment which mimics that used in the military field. Virtual reality anatomy lectures are cutting edge and are available for approximately four anatomic systems. GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.

The inclusion of an interdisciplinary approach to course implementation and content delivery was evident by interdisciplinary team teaching and collaboration across departments. Opportunities to participate in health care delivery on a global scale are consistent with the mission of the university and the professional standards. Clinical experiences are in a variety of sites, all of which are accredited by JCAHO and COA. All clinical sites support the curriculum and course objectives and provide a variety of learning opportunities for clients across the lifespan. Many of the clinical sites are military-related and further support the socialization of the student into the role of the military Advanced Nurse Practitioner.

CCNE Evaluation Team Process. While visiting the GSN campus, the CCNE Evaluation Team had an opportunity to interview school and university officials; program faculty, clinical preceptors, and students; and, other community representatives. During the site visit, the CCNE Evaluation Team also met with the Federal Nursing Chiefs in their capacity as the Board of Advisors to the GSN. As with the NLNAC evaluators, the Federal Nursing Chiefs once more expressed their strong endorsement and satisfaction with the graduates of the GSN. The Evaluation Team reviewed information provided in the self-study document, as well as other materials provided in the resource room and at the team's request. In addition, the team also observed classroom and clinical activities. The Evaluation Team reviewed and provided assessments on the following Standards for Accreditation: Mission and Governance; Program Quality - Institutional Commitment and Resources; Program Quality - Curriculum and Teaching-Learning Practices; and, Program Effectiveness - Student Performance and Faculty Accomplishments. The Evaluation Team's final report found that the GSN had met all Standards and all Key Elements of the Standards with no recommendations for improvement.

Notification of Maximum Accreditation. On May 16, 2002, the Dean of the GSN received official notification from the Commission on Collegiate Nursing Education that **"the CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at the Uniformed Services University of the Health Sciences for a term of 10 years, extending to June 30, 2012."** The next on-site evaluation is scheduled for the Fall of 2011. The following rationale was provided for the maximum accreditation of 10 years:

> **At its meeting the CCNE Board determined that the program met all four accreditation standards. The Board additionally determined that there are no compliance concerns with respect to the key elements. The Commissioners express our best wishes as you proceed with tasks important to the future of your nursing program.**

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Accreditation Granted by the Council on Accreditation of Nurse Anesthesia Educational Programs. Of the two GSN programs, only the Nurse Anesthesia Program requires programmatic accreditation by a separate accrediting agency, the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). In April of 1994, the GSN Certified Registered Nurse Anesthetist (CRNA) Program was granted initial accreditation by the COA, permitting the admission of students to the GSN Department of Nurse Anesthesia. Following an intensive review and site visit by the COA in May of 1997, the GSN Nurse Anesthesia Program received full accreditation through September of 2003. Preparation is on-going for an anticipated site survey in April of 2003.

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Establishment of an Honor Society of Nursing at USU. The USU Graduate School of Nursing was informed during 1998, that it had been approved by Sigma Theta Tau to sponsor an Honor Society of Nursing. The Honor Society was formally established during graduation exercises in 1999. The GSN Honor Society was established to recognize the academic excellence of students, the clinical and educational acumen of preceptors, and the contributions of nursing leaders in the community. The 116 members are representative of the GSN's diverse student body along with senior leaders in nursing from both the military and civilian sectors. Over the past year, the GSN Honor Society co-sponsored a series of women's health programs at the Women in Military Service Memorial at the Arlington National Cemetery. Application for approval as a Chapter of the Sigma Theta Tau International Honor Society of Nursing will be forwarded in the Fall of 2002. Membership in Sigma Theta Tau is the hallmark of a committed nursing professional and offers great rewards in terms of potential funding for nursing research, networking with professional colleagues, and professional advancement.

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MILITARY UNIQUE CURRICULA

The GSN Curricula Responds to the Special Needs of the Uniformed Services. The USU GSN is unique among the Nation's nursing programs because it educates students to treat and care for both civilian and military personnel in peace, war, disaster, or other situations which occur under austere conditions. The GSN curricula are driven by special requirements to meet the missions of the DoD and the USPHS. Common to the GSN academic curricula is subject matter relevant to military health care providers; for example, there are operational readiness components in each course. And, continuous consultation takes place with the Federal Nursing Chiefs during the on-going development and review of the GSN curricula in order to ensure that the special needs of the Uniformed Services are being met by the GSN graduates.

Based on the Federal Nursing Chiefs' initial indications that the career advancement of their officers would be enhanced through the completion of a Master Thesis, the GSN examined the feasibility of the completion of a thesis within the time constraints of its programs. Based on an assessment of multiple program components, including a review of the graduating students' research projects and faculty expertise, a Master Thesis, which would become an extension of the charter students' research projects, was made a requirement for all graduating students, beginning with the graduating Class of 1996. However, during 1999, following consultation with the Federal Nursing Chiefs, this area of responsibility was revised. It was determined that the GSN students would now chose among several types of scholarly projects which include: research culminating in either a written thesis or a publishable paper; a research practicum; and/or, a defined project. Whichever option is chosen, any scholarly project may be completed individually or as a group project. A GSN research committee will ensure that each scholarly project meets the Uniformed Services University of the Health Sciences' requirements for a Master of Science Degree.

Another example of the GSN's continuous response to the Services occurred when the 1995 GSN graduates and their uniformed supervisors recommended the inclusion of training for such requirements as suturing, basic laboratory testing, and triage. The GSN faculty agreed and incorporated those procedures into the appropriate GSN courses. The graduates from the Department of Nurse Practitioners also recommended the addition of Anatomy and Cell Biology into the curriculum, which occurred during 1999. And, with the recommendation of the GSN students and faculty, during 2000, objective clinical examinations using simulated patients were implemented throughout the core courses in both of the GSN Departments.

Development of a Clinical Nurse Specialist Program.

Background. The first Clinical Nurse Specialist Program was established in 1954 at Rutgers University; it was designed to prepare nurses at the Master Degree level who would be dedicated to improving patient and family care in the face of significant technologic advances in cardiac and pulmonary surgery. Early Clinical Nurse Specialists were known by a variety of titles, including nurse clinician, clinical associate, liaison nurse, clinical supervisor, and clinical nurse specialist. By 1970, the core function of the role of the Clinical Nurse Specialist was identified as a graduate-prepared nurse who was able to: 1) assess the nursing needs of patients and develop nursing care plans based on the knowledge of nursing, medical,

biological, and social sciences and generally direct the provision of nursing care in the patient unit; 2) consult with others, as needed, and make appropriate use of available administrative and organizational channels in support and maintenance of nursing performance; 3) establish and evaluate standards of clinical nursing practice in a unit; 4) teach patients and nursing staff on a unit how to improve clinical outcomes; and, 5) introduce nursing practice innovations and refine nursing procedures and techniques and investigate specific nursing practice problems. Today, there are approximately 58,000 clinical nurse specialists in the United States. They provide care in a variety of clinical specialties in both in-patient and out-patient settings. According to the Division of Nursing, National Sample Survey of Registered Nurses, Clinical Nurse Specialists employment breaks down as follows: **50.3 percent - Hospitals** (24.4 percent have no direct patient care and work primarily in staff development and administration; 46.6 percent work as part of in-patient units; 19.1 percent work as part of out-patient units; and, 9.8 percent work in 'other patient care areas'); **19.5 percent - Nursing Education; 13.4 percent - Community Health; 9.5 percent - Ambulatory Care**; and, **7.3 percent - Other** (Private Industry, Pharmaceuticals, etc.).

In June of 2001, a need for a Clinical Nurse Specialist (CNS) Program was identified by the Federal Nursing Chiefs. A feasibility study and the development of a pilot program have been completed and accepted by the Federal Nursing Chiefs.

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Advanced Nursing Education in a Joint Service Environment. GSN Students are provided military unique education in the joint service environment of the University which includes the Army, Navy, Air Force, and the United States Public Health Service (USPHS). Graduates are prepared to deliver care in a wide variety of settings and communities, both nationally and internationally. GSN graduates are equipped to contribute to the Uniformed Services' peacetime health care delivery systems and to provide military and public health support during combat operations, civil disasters, and humanitarian missions. They may serve in clinics, hospitals, and in the combat zone of a theater of operations under austere and harsh conditions, at sea on ships of war, or in isolated areas of the United States and other countries lacking in health care providers. The major emphasis is on the nursing perspective of health promotion and disease prevention within the context of primary care in the uniformed health care systems as determined by the Federal Nursing Chiefs.

The GSN faculty and staff believe that the placement of the GSN within the interdisciplinary boundaries of the University is a distinct strength. The QuadService environment of the USU offers a unique blend of interactive didactic and clinical experiences which support the preparation of competent advanced practice nurses for service to the Nation during international conflict, in peacetime, and wherever humanitarian services and support for disaster relief are required. Clinical practice sites include: 19 military treatment centers (MTFs); and, 41 non-DoD, Federal, and civilian hospitals and primary care health care clinics generally located in the Washington, D.C. area.

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GSN Students Understand the Structure of a Joint Environment. To meet the readiness requirements of the Military Health System (MHS), it is essential that professional health care officers are familiar with the structure of a joint environment. Under the leadership of the USU Brigade Commander and the GSN Commandant, the uniformed students, faculty, and staff assigned and reporting to the GSN

must participate in all activities and events as they would in any other command of the Uniformed Services. Regular military formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed; and, uniformed personnel in the GSN are trained in the appropriate uniformed programs and customs. The students of the GSN participate in joint-service educational experiences throughout their Masters Degree Programs and, as a result, they become familiar with the regulations, procedures, and vocabularies of the QuadServices' health care programs. The GSN Commandant provides mentorship and guidance related to leadership, military customs and traditions, administrative requirements, and protocols to all of the uniformed officers enrolled in the GSN.

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Medical Readiness Training. There are 54 uniformed officers currently enrolled on campus in the GSN (26 in the Department of Nurse Practitioners; 2 in the Post Master Nurse Practitioners Program; and, 26 in the Department of Nurse Anesthesia). These 54 commissioned officers represent the Services as follows: Army - 30; Navy - 5; Air Force - 16; and, Public Health Service - 3. The GSN students receive operational medicine and military relevant material and training in their academic courses throughout the GSN curriculum; as such, readiness is identified as one of the GSN's outcome goals. The GSN program of study is designed to: prepare students to adapt readily to changes in individual and environmental health care demands; provide safe care under austere conditions; and, be flexible in caring for patients with unusual clinical presentations through the use of available resources. The program of study for the students has evolved to include additional clinical hours to prepare the GSN graduates for an immediate transition to work settings in either fixed facilities or deployed environments. There is also a one-week, Operational Readiness Course totally devoted to readiness-related issues and associated clinical problems. In April of 2001, students completed a two-day course on Humanitarian Assistance; the Medical Humanitarian Assistance Course is designed to prepare advanced practice nurses who deploy in support of disaster relief and humanitarian missions. Guest speakers, who are experts in their fields, present information on the Federal Emergency Management Agency, Non-Governmental Organizations, chemical-biological warfare, ethics, and epidemiology. Emergency conditions, such as natural disasters, usually involve a humanitarian component and require the commitment of our military forces, often under austere conditions. For advanced practice nurses, the question is not if they will deploy, but when and where. This readiness component of the GSN curriculum was developed and presented prior to the events of September 11, 2001. The course is scheduled during May of 2002 with additional content on bioterrorism.

For the past two years, GSN students and faculty have joined the School of Medicine students and faculty in a tour of the Antietam Battlefield. **The GSN Commandant, Lieutenant Colonel Karen Gausman, AN, USA,** dressed in period costume as Clara Barton, participated in presentations to the GSN and SOM students who received instruction on the medical aspects of a major land battle, including leadership and military traditions. In addition, a tour of the USN Comfort, the United States Naval Hospital Ship, provided faculty and students a better understanding of the Navy's capabilities while deployed at sea.

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STUDENT AFFAIRS

To the staff and faculty of the Graduate School of Nursing, simple words of thanks are not enough to express our gratitude for the education you have provided us. You gave us the knowledge to be successful and the clinical experiences needed to be more than competent.

We leave here ready to return to our services, which are increasingly engaged in a war against terrorism. We are told it will be a long and hard fought battle. Today, I submit to you that as health professionals, we are at war, fighting illness and disease. Our mission is always the same, caring for patients. It is only the location and resources that differ. Our battlefield is not limited to deserts or mountain ranges, it includes the clinics, laboratories, and operating rooms in which we work. The Uniformed Services and the taxpayers should be proud of our University. It has trained us to be effective officers, Soldiers, Sailors, and Airmen who are ready to care for those in harm's way, on any battlefield, here or abroad.

We leave here faced with a nationwide nursing shortage. In a recent newsletter to Army Nurse Corps officers, we were told that we are all responsible for recruiting new nurses. Today, I extend that invitation to everyone. We need to be recruiters and educate the public about the dynamic scope of the nursing profession. Advanced practice nurses will play an important role in the future of the nursing profession. We have the unique ability and opportunity to educate the public about the important role nurses have in clinical practice, administration, education, and research.

Finally, I would like to express our gratitude to Doctor Abdellah, the founding Dean of the Graduate School of Nursing. Thank you for your leadership in planning and organizing the GSN over the past nine years. Your vision of a premier school is becoming a reality. From the report of our recent accreditation visit, we are "a model for all graduate schools of nursing." We wish you well in your retirement.

- **Captain Curtis J. Aberle, AN, USA, President, GSN Class of 2002**, Farewell Address, May 18, 2002.

The Selection Process. A commitment to the Nation must be evidenced in an applicant's decision to attend the GSN. The GSN Admissions Committee makes the final determination regarding admission to the GSN with the concurrence of the Dean. The membership of the Admissions Committee is different from those at other schools of nursing. In addition to members of the GSN faculty, the Committee has representatives from each of the Uniformed Services and faculty from the School of Medicine.

The applicant pool is unique. The Army, Navy, Air Force, and United States Public Health Service select and approve candidates for application to the GSN according to the criteria of each Service. Once applicants have been selected by their specific Service, they may then apply to the GSN. The Admissions Committee of the GSN reviews the applicants' records not only on the basis of academic merit, which shows that the applicants can succeed in a graduate program, but also on the basis of officership and commitment to their particular Branch of the Uniformed Services. Academic aptitude is balanced against the evidence of

future officership and continuing commitment to service in the Uniformed Services. The candidates nominated and selected by the Uniformed Services have had grade point averages of between 3.2 and 4.0 in their Baccalaureate Programs; they have also had an average of between eight to twelve years of active duty in the Uniformed Services. Annually, the GSN reviews approximately 75 applicants and admits between 25 to 37 students. GSN students are full time and retain their rank as officers. To sustain the GSN's high graduation rate, incoming students receive instruction on time management and test taking skills. Committed faculty promote student retention with both didactic and lab review sessions. And, significantly, the Federal Nursing Chiefs have continued to demonstrate their tremendous support for the GSN by sending exceptional students to the University.

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Class of 2003. The USU GSN welcomed the Class of 2003, 27 active duty officers, during June of 2001. Fourteen officers were enrolled in the Department of Nurse Practitioners Class of 2003, bringing the enrollment of the two DNP classes (First and Second Year), to a total of 26 students. Thirteen uniformed officers were enrolled in the Department of Nurse Anesthesia Class of 2003, bringing the enrollment of the two DNA classes (First and Second Year) to a total of 26 students.

Of the 27 uniformed officers enrolled as First-Year GSN students: 15 are members of the Army; 2 are members of the Navy; 9 are members of the Air Force; and, 1 is a member of the Public Health Service. The GSN students range in grade from 0-2 to 0-6 with the majority at the 0-3 level. The students will pay back two to three years for each year of education received at the GSN, depending upon their individual Branch of Service.

During June of 2001, the GSN also enrolled 2 commissioned Army officers into the resident, one-year, Post-Master Family Nurse Practitioners Program established to retrain advanced practice nurses in a specialty required by the Uniformed Services.

Response of GSN Students Following the Terrorist Attacks of September 11, 2001. **Captain Joseph Candelario, AN, USA, GSN Class of 2003,** a nurse practitioner student in practicum at Fort McNair, traveled to the Pentagon with a team of enlisted soldiers to provide assistance following the attack at the Pentagon on September 11, 2001. Recognizing that sufficient medical resources were on hand, he and his team supported the search and rescue efforts, assisting in the evacuation of six walking casualties. That same day, **Captain Michelle Williams, AN, USA, GSN Class of 2003,** a nurse practitioner student in practicum at the Walter Reed Army Medical Center (WRAMC), supported a team dispatched from the WRAMC Emergency Room to the Pentagon. Captain Williams aided in the triage and evacuation of patients. In addition, a nurse practitioner student, **Captain Ilse Alumbaugh, AN, USA, GSN Class of 2003,** was beginning her first day of rounds at the Navy Annex in Arlington, Virginia, near the Pentagon, when she heard Flight 77 roar overhead. Racing outside, Captain Alumbaugh and other medical staffers could see the Pentagon in flames; they stayed at the clinic to await patients. Along with fellow nurse practitioner student, **Captain Lisa Ford, AN, USA, GSN Class of 2003,** Captain Alumbaugh helped treat several patients, including one who suffered burns on his back, legs, and arms; and, another who fell through two floors which had collapsed under him. Both students assisted in establishing a receiving area; a total of three casualties were treated and then later evacuated to local hospitals.

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Development and Functions of the Student Advisory Council - A Strong Avenue of Communication.

Background. Beginning in October of 1998 and continuing throughout 2001, the GSN students, faculty, and staff, in coordination with the Federal Nursing Chiefs and the Office of Student Affairs, School of Medicine, worked to develop and implement a Student Advisory Council. The Student Advisory Council was initially established during 1998 to: 1) advise the Dean, GSN, on matters of student interest and concern; 2) provide an active and visible means for the student body to communicate directly with the Dean; and, 3) serve as a process improvement mechanism and a forum for addressing student issues.

The Student Advisory Council (SAC) is an independent entity which exists to represent the GSN student body; it is not an element of the military rating chain, nor an extension of the administration. It serves as a line of communication between the student body and the administration of the GSN. The Council is designed to discuss student issues which arise across class boundaries and to provide a student body consensus which may then be communicated to the Dean, GSN, and other responsible school officials. The Council also serves to facilitate the transfer of information on matters or problems common to each student class or group of students.

Composition. The GSN Student Advisory Council consists of the student president, secretary, one SAC representative from each graduate nursing program class (thus 2 per program), and one SAC representative from the Post-Master (PM) Nurse Practitioner Program. All members of the SAC are voting members. In addition, the Dean, GSN, may appoint two graduates, one from each program, who will represent the GSN alumni as non-voting members. The president of the SAC will ordinarily be the second-year class president.

The Dean also appoints an advisor to guide and assist the Council; however, the advisor may not be in the military rating chain and must hold a relatively neutral faculty or staff position. The faculty advisor may be chosen from the GSN, the School of Medicine, or another area within the University.

Functions of the Council. The Student Advisory Council meets six times during the academic year, or more frequently as required. Decisions on any issue discussed at a meeting require a majority vote of the attending members. Matters discussed and decided by vote at the SAC are binding and represent the "official" student position in discussions with the faculty and administrative officials. The student president prepares meeting agendas from input provided by other SAC members, conducts the meetings, and coordinates discussions and votes to establish a consensus of the student body. The SAC representatives act as advocates for the students in academic matters. They also act as a liaison between students and academic departments and serve as the communication link for the students on such matters as changes in the academic schedule, rooms, etc. SAC representatives are responsible for writing an After Action Report at the conclusion of each academic semester. This report is a summary of student comments and feedback about each course, including faculty, books, and materials within each program. The SAC Faculty Advisor assists and advises each class on the functions and responsibilities of the SAC, and works with the GSN Commandant to ensure that class elections of officers and academic representatives are completed on schedule each academic year. Issues recently addressed by the SAC include schedules, communication, clinical sites,

and the use of class funds. Based upon its activities during 2001, the Student Advisory Council is serving as an excellent forum to ensure faculty/student involvement, communication, and on-going curriculum improvements.

GSN ALUMNI

September 11, 2001. What began as a routine day, suddenly turned into chaos as American Airlines Flight 77 slammed into the Pentagon at more than 500 miles per hour. In the absence of the Commander of the Pentagon Clinic, Major Bridget Larew, GSN Nurse Practitioner Class of 1998 and Chief of Primary Care, directed the efforts of the DiLorenzo Clinic staff.

When the plane hit, Major Larew, a 16-year Air Force veteran, and the clinic's chief nurse went into action. Major Larew and staff initially had to evacuate patients already in the clinic, even as people injured from the crash began arriving. Some had serious burns. Most people, those with less serious injuries, were examined at triage sites which Major Larew set up outside. After the medical teams had relocated to the Pentagon's center courtyard, Major Larew was responsible for establishing communications and ensuring availability of medical supplies. In addition to treating the injured, they administered IV solutions to the firefighters to ensure they did not suffer from dehydration while fighting the fire. It was past 8 p.m., when Larew finally left the Pentagon.

Because of the events of September 11th, the very nature of her mission changed from serving in a primary care clinic to serving as a first responder in a high value target. Weeks after the attack, there was still work to be done in the fight against terrorism as the Pentagon medical teams screened more than 1,000 workers for anthrax. And, exactly one month after the attack, Major Larew's team provided support for a memorial service attended by more than 20,000 people. Major Larew worked 12-hour shifts until Thanksgiving.

- Excerpts from a special issue of USU Medicine, Winter, 2002, pages 11-13.

Graduate Profile. The GSN has 157 uniformed graduates: Army - 28; Navy - 12; Air Force - 105; and, Public Health Service - 12. Seventy uniformed officers have graduated from the Department of Nurse Practitioners; eighty-seven uniformed officers have graduated from the Department of Nurse Anesthesia. All graduates receive a Master of Science in Nursing (MSN) Degree from the University. As of April 2002, 152 GSN graduates remain on active duty in their individual Services. The GSN alumni do not have a formal residency requirement so they go directly into clinical practice, consistent with the credentialing guidelines at the individual health care facilities. The GSN alumni can expect to serve at least one tour as practitioners or anesthetists before being considered for assignments in any other role. The GSN alumni have three career tracks: clinical, administrative, and research. There are a number of "nontraditional" and operational assignments available as well; only a limited number of alumni would be expected to pursue those assignments. New avenues for command and staff positions are continuously opening for advanced practice nurses. It is expected that the GSN alumni will continue to be recognized and rewarded for their outstanding performance with career assignments of ever-increasing responsibility. The immediate measurable standard of success for the GSN alumni is the passing of the National Certification Examinations. 156 graduates have passed the National Certification Examination; 97.3 percent have passed on their initial examination at the upper percentile. Another short term measure is the graduate's successful performance as an advanced practice nurse as determined by the immediate supervisor. Members of the GSN Department

of Nursing Research, the Evaluation Committee, and faculty representatives from the Departments of Nurse Practitioners and Nurse Anesthesia have designed and implemented tools to effectively measure alumni performance and to provide reports on such to the Dean, GSN, and to the Federal Nursing Chiefs. These assessment activities resulted in the publication of the GSN Evaluation Manual, in November of 2000; use of the additional tools found in the manual enable the timely completion of course, end-of-first-year, and end-of-second-year evaluations. The GSN Evaluation Committee Policy and Precedent Statement #95-07 was also amended on November 21, 2000, to ensure that outcomes of the GSN, both short and long range, are included in the content of all evaluation tools. Reviews of these reports by the GSN and the Federal Nursing Chiefs ensure that the GSN curriculum is meeting the requirements of the Uniformed Services.

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GSN Class of 1998.

Major Terry McManus, USAF, NC, CRNP, was previously stationed at the United States Air Force Academy in Colorado Springs, Colorado. Major McManus was assigned as a Family Nurse Practitioner in the Family Practice Clinic, during which time he became certified in flexible sigmoidoscopies, and began a doctoral program in Health and Behavioral Sciences at the University of Colorado. In 2001, Major McManus was designated as the Element Chief at the McClellan Air Force Base in California. In this capacity, Major McManus oversees the care of 6,200 impaneled patients and supervises a physician assistant and two physicians. This assignment is most unusual because the Family Practice Clinic is housed in a Department of Veterans Affairs hospital designating a true VA/DoD partnership in health care.

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GSN Class of 2001.

Captain Beverly Morgan, AN, USA, CRNP, graduate of the GSN Family Nurse Practitioner Program, was reassigned to Evans USAMEDDAC, Fort Carson, Colorado. She is published in the December 2001 issue of Military Medicine; her manuscript is titled, "Evaluations of an Educational Intervention for Military Tobacco Users."

Captain Wendy Murray, USAF, NC, CNRP, graduate of the GSN Family Nurse Practitioner Program, is assigned to Holloman Air Force Base, New Mexico. Captain Murray has an article published in Nurse Practitioner Forum titled, "Decreased Libido in PostMenopausal Women."

Major Cherri Shireman, USAF, NC, CRNP, graduate of the GSN Family Nurse Practitioner Program, was awarded a $200,000 TriService Nursing Research Grant for her proposal titled "Medroxyprogesterone Acetate and Bone Density in Adolescents." The purpose of this research is to determine if the use of MDPA in the adolescent and young active duty female affects the bone remodeling cycle. Major Shireman is currently stationed at the Little Rock Air Force Base in Jacksonville, Arkansas.

GSN Class of 2001 Outstanding Student Awards.

Department of Nurse Practitioners Outstanding Student Award. **Major Kimberly Shanks, USAF, NC,** distinguished herself as a student in the Nurse Practitioner Program of the Graduate School of Nursing. This award recognizes that Major Shanks employed a sound scientific foundation, an inquiring mind, and a collaborative approach to the comprehensive care of her patients; and, she demonstrated personal initiative, perseverance, and outstanding characteristics throughout her academic endeavors at USU.

Department of Nurse Practitioners Academic Performance Award. **Major Jen-Jen Chen, USAF, NC,** received the Distinguished Academic Performance Award for the Nurse Practitioner Program, which recognizes the graduating student having the most outstanding academic proficiency in a nursing program.

Department of Nurse Practitioners Distinguished Clinical Performance Award. **Captain Beverly Morgan, AN, USA,** received the Distinguished Clinical Performance Award, Nurse Practitioner Program, which recognizes the graduating student having the most outstanding clinical proficiency in a nursing program.

Department of Nurse Practitioners Esprit de Corps Award. **Captain Susan Alexander, USAF, NC,** was selected to receive the Esprit de Corps Award for the Department of Nurse Practitioners. The Esprit de Corps Award recognizes the graduating student from the Department of Nurse Practitioners who by thought, word, action, and deed, demonstrates sensitive humanistic qualities for the well being of all. By example, the recipient has inspired all of her classmates to enjoy their camaraderie, their profession, and their commitment to a life of service to mankind.

Department of Nurse Anesthesia Presents the Agatha Hodgins Award. **Captain Geoffrey Kuzmich, USAF, NC,** was selected by the Department of Nurse Anesthesia to receive the Agatha Hodgins Award. The award, established in 1975, recognizes a graduating nurse anesthesia student for outstanding accomplishments in both the classroom and clinical arenas of nurse anesthesia education. The recipient's dedication to excellence has furthered the art and science of nurse anesthesia. The award was established in honor of Agatha Cobourg Hodgins (1877-1945), founder and first president of the National Association of Nurse Anesthetists. This organization was later renamed the American Association of Nurse Anesthetists. Miss Hodgins and Dr. George Crile pioneered the first known nurse anesthesia school and hospital service at Lakeside Hospital in Cleveland, Ohio. During World War I, Miss Hodgins trained nurse anesthetists for military service. She also assisted with the development of the early anesthesia machines and later with the perfection of anesthesia techniques still in use today.

Department of Nurse Anesthesia Esprit de Corps Award. **Captain Robert Smith, USAF, NC,** was selected to receive the Esprit de Corps Award for the Department of Nurse Anesthesia. The Esprit de Corps Award recognizes the graduating nurse anesthetist student who by thought, word, action, and deed, demonstrates sensitive humanistic qualities for the well being of all. By example, the recipient has inspired all of his classmates to enjoy their camaraderie, their profession, and their commitment to a life of service to mankind.

Dean's Awards for Research Excellence. **Captain Susan Lee, USAF, NC,** received the Dean's Award for Research Excellence, Nurse Practitioner Program. **Captain Renee Sale, USAF, NC,** received the Dean's Award for Research Excellence, Nurse Anesthesia Program. These awards recognized the graduating students demonstrating the most outstanding proficiency in nursing research.

First-Year Outstanding Student Awards. The Department of Nurse Practitioners selected **Captain Andrew Powell, AN, USA,** to receive the First-Year Outstanding Student Award. The Department of Nurse Anesthesia recognized **Captain Mary Jo Burleigh, USAF, NC,** as the recipient of the First-Year Outstanding Student Award for 2001.

Two GSN Graduates Are Recognized by Who's Who Among Students in American Universities and Colleges. **Lieutenant Commander Susan Orsega, USPHS,** Department of Nurse Practitioners and **Captain Mary Francis Mullins, USAF, NC,** Department of Nurse Anesthesia, were recognized by Who's Who Among Students in American Universities and Colleges upon their graduation from the GSN.

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FACULTY

Composition. The Graduate School of Nursing has 18 full time faculty: nine civilians and nine uniformed officers. There are 75 off-campus faculty: 34 civilians, and 41 uniformed officers who assist in the programs of the GSN.

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Selected Profiles of Graduate School of Nursing Faculty.

Faye Glenn Abdellah, nurse, educator, researcher, and internationally recognized leader, you have devoted your extraordinary professional career to ensuring quality health care for the Uniformed Services and our Nation. As the first nurse to hold the rank of Rear Admiral (Upper Half) and the title of Deputy Surgeon General of the United States, your incredible leadership abilities have resulted in truly remarkable accomplishments: the development of the first tested coronary care unit which saved thousands of lives; 87 professional and academic honors and eleven honorary degrees, all recognizing your innovative work in nursing research and health care; and, the authorship, or co-authorship, of 152 publications, some translated into six languages, which have altered nursing theory and practice. As a renowned expert in health policies related to long-term care, mental retardation, the developmentally disabled, aging, hospice, and AIDS, your pioneering contributions have improved our Nation's health. Your wisdom, knowledge, judgement, leadership skills, integrity, and dedication have led to the successful founding of the Graduate School of Nursing (GSN), now described as a model in advanced nursing education, practice, and scholarship. The GSN, recently re-accredited and recognized as a cutting-edge program, has already graduated almost 200 uniquely qualified and certified advanced practice nurses for the Uniformed Services. In recognition, we take great pride in awarding you the Degree of Doctor of Science in Military Nursing, *Honoris Causa.*

- Citation for the USU Doctor of Science in Military Nursing, presented to Dean Abdellah on May 18, 2002.

GSN Dean Is Recognized for Advancing the Field of Women's Health Care. Faye G. Abdellah, RN, Ed.D., Sc.D., FAAN, Professor and Dean, Graduate School of Nursing, received the Breaking Ground in Women's Health Honors Award on April 30, 2001, in Chicago, Illinois. The award recognizes women who have distinguished themselves as leaders and innovators in the advancement of women's health. The presentation, which occurred in conjunction with the 50th Anniversary of the American College of Obstetricians and Gynecologists, featured a display of the achievements of Dean Abdellah and seven other women who have significantly impacted the field of women's health care in the late 19th and 20th Centuries. The President of Wyeth Women's Health Care stated the following: "We are proud to pay tribute to Rear Admiral Abdellah; she has established the standard for dedication to women's health and set an example for others to emulate." Wyeth-Ayerst Laboratories, a division of American Home Products Corporation, is a major research-oriented pharmaceutical company with leading products in the areas of women's health care, car-

diovascular therapies, central nervous system drugs, musculoskeletal therapies, infectious disease, hemophilia, oncology, vaccines, and generic pharmaceuticals. As a leader in women's health care, the company is committed to improving health care options available to women through on-going research efforts and patient education programs. In addition, Dean Abdellah was also selected as a candidate to, and inducted into membership in, The Douglass Society, Douglass College, Rutgers University, at New Brunswick, New Jersey, on April 10, 2002. Dean Abdellah was selected to receive this honor which is reserved for only the most distinguished graduates of Douglass College because of her outstanding achievements, among them being a pioneer in nursing research and long-term care policy, home health services, aging, and hospice services, as well as her leadership as the Dean of the GSN. On May 17, 2002, the USU Board of Regents also approved and conferred the honorable appointment of *Dean Emerita of the Graduate School of Nursing* for Dean Abdellah.

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Outstanding Uniformed Faculty Award. Lieutenant Colonel Richard Ricciardi, MSN, CRNP, AN, USA, Assistant Professor, Department of Nurse Practitioners, was selected by the GSN students to receive the Uniformed Faculty Award at the May 2001 Graduation. The GSN students chose Lieutenant Colonel Ricciardi as the uniformed faculty educator who exemplified the highest qualities of a graduate nursing educator by personal example and performance.

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Outstanding Civilian Faculty Award. Susanne Gibbons, RN, ANP, Assistant Professor, Department of Nurse Practitioners, was selected by the GSN students to receive the Civilian Faculty Award at the May 2001 Graduation. The GSN students selected Ms. Gibbons as the civilian faculty educator who displayed the highest qualities of a graduate nursing educator by personal example and performance.

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GSN Associate Dean Serves as the Ethics Consultant to the Air Force Surgeon General. Throughout 2001, **Colonel Martha Turner, USAF, NC, RN, CNAA, BC, Ph.D., Associate Dean, Graduate School of Nursing**, continued her activities as the Ethics Consultant to the Air Force Surgeon General and as a member of the TriService Nursing Research Advisory Council. Following the terrorist attacks on September 11th, Colonel Turner volunteered at the Pentagon Family Support Center organizing the efforts of over 400 volunteers to staff the center, twenty-four hours a day, seven days a week; she continued working on evenings and weekends until regularly assigned staff was in place. The Oncology Nurse Society nominated Colonel Turner to the United States President's Council on Bioethics; and, she continued her work with the Minnesota Nurses Association Ethics Council lecturing on the Ethical Perspectives of a successful pain management program. Colonel Turner also developed position statements on nursing practice issues which have been adapted for use throughout Minnesota. Opportunities for ethics consultation with the DoD Pharmacoeconomic Center have had worldwide influence on the Formularies used in DoD health care facilities. On-going projects at the GSN included program development, faculty development, and strategic planning.

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Nursing Residents Rescued Through the Heroism of GSN Faculty Members. Captain Cynthia Cappello, MS, CRNA, NC, USN, Assistant Professor, GSN Department of Nurse Anesthesia, and Major Lisa Petty, MS, CRNA, AN, USA, Assistant Professor, GSN Department of Nurse Anesthesia received Joint Service Achievement Medals for their heroic actions on July 21, 2001. Captain Cappello and Major Petty assisted in the evacuation and management of residents at the Randolph Hill Nursing Center in Wheaton, Maryland. Following an explosion of a generator located behind the nursing center, flames were shooting in the air up to 30 feet. Captain Cappello and Major Petty left their car and entered the smoke-filled building. While a state of panic permeated the air, Captain Cappello and Major Petty took charge of the evacuation efforts prior to the arrival of the emergency response team. They located wheel chairs, lifted bed-ridden residents and assisted in the evacuation of between 50 and 60 residents. True professionals, Captain Cappello and Major Petty remained with the residents until they were able to return to the building and their rooms. Their distinctive service was recognized in an award ceremony on the USU campus.

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Department Chair Uses Both Qualitative and Quantitative Approaches in Research Projects. Barbara M. Sylvia, Ph.D., RN, Professor and Chair, GSN Department of Nursing Research, is currently involved in several funded research projects. As the principal investigator on a USU intramurally funded project, she is extending her work on prenatal care for military women from an earlier project funded by the TriService Nursing Research Program on which she was a co-investigator. Dr. Sylvia is examining and comparing prenatal care within the continental United States (CONUS) versus Outside CONUS (OCONUS) military women. Using both qualitative and quantitative approaches, she is examining prenatal care from the perspectives of both the recipients and the providers. She is also currently a co-investigator on a project funded by the TriService Nursing Research Program to compare the effects of two methods of diabetes care on glycemic control. This past year, Dr. Sylvia has published two research articles: "Prenatal Care-Needs, Availability, Accessibility, Use and Satisfaction: A Comparison of Military Women Within and Outside of the Continental United States" in Military Medicine; and, "Exploration of Facilitators and Barriers to Prenatal Care Among Military Women" in Nurse Practitioner Forum.

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GSN Faculty Member Is a Co-Investigator on Two Studies Funded by the TriService Nursing Research Program. Janet Agazio, Ph.D., CRNP, Assistant Professor, GSN Department of Nursing Research, is currently involved in several funded research projects. She is a co-investigator on two studies funded through the TriService Nursing Research Program. One of these studies, "E-Mail as a Communication Tool in Army Nursing Management," will increase the understanding of issues concerning the effective use of computer-mediated communication by nurses at the middle management level. The other study, "Ethical Issues in the Department of the Army Nursing Practice," will provide information about the ethical issues experienced in the workplace by military and civilian registered nurses and provide information regarding ethical education requirements. Dr. Agazio is completing an analysis on one unfunded study, "Health Promotion in Military Women." This past year, Dr. Agazio published two research articles: "Through the Eyes of the Medic: Operation Desert Storm" in the U.S. Army Medical Department Journal; and, "Health Promotion in Active Duty Women with Children" in Women and Health. In addition, she co-authored two

other research papers accepted for publication this year: "Ethics and Computer Mediated Communication" to be published in the Journal of Nursing Administration; and, "Active and Passive Smoking in Active Duty Women" to be published in Military Medicine. Two other manuscripts are currently in review at Military Medicine.

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GSN Professor Inducted as an Honorary Member of the International Honor Society of Nursing. Eugene Levine, Ph.D., Professor, GSN Department of Nursing Research, is a biostatistician in the GSN Department of Nursing Research. Dr. Levine was inducted as an honorary member of the International Honor Society of Nursing, Sigma Theta Tau, on November 14, 2001, in Indianapolis, Indiana. Dr. Levine was recognized for his "exemplary humanitarianism and contributions to the health and well being of others." Many of his accomplishments were as the co-author with Dr. Faye G. Abdellah of seminal texts and articles in nursing research. He was welcomed into the global family of nurses and friends of nursing.

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A New Chair Is Selected for the Department of Nurse Anesthesia. Lieutenant Colonel Paul Austin, USAF, NC, CRNA, Ph.D., joined the GSN as the Chair of the Department of Nurse Anesthesia in the Fall of 2001. He received his Master of Science in Nursing from the State University at Buffalo, New York, and a Ph.D. from the University of Cincinnati, Ohio. After becoming a CRNA in 1985, he worked at the USAF Medical Center at Scott Air Force Base, Illinois. Lieutenant Colonel Austin also taught and was a program director for the United States Air Force Nurse Anesthesia Program. His dissertation on pulmonary mechanics and mechanical ventilation included work on breathing and ventilator failure. He continues to investigate the use of ventilators under adverse conditions. His work has been published in Military Medicine, Resuscitation, the AANA Journal, and Anesthesia Today.

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The GSN Selects Faculty Member as the New Chair for the Department of Nurse Practitioners. Patricia C. McMullen, J.D., M.S., CNS, CRNP, Associate Professor, was appointed as the Chair of the Department of Nurse Practitioners in February of 2002. In addition to her leadership in the GSN, she was the guest editor for two editions of Nurse Practitioner Forum; and, she has had multiple articles published in that journal as well as in Military Medicine. Dr. McMullen also provided many presentations, most recently at the George Mason University School of Nursing. Dr. McMullen's research works in progress include "Violence in Adolescence and Prenatal Care Needs in Military Women."

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GSN Is Assigned Its First Full Time Commandant. Lieutenant Colonel Karen Gausman, MSN, AN, USA, Assistant Professor, Department of Nursing Research, was selected as the first officer to be assigned as a full time Commandant to the GSN. Lieutenant Colonel Gausman is a graduate of George Mason University, with a Master of Science Degree in Nursing. With command responsibility for officers of all four Uniformed Services, she is responsible to the Dean for all military matters involving students. While in the position, she led a group of GSN students in preparing for, and completing, the "Army Ten

Miler." Supporting the unique military curriculum of the GSN, Lieutenant Colonel Gausman coordinated the GSN student participation in a tour of the USNS Comfort and a lecture tour of the Antietam Battlefield. In 2001, Lieutenant Colonel Gausman completed the Joint Operations Medical Managers' Course and was awarded Board Certification by the American Nurses Credentialing Center in Nursing Administration, Advanced.

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Chair of the GSN Faculty Council Provides Faculty Representation and Performs Heroic Services at the Maryland Campus. Lieutenant Colonel Richard Ricciardi, AN, USA, PNP, Assistant Professor, Department of Nurse Practitioners, and Chair of the Faculty Council, provided significant representation for the GSN faculty during 2001. In addition to receiving the Outstanding Uniformed Faculty Award for 2001, as mentioned above, numerous activities completed by Lieutenant Colonel Ricciardi included the following: active membership on the Dean's Council, the GSN Accreditation Committee, and the Search Committees for the Chairs of both the Departments of Nurse Practitioners and Nurse Anesthesia; chairmanship of a Search Committee for a faculty position in the Department of Nurse Practitioners; and, representation of the GSN faculty during a visit by the consultant for the Middle States Commission on Higher Education. Lieutenant Colonel Ricciardi also served as the Treasurer on the Executive Board of the National Association of Pediatric Nurse Practitioners. In addition, he authored a chapter in a review text published by the American Nurses Credentialing Center and a chapter in a textbook on telephone triage published by Lippincott. Lieutenant Colonel Ricciardi also represented the GSN as a consultant during a meeting of the International Nursing Coalition for Mass Casualty Education (INCMCE). The INCMCE was established to facilitate the systematic development of policies related to mass casualty events as they influence the public health infrastructure and impact nursing practice, education, research, and regulation.

Lieutenant Colonel Ricciardi's demonstrated composure under pressure and his nursing expertise and heroism were recognized by a Joint Service Achievement Medal during 2001. The citation for his award described the following: Lieutenant Colonel Richard Ricciardi distinguished himself by exceptionally meritorious service while a member of the USUHS GSN on September 24, 2001. Lieutenant Colonel Ricciardi assisted in the immediate recovery efforts following a tornado which touched down in College Park, Maryland. With electric poles down and "hot" wires covering the street and sidewalks, Lieutenant Colonel Ricciardi assisted people out of their cars and provided basic medical assistance until ambulances arrived on the scene. When the police arrived at his location, they noted that he had rerouted traffic on Route 1 and gave him flairs to set up before they moved on to continue surveying the damage. The distinctive service of Lieutenant Colonel Ricciardi was recognized during an award ceremony at the USU campus.

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Faculty of the Department of Nurse Practitioners Are Published in a Wide Variety of Journals. Over the past year, the faculty of the Department of Nurse Practitioners authored or co-authored a total of 21 articles in a wide variety of journals, to include: Military Medicine, Nurse Practitioner Forum, Journal of Nursing Education, Lippincott's Primary Care Practice, and Medscape. The Faculty also presented at 11 international, national, and/or regional conferences and were principal or co-investigators on three research projects.

THE DEPARTMENT OF NURSE PRACTITIONERS

Background. The first formal training program was established in 1960 to prepare advanced practice pediatric nurses. In 1967, public health nurses received advanced training to care for patients in their homes. Nurses were initially taught to take a full medical history, conduct a comprehensive physical examination, and oversee the use of medications. Eventually, nurse practitioners were performing those activities in the offices of the physicians with whom they worked. In 1977, the Medicare statute was amended to allow nurse practitioners to provide primary care independently in underserved rural areas. Nurse practitioner programs grew quickly; and, the advanced practice nurses found work in hospital-based clinics, providing care to underserved patients. In 1994, the National Advisory Council on Nurse Education and Practice for the Health Resources & Services Administration of the Department of Health and Human Services identified the need to upgrade the knowledge, skills, and abilities of the existing registered nurse work force to match the practice requirements within today's health care systems. Currently, every state gives nurse practitioners some level of pharmaceutical prescribing authority. In 1995, the Institute of Medicine engaged in an inclusive study, "Primary Care: America's Health in a New Era." The study provided the following definition: primary care is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community. Today, through advanced education and training in the science of disease prevention, health promotion, health education, and community and home-based care, the advanced nurse practitioner is recognized as an essential member of the health care team. During 1999, the American Association of Colleges of Nursing also reported that the demand for advanced practice nurses continues to increase. Current demands across the country are for advanced practice nurses who can deliver a high complexity of care across the projected life-span of their patients within an integrated health care system. The significant role of the advanced nurse practitioner within the health care community is recognized. And, the current shortage of advanced practice nurses who are qualified to assess, diagnose, and manage patients in primary care settings has also been confirmed. In light of this, the nursing community is dedicated to ensuring that the existing nurse practitioner programs are of the highest quality and that they meet or exceed all educational standards and credentialing safeguards established by the National Organization of Nurse Practitioner Faculties and the credentialing entities of the National League for Nursing.

Composition of the Department of Nurse Practitioners.

Currently, there are three programs within the Department of Nurse Practitioners. The Department has a total of six full time faculty members: three civilians and three uniformed officers (Army - 1; Air Force - 1; and, Public Health Service - 1).

Master of Science in Nursing Family Nurse Practitioner Program.

The Family Nurse Practitioner (FNP) Program has had seven graduating classes from 1995 through 2001 with a total of 70 graduates; it has grown in numbers of students, faculty, and clinical practice sites. The Program has a total of 26 students and is currently 24 months in length; it includes 58 academic credits with 945 hours of clinical experience. (In June of 1999, the FNP Program was increased from 21 to 24

months to allow for the integration of women's health competencies as recommended by the Federal Nursing Chiefs; the initial 21 month program included 720 hours of clinical experience.) Since its establishment, the FNP Program has identified accredited clinical practice sites and completed memoranda of understanding for those relationships with 15 military treatment facilities to include an additional 26 non-DoD, Federal and civilian clinical sites.

Simulated Patient Experiences. In addition to traditional classroom and clinical activities, the FNP Program has partnered with the National Capital Simulation Center (SimCen) to integrate objective simulated clinical examinations into all major courses. These simulations have proven extremely beneficial on two fronts: they facilitate faculty evaluation of students' mastery of critical clinical skills; and, they permit students to develop and enhance necessary clinical skills in a non-threatening environment. The use of simulated patient experiences begins during the students' initial Health Assessment Course. In this course, students review foundational assessment skills, such as history-taking and the physical examination of all major body systems. Following didactic anatomy lectures and corresponding cadaver laboratories, students receive in-class instruction on the assessment of each of the body systems. They then proceed to the SimCen where they practice their assessments in collaboration with specially trained patient-actors (simulated patients). During these experiences, faculty and peers use one-way mirrors and telemonitors to evaluate each student's performance. After each encounter, peers and faculty provide a critique resulting in immediate and valuable feedback. SimCen experiences are also videotaped so that students and faculty can review them and receive additional instruction and guidance. Over the course of the Program, students are exposed to additional simulation experiences in the form of Objective Simulated Clinical Evaluations (OSCEs) in their adult health, pediatric, women's health and practicum courses. Over time, scenarios become increasingly more complex.

Post-Master Family Nurse Practitioner Certificate Program.

There are also two Army officers enrolled in a resident, one-year Post-Master FNP Program which retrains advanced practice nurses in specialties required by the Services. Currently, within the nurse corps of the Uniformed Services, there has been a move from specialized nurse practitioners toward the family nurse practitioner. Family nurse practitioners are of particular utility in the Uniformed Services because they are able to care for a wider variety of patients than are specialized nurse practitioners. The Post-Master Family Nurse Practitioner Program was established in 1999, to afford specialized nurse practitioners (e.g., pediatric, women's health and adult health) the opportunity to expand their existing skills to manage common chronic and acute health needs throughout the patient's lifespan. This program varies in length from 9 to 12 months, depending on the student's prior education and experience; there are 31 academic credits with 562 hours of clinical experience.

Distance Learning VA/DoD Post-Master Adult Nurse Practitioner Certificate Program. In response to a critical shortage of adult nurse practitioners, in 1996, a survey was made of the 155 Department of Veterans Affairs (VA) Medical Centers. The results indicated that a large number of master-prepared clinical nurse specialists would be interested in enrolling in a post-master adult nurse practitioner certificate program if it were offered via distance education. The USU GSN collaborated with the VA to develop such a distance learning program. To date, 60 individuals have completed the program with a third class of 12

students, located at four sites in the Continental United States, Puerto Rico, and the Virgin Islands, scheduled for graduation in May of 2003. The VA/DoD Distance Learning Program represents a unique venture which utilizes state-of-the-art distance learning technology, including interactive video teleconferencing in the classroom and at the SimCen, and Web-based curriculum. All didactic course work is presented by means of telecommunication modalities. On-site faculty members work closely with the students during their course of study, identifying their strengths and areas requiring improvement. Outcome data from present students, alumni, and employers indicate extremely high levels of satisfaction with the program. Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and health care for veterans. (A detailed description of this program is provided at the end of Section III of this report.)

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The Establishment of a University Distant Education Policy. On November 6, 2001, following extensive coordination, the USU President approved a comprehensive Distant Education Policy, PPM-004-2001, for the University. The guidelines provided in the policy apply to courses and activities initially designed in the distance learning format as well as to courses and activities in which the method of delivery has changed significantly from that approved in the original curriculum proposal leading to the distance learning course, certificate, or degree. Any department or faculty group offering distance education courses is expected to meet the recommendations of the Middle States Association of Colleges and Schools and five other accrediting groups for Distance Education Programs, dated March 23, 2001, and be guided by policies established by the University. The text of these guidelines is made available at *<http://www.wiche.edu/telecom/Article1.htm>* by the Chronicle of Higher Education. The current USU Distant Education Policy includes basic education principles, guidelines on the implementation of those principles, and the responsibilities of all who are involved in distance education at the University.

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Outcome Goals of the Department of Nurse Practitioners. Upon completion of the Family Nurse Practitioner Program, the FNP faculty is committed that their graduates will be confident in the provision of the following skills.

An Inclusive Approach to Health Assessment. Upon graduation, the FNP students will be able to assess the health and developmental status of patients using the appropriate data gathering and health assessment techniques.

Ability to Evaluate Family Systems. Graduates must be able to evaluate family systems to determine individual and family health care needs.

Respect for Cultural Diversity. GSN faculty ensure that their graduates are able to evaluate cultural, economic, and environmental factors which impact family relations, patient behavior, health, and health care delivery.

Individualized and Family Health Strategies. GSN graduates will be provided the necessary expertise to develop and implement, in conjunction with the patient and family, an individual and family health care plan which emphasizes health promotion and disease prevention.

Quality Management of Health Problems. The GSN faculty will assist their students to develop the necessary skills for analyzing and comprehensively managing common acute and chronic health problems.

Utilizing Collaborative Efforts and a Team Approach. GSN graduates will be provided the necessary skills to engage in collegial and collaborative relationships with other health care providers in order to provide optimal delivery of primary care to the patient, family, and community.

Communication Skills in the Health Care Environment. GSN faculty ensure that their students are able to utilize personal skills in communicating with, and, counseling the patient, family, other health team members, and the public.

Understanding the Role of the Nurse Practitioner. Graduates of the GSN will be able to analyze the delivery of patient health services and the role of the Nurse Practitioner within the health care system.

On-Going Appreciation for Self-Development. The GSN faculty are aware of the essential requirement for their students to be able to recognize the critical requirement for personal role development as a Nurse Practitioner.

Ensuring Appreciation for the Role of the Nurse Practitioner. GSN graduates are able to comprehend, develop, promote, and implement the role of the Nurse Practitioner in traditional and non-traditional practice sites.

Understanding and Implementing Research-Based Findings in the Clinical Setting. The GSN faculty ensure that their students are able to recognize the importance of research-based findings and how to utilize those findings as a means of improving patient care.

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Clinical Sites at 15 Military Health Care Centers. The Department of Nurse Practitioners has completed memoranda of understanding (MOUs) for its affiliations with 15 military health care facilities: **Army - (6)** the DeWitt Army Community Hospital, Fort Belvoir, Virginia; the Kimbrough Ambulatory Care Center, Fort Meade, Maryland; the Walter Reed Army Medical Center, Washington, D.C.; Fort Carson Army Community Hospital, Fort Carson, Colorado; the Womack Army Medical Center, Fort Bragg, North Carolina; and the Darnell Army Community Hospital, Fort Hood, Texas; **Navy - (7)** the Annapolis Naval Medical Clinic, Maryland; the National Naval Medical Center, Bethesda, Maryland; the Naval Air Facility Branch

Medical Clinic, Andrews Air Force Base, Maryland; the Quantico Naval Medical Clinic, Quantico Marine Corps Base, Virginia; the Naval Ambulatory Care Center, Groton, Connecticut; the Portsmouth Naval Medical Center, Virginia; and, the Pensacola Naval Hospital, Pensacola Naval Air Station, Florida; **Air Force - (2)** the 1st Medical Group, Langley Air Force Base, Virginia; and, the 60th Medical Group, Travis Air Force Base, California.

Memoranda of Understanding (MOUs) are currently pending approval with two additional military clinical sites: **Air Force - (2)** the 10th Medical Group, Air Force Academy, Colorado Springs, Colorado; and, the 375th Medical Group, Scott Air Force Base, Illinois. In addition, the Department of Nurse Practitioners has affiliations with 26 additional non-DoD, Federal and civilian treatment facilities.

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2000 - 2001 Program Review and Assessment. During 2000 through 2001, the Department of Nurse Practitioners conducted an inclusive review of its entire program and an assessment of the success of its educational program as demonstrated by the Department's graduates.

Program Assessment. To date, a total of 70 nurse practitioner graduates have taken the ANCC National Certification Examination for Family Nurse Practitioners. Sixty-nine out of the 70 graduates, 98.5 percent, have successfully passed the examination on their first attempt (the 1998 National Certification statistics indicate a 76 percent certification pass rate on the first examination). Currently, all 70 graduates are certified. With the assistance of the GSN Department of Nursing Research, assessment surveys were conducted to determine both GSN graduate and supervisor satisfaction with the DNP educational program. The performance of the Nurse Practitioner Alumni was rated as above-average; using a five point scale, supervisors rated the relevancy of the training received by the Nurse Practitioner graduates between 4.2 and 4.8, with 5.0 being the highest possible rating.

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THE DEPARTMENT OF NURSE ANESTHESIA

Background. Nurse anesthetists have faithfully served their Nation during all of its wars and conflicts and at home during times of peace throughout the 20th Century. During the late 1800's, Dr. Charles Mayo appointed Alice Magaw, his nurse anesthetist at St. Mary's Hospital in Rochester, Minnesota, as the "Mother of Anesthesia." She was a talented anesthetist at a time when people from all over the world came to the Mayo treatment center to learn from its physicians and nurses about anesthesia. In fact, the United States Army sent nurses to Dr. Mayo to study anesthesia before the Nation entered World War I.

Nurse Anesthetists provided anesthesia during World War I and served in the Combat Clearing Stations near the front lines in France; they taught French nurses and physicians to do anesthesia, and with the concurrence of British physicians, taught British nurses to provide anesthesia; thereby relieving over 100 physicians to do other medical and surgical work.

During World War II, four nurse anesthetists were among the nurses captured in the Philippines, having provided anesthesia services in the jungles of Bataan and on Corregidor until the ether and other drugs and the food and ammunition ran out. Nurse Anesthetists served with distinction throughout every operational theater in WWII; they were at Anzio, Salerno, on board Navy ships, and went into Normandy with the first hospital.

Nurse anesthetists also served proudly during the Korean War, in Vietnam, Granada, Panama, Somalia, Desert Storm, and other military missions requiring anesthesia capability. Throughout the entire Century, physicians and nurse anesthetists have successfully worked together during times of war, humanitarian operations, and in civilian practice.

Nurse Anesthetists, among the first to incorporate the Harvard Monitoring Standards, consistently follow the philosophy that the nurse anesthetist has a duty to the patient he/she anesthetizes, to stay with the patient and to provide continuous care and monitoring. While most professional certifications for nurses were started in the 1970's, the nurse anesthesia certification program has existed since 1945. Specialty nursing certification has grown significantly over the last two decades. A study conducted by the Nursing Credentialing Research Coalition and released in February of 2000, found that certification has a dramatic impact on the personal, professional, and practice outcomes of certified nurses. Specifically, the study stated that certification is a successful approach to improving patient safety and the overall quality of care. In addition, the practice of anesthesia is much safer today due to the advancing knowledge and technology which allows every one in the operating room, from the surgeon to the nurse anesthetist to the technician, to perform his, or her, job more efficiently.

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Composition of the Department of Nurse Anesthesia. The Department of Nurse Anesthesia currently has a total of six full time faculty members, two civilians and four uniformed officers (Army - 1; Navy - 1; and, Air Force - 2). There are a variety of physicians, nurse anesthetists, and basic scientists who provide expertise for the core content.

The Department of Nurse Anesthesia has had six graduating classes from 1996 through 2001, for a total of 87 graduates. There are 26 students enrolled in the 30-month program which includes 55 academic

credits. Nurse Anesthesia students average 65 clock hours at clinical sites each week; and they complete over 737 anesthetic cases during their program of study.

In October of 2001, 17 students graduated from the Nurse Anesthesia Program. All graduates, save one, from the Class of 2001 have successfully completed the national certification examination for nurse anesthetists and are credentialed to practice in their respective Services. (Four of the individuals graduated from the Distance Learning Program.)

Both Nurse Anesthesia Classes have 13 students. Of the 26 students, sixteen student officers are from the Air Force; five students are Army officers; four are Navy officers; and, one student officer represents the Public Health Service. It is anticipated that the next class will have 20 students.

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Outcome Goals of the Certified Registered Nurse Anesthesia Program. Upon completion of the Nurse Anesthesia Program, the faculty of the Department of Nurse Anesthesia is committed that, either through the oral examination process or actual demonstration on any patient or selected pieces of equipment, the nurse anesthesia graduate will have the ability to:

comply with USU GSN requirements for graduation;

meet, or exceed, Council on Certification of Nurse Anesthetists Case Requirements;

satisfy eligibility requirements to write the Certification Examination;

obtain the academic capability to pass the Certification Examination;

successfully master the Terminal Objectives; and,

be able to meet the mission of the USU Nurse Anesthesia Program.

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Clinical Training at Military Health Care Centers. Clinical training was restructured within the Department of Nurse Anesthesia to ensure that all students are assigned to a military hospital as their primary clinical training site. Currently, students receive an adequate number of cases, a good case mix, and appropriate supervision and evaluation. A clinical coordinator is assigned to each site whose primary responsibility is to oversee student scheduling and to evaluate their progress; this oversight responsibility has increased consistency in the evaluation and scheduling of the rotations. In addition, the site coordinators participate in all faculty meetings, maintain student records, and complete other administrative activities

associated with running the clinical training. **The four primary military clinical training sites are:** 1) the Air Force Medical Center at Wright Patterson Air Force Base, Ohio; 2) the Walter Reed Army Medical Center/National Naval Medical Center (a joint site as is the Anesthesiology Program), in Washington, D.C.; 3) the Naval Medical Center at San Diego, California; and, 4) the Portsmouth Naval Medical Center in Virginia, for Obstetric Anesthesia. It is not possible to obtain all of the required cases at these sites, so Nurse Anesthesia students also rotate to 15 Federal, civilian, and non-DoD health centers to obtain additional experience. Plans are also underway to open a Nurse Anesthesia primary training site at the Keesler Medical Center, Keeseler Air Force Base, Mississippi. This new site is necessary to meet the increasing enrollment at the GSN and will ensure the continuity of high-quality instruction; the site is expected to be operational in June of 2003.

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Program Review. During 2001, changes were instituted through Faculty Steering Team Meetings in the Department of Nurse Anesthesia; these forums help to ensure that there is consistency throughout the didactic phase and the clinical sites. All changes are coordinated with the Federal Nursing Chiefs. Continuous efforts are also underway to identify all areas of the curriculum which support the readiness mission of the Services.

Program Evaluation and Administrative Structure. To date, a total of 86 Nurse Anesthesia graduates have taken and passed their certification examinations. With the assistance of the Department of Nursing Research, assessment surveys were conducted to determine both GSN graduate and supervisor satisfaction with the Department of Nurse Anesthesia educational program. As of the most current survey data, the performance of the GSN alumni was rated as above-average, significantly exceeding expectations for new graduates. Even more significant were the proportions of graduates given the highest competency rating by their supervisors. Using a five point scale, supervisors rated the relevancy of the training received at the GSN between 4.2 and 4.8., with 5.0 being the highest possible rating.

In conjunction with the Evaluation Committee, a comprehensive evaluation process is now in place which covers all facets of the program. A process to integrate information received from the evaluation surveys has also been instituted so that progress and changes can be tracked. This information is then shared with the students so they can see how their input is used to institute positive change. The policy and procedures for the Student Promotion Committee were also rewritten; the policy has been strengthened to ensure due process and fair evaluation of student progress.

A new committee structure for the Department has been instituted. It provides a structure for integrating Phase I and 2, the evaluation plan, and a comprehensive program review utilizing GSN faculty, student, and external participation.

Program Length. The length of the Nurse Anesthesia Program has been extended to 30 months; the first class in this framework is scheduled for graduation in December of 2002. The additional time will be used to increase exposure to more difficult clinical cases and to allow adequate time for permanent -change-of-station moves between Phase 1 and 2 of the program.

Curriculum Assessment and Enhancement. Collaborative efforts from 1999 through 2001 have resulted in a positive exchange of information between the Nurse Anesthesia Department and the Offices of the Federal Nursing Chiefs. As a direct response to the surveys and coordinated assessments conducted since 1999, the following enhancements to the curriculum were agreed upon and implemented.

Restructuring of Three Courses. In January of 2000, the faculty of the Nurse Anesthesia Department completely restructured three courses, Pathophysiology, and Basic and Advanced Principles of Anesthesia. Changes instituted during 2001 in the Pathophysiology Course and Advanced Principles of Anesthesia were well received by the students and clearly reflected in their positive end-of-course evaluations.

Re-Sequencing of Didactic Curriculum. The didactic curriculum has been re-sequenced so that the courses are taught in a more integrated manner. For example, students first learn about the structure of the human body (Anatomy and Cell Biology), which is followed by the study of function (Physiology) and then, malfunction (Pathophysiology). For the first time, in the Spring of 2001, the Anesthesia Pharmacology Class was offered as an inter-session class between the Spring and Summer Semesters, which relieved the students' class load during the Spring Semester; this change was endorsed by positive feedback through the course evaluation process.

Integration of Operational Readiness. Operational readiness concepts are integrated into each course. First, each course has been evaluated to identify the military unique content. These aspects have been identified and are listed in the course syllabus. The instructors emphasize these military aspects in every area of their courses, to include assigned readings and the presentation of lectures. The military unique equipment, so integral to the care of those in the Uniformed Services, is not limited to the classroom; the students use this highly specialized equipment both with the anesthesia simulator during didactic training and, again, under faculty supervision in the operating room during their clinical training. Thus, the students are familiar with, and confident in the use of, specialized and operational equipment. The Nurse Anesthesia faculty also completed coordination on the Military Medical Humanitarian Assistance Course. The development of the first GSN Humanitarian and Disaster Mission Course for advanced practice nurses was well received during 2000 and 2001, and will be offered again during 2002 with an emphasis on bioterrorism.

A Simulated Bridge Between the Academic and Clinical Phases. The use of a patient simulator and the instructions for using regional anesthesia and central line placement have been incorporated wherever possible into the Nurse Anesthesia curriculum. This has resulted in providing a bridge between the academic and clinical phases of the educational program. During 2001, the use of the SimCen was expanded to incorporate: 1) the use of standardized patients in the Health Assessment Course; 2) the use of simulator bronchoscopic stations in teaching airway management; and, 3) the use of the human patient simulator for teaching Basic and Advanced Principles of Anesthesia and Anesthesia Pharmacology. Other resources have allowed the use of virtual reality in teaching the Anatomy Courses; and, research studies are being conducted by the students and faculty to determine the quality of education utilizing virtual reality and the desirability for its use in the future. A member of the Department is currently working with faculty at the Medical College of Georgia on the use of the Anesthesia Simulator; and, a second laboratory section of the Patient Simulator Laboratory has been instituted in conjunction with the Advanced Principles Course which will allow an increase of individualized instruction through this state-of-the-art simulator.

The Reinforcement of the Knowledge of the Basic Sciences. The return of the clinical students to the cadaver laboratories during 2000 reinforced the concepts of anatomical and regional anesthesia; in addition,

a program to include the on-going updating and evaluation of the knowledge of the basic sciences has been instituted for the clinical students. All of these efforts reinforce the information received during the didactic phase of the program.

Successful Anesthesia Refresher Courses and Seminars. The Anesthesia Seminars were restructured and scheduled to accommodate the students on clinical rotations. For example, Anatomy, Advanced Airway, and Critical Incident Refresher Courses and Workshops were held for the clinical students in May of 2001. In the Anatomy Refresher Course, the students participated in a hands-on anatomy laboratory under the supervision of the basic scientists and clinical faculty. The state-of-the-art virtual reality simulator was used for an intense review of neuroanatomy. The Airway Refresher Course offered the students cutting-edge lectures by **CAPT Cynthia Cappello, CRNA, MS, NC, USN, Assistant Professor, GSN Department of Nurse Anesthesia, nationally recognized for her expertise on advanced lifesaving techniques of airway control.** The students then practiced, what they were taught during lectures, using fiberoptic bronchoscopes and other advanced equipment with airway simulators and the anesthesia simulator. The Critical Incident Course allowed the students to practice live-saving skills to treat uncommon occurrences in the safety of the simulator laboratory; these occurrences, such as malignant hyperthermia, are extremely rare, but potentially fatal conditions where every second counts. The simulator offers real-life training in a safe setting. Student evaluations strongly indicate that these courses were a highlight of their training experience. In addition, the students reported that it was invaluable to re-visit these difficult subjects after approximately one year of clinical experience, to crystalize the concepts that they had learned up to that point in their training.

Quality Assessment and Improvement Plans. The faculty of the Nurse Anesthesia Department has instituted quality assessment/improvement plans for on-going programmatic evaluation. The GSN Nursing Research Department will assist in the resulting process for gathering program statistics, to include trends of clinical case counts, certification examination results, summaries of application/admission results, and collective trends in program evaluation.

Program Leadership. An extensive search for a new Chair for the Department of Nurse Anesthesia was completed; **Lieutenant Colonel Paul Austin, USAF, CRNA,** was selected as the Chair of the Department of Nurse Anesthesia; he reported to his new assignment during the Summer of 2001.

Communication. During 2001, an effort was made to increase communication between faculty, students, and the GSN administration. Mandatory all-faculty meetings are held twice each year, in conjunction with national meetings; they are now an integral part of the Department's program planning and design. Policies, procedures, and processes are discussed; and, the faculty is working as a team to ensure consistency of policies and procedures throughout the clinical sites. Faculty members communicate freely through telephone calls and e-mail; and, they are actively involved in GSN and University committees. Communication with the Dean of the GSN is open and active.

In addition, to increase communication with students assigned to clinical rotations, site visits are conducted biannually. Sufficient time is spent with the students to discuss program changes, receive feedback, and to access individual progress. The students appreciate the individual time and also provide valuable insight into the training process. The Faculty Steering Teams also continue to be a success. These forums help to ensure that there is consistency of communication and information during the didactic phase

and throughout all of the students' rotations between the clinical sites.

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Scholarly Project. Each graduate must complete an individual or group thesis or scholarly project before graduation from the GSN. The student's research project generally has application to anesthesia practice and includes bench studies, both quantitative and qualitative research, surveys, and clinical studies. All topics must be relevant to the Uniformed Services and serve to enhance the clinical practice of the graduate. All students are encouraged to publish their findings. During 2001, students were involved in a variety of scholarly projects, including both clinical and bench research studies. Students are encouraged to publish in peer-reviewed journals or to give poster and oral presentations of their findings. An emphasis is being placed on outcomes and how they may be incorporated into future practice.

Poster Presentations at the 68th Annual Meeting of the American Association of Nurse Anesthetists. Students and faculty from the USU Department of Nurse Anesthesia presented an amazing 13 percent of all of the posters presented at the 68th Annual Meeting of the American Association of Nurse Anesthetists, far surpassing the numbers from any other nurse anesthesia programs. Examples of these posters follow:

Lisandra Rojas, Captain, USAF, NC; Geoffrey Kuzmich, Captain, USAF, NC; and, Mikel Phillips, Captain USAF, NC, presented "Noise Levels in the Operating Room;"

Tori E. Pearce, Captain, USAF, NC; and, Mary F. Mullins, Captain, USAF, NC, presented "A Descriptive Study of Two Different Epidural Analgesics: Morphine Vs. Fentanyl/Bupivacaine or Fentanyl/Ropivacaine and their Post-Operative Effects;"

Virginia Johnson, Captain, USAF, NC; and, Rachael Fontanilla, Captain, USAF, NC, presented "The Effects of Rapcuronium and Succinylcholine on the Duration of Action of Rocuronium;"

Kenneth L. Spence, Lieutenant, NC, USN, GSN Class of 2000; Maura S. McAuliffe, Ph.D.; Donald D. Rigamonti, Ph.D.; and, Eugene Levine, Ph.D., presented a poster entitled, "Comparison of Iontophoretic Lidocaine to EMLA Cream for Pain Reduction Prior to Intravenous Cannulation in Adults;"

Teresita S. Young, Lieutenant, NC, USN; Douglas K. Tadaki; Eric Elster; Noelle B. Patterson; Eugene Levine, Ph.D.; Martha Turner, Colonel, USAF, NC; and, David Harlan presented a poster entitled, "Anti-Asialo GM1 Does Not Prevent Streptozotocin-Induced Diabetes in a Transgenic Mouse Model;"

Renee Sale, Captain, USAF, NC; Eugene Levine, Ph.D.; and, Cynthia Cappello, CAPT, NC, USN, presented a poster entitled, "Optimal Oxygen Flow Rates and Reservoir Volume When Using the Universal Portable Anesthesia Complete Drawover Vaporizer with an Oxygen Concentrator."

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Innovative Teaching of Traditional Nurse Anesthesia Topics. Contemporary training of Advanced Practice Nurses (APNs) including Nurse Practitioners (NP) and Nurse Anesthesia (NA) students requires innovative technologies while maintaining traditional, proven techniques. The National League for Nursing Accrediting Commission (NLNAC) and the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) outline a variety of topics related to the practice of anatomy and neuroscience which students must master for the successful administration of anesthesia. To meet these requirements, a unique program is being taught by a diversified clinical and basic science faculty drawn from the GSN, the School of Medicine, affiliated hospitals, and federal agencies. A Simulation Center using "standardized patients" and an anesthesia simulator have recently been added. Three courses are taught in the summer and fall semesters; they are coordinated by **Donald D. Rigamonti, Ph.D., an Anatomist/Neuroscientist,** in the GSN Department of Nurse Anesthesia. They are Anatomy and Cell Biology and Neuroscience I and II. The summer semester provides an extensive use of a "state-of-the-art" anatomy teaching laboratory where special topics useful for NP and NA students are demonstrated. Both the laboratory and computer-aided instruction have been cited as highlights by site reviewers from the National League for Nursing Accrediting Commission and the Council on Accreditation of Nurse Anesthesia Educational Programs. Recently, the staff and patients at the Simulation Center have been used to "mirror" the anatomy and neuroscience summer courses. Furthermore, the USU classrooms and library have several software packages on-line and these are used during the Anatomy and Cell Biology Course. Neuroscience I is taught in the Summer and provides a review of basic neurophysiological concepts and an examination of the gross central and peripheral nervous system structures. Neuroscience II is taught in the fall semester; it provides an in-depth review of neurophysiological concepts related to peripheral nerves, spinal cord segments, and the brain. These principles are demonstrated in laboratories utilizing human subjects and computer-assisted data acquisition. In addition, computer-aided instruction is routinely used to teach human anatomy, cell biology, and nervous system structure and function. Throughout their courses of instruction, individual students are assigned lecture topics. They can then select laboratory sessions, including cadaver laboratories, and lead discussions with visiting faculty and study groups. These courses utilize the Visible Human Project, which is available through the National Library of Medicine, a resource which offers the possibility of simulating anesthetic procedures in the virtual environment. Virtual lectures on five topics have been developed in collaboration with the University of California Medical Center. Dr. Rigamonti, **Dr. Osvaldo Bustos**, and other staff have worked closely with **Helene Hoffman, Ph.D., University of California Medical Center,** to present virtual lectures to the GSN students at USU. This work was fully presented in a Visible Human Conference sponsored by the National Library of Medicine at the National Institute of Health.

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THE DEPARTMENT OF NURSING RESEARCH

Background and Mission. The Department of Nursing Research, under the leadership of its Department Chair, was established to assist the educational programs in the GSN. This department allocates over 80 percent of its resources to provide the following areas of support to the Departments of Nurse Practitioners and Nurse Anesthesia.

Guidance and Individual Support for Scholarly Projects. Guidance and individual support for 34 GSN students was provided by the Department of Nursing Research during 2001. This support included 17 scholarly projects for each of the two GSN Departments of Nurse Practitioners and Nurse Anesthesia; all special project studies are focused on clinical practice, readiness, or specialty characteristics relevant to health care in the Uniformed Services. Following consultation with the Federal Nursing Chiefs during 1999, the GSN students now chose among several types of scholarly projects which include: research culminating in either a written thesis or a publishable paper; a research practicum; and/or, a defined project. No matter which option is chosen, any scholarly project may be conducted individually or in a group. A GSN research committee determines that each scholarly project meets the University's requirements for a Master of Science Degree and that it is relevant to the Uniformed Services.

Course Instruction. The Department of Nursing Research also provided instruction of course work for the two nursing programs. During the Academic Year 2001, two courses were presented by the faculty of the Department of Nursing Research. Two academic credits were earned for each course; and, during the fall and spring semesters, 27 students attended each course.

Assistance with Distance Learning Efforts. The Department of Nursing Research also provided assistance, as appropriate, for the GSN distance learning programs throughout 2001. (The VA/DoD Distance Learning Program is discussed at the conclusion of this section.)

Implementation and Analysis of Outcome Assessment Processes. The Department of Nursing Research is also responsible for the implementation and analyses of assessment and outcome surveys of GSN graduates and their supervisors as well as the GSN students' end-of-first-year and end-of-second-year course evaluations. A detailed discussion of these efforts follows.

Preparation of Two Self-Study Reports for the NLNAC and the CCNE. The Department of Nursing Research was also responsible for the successful preparation of self-studies for the site visitors representing both the National League for Nursing Accrediting Commission (NLNAC) and the American Association of Colleges of Nursing Commission on Collegiate Nursing Education (CCNE) during 2001. Both self-studies were considered to be excellent products by the NLNAC and CCNE site visitors.

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Composition of the Department of Nursing Research. The Department of Nursing Research currently has three full time faculty members, all of whom are civilians. In addition, three individuals, the Dean (civilian), the Associate Dean (U.S. Air Force), and the Commandant (U.S. Army) of the GSN, hold their academic appointments in the Department of Nursing Research.

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The Electronic Military/Uniformed Services Nursing Research Data Base - A Collaborative Effort.

Background. The Electronic Military/Uniformed Services Nursing Research (EMUSNR) data base was initiated by the GSN Board of Advisors when it approved the formation of a Task Force with a goal to "design and develop an electronic bibliographic storage retrieval data base for nursing research documents in the military and uniformed services." **Virginia K. Saba, Ed.D., FAAN, Professor and Advisor on Educational Technologies, GSN Nursing Research Department, was appointed as the Chair of the Task Force. Barbara Sylvia, Ph.D., Associate Professor and Chair**, GSN Department of Nursing Research, was also appointed to the Task Force.

Following the guidance of the Task Force, the development of an Electronic Military/Uniformed Services Nursing Research (EMUSNR) data base was initiated by the GSN and is now in use. The data base, designed with the assistance of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Information Systems, is an integral component of the special interest category for the Military Services and the Commissioned Corps. EMUSNR, incorporated as a virtual data base in the CINAHL, is the first of its kind. This data base provides electronic access to the Military Services and Commissioned Corps nursing research documents that have been previously available in only selected and diverse locations.

Global Access. The newly created EMUSNR data base allows global access to documents completed by graduate students at the GSN and the final reports of the TriService Nursing Research Grant Program. The EMUSNR offers electronic searching and retrieval of bibliographic citations to the respective nursing research documents. Those documents will be fully indexed and will consist of the following characteristics: relevant uniformed services subject headings; a 150 to 200 word informative abstract; and, a description of research methods, instruments and other research concepts. To accommodate these new information resources and to make them retrievable for the military/uniformed services nursing community, the CINAHL Thesaurus has been expanded. Also, when appropriate, the full text of brief research reports will be incorporated. Currently, the full text of the final grant reports can be obtained from the National Technical Information Services (NTIS). This data base is providing significant benefit to the Military Health System.

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Alumni Assessment/Survey Process for Outcome Evaluations of the Nurse Practitioner and the Certified Registered Nurse Anesthesia Programs Receives Strong Endorsement from the NLNAC and the CCNE Evaluation Teams.

Patterns of Strength:

Findings -

Very Positive alumni and employer satisfaction rates and a consistent 100 percent pass rate on traditional students' certification examinations validate the quality of program graduates (NLNAC Evaluator Report, page 18).

Educational Effectiveness:

Criteria -

The program has an identified plan for systematic program evaluation and assessment of educational outcomes. Written planning for systematic program evaluation and assessment of outcomes includes the following elements: definitions of criteria and required and elective outcomes; defined levels of achievement (decision rules for action); time frames for the assessment of all plan components; person(s) responsible for each component of the plan; methods and/or tools to assess each criterion and outcome; reliability, validity, and trustworthiness of methods and tools used; data is collected, analyzed, aggregated, and trended; and, verification exists that findings are used for decision making in program development, maintenance, and revision (NLNAC Evaluator Report, page 16).

Findings -

The GSN procedures are comprehensive in evaluating all aspects of the nursing curriculum. Evaluation processes were developed and are managed by the GSN Department of Nursing Research and the GSN Evaluation Committee. It was verified that the school's performance with respect to the actual level of student academic achievement is monitored and includes all elements designated on the Required and Elective Outcome Summary Table (NLNAC Evaluator Report, page 16).

The Federal Nursing Chiefs, who serve as a Board of Advisors to the GSN, bring strength and stability to the ongoing development of the program and support the faculty's ability to prepare curricula that respond to the changing dynamics of health care (NLNAC Evaluator Report, page 18).

This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community (NLNAC Evaluator Report, page 19).

- Program Evaluator Report, National League for Nursing Accrediting Commission, following the Site Visit of October 30 - November 1, 2001, pages 16, 18, and 19.

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Program Effectiveness: Student Performance and Faculty Accomplishments:

Standard IV -

The program is effective in fulfilling its mission, philosophy, goals/objectives, and expected results. Satisfactory student performance reflects achievement of the expected results by the students in congruence with the mission, philosophy, and goals/objectives of the program as well as professional nursing standards and guidelines. Alumni satisfaction and the accomplishments of graduates of the program attest to the effectiveness of the program. Faculty accomplishments in teaching, scholarship, service, and practice are congruent with the mission, philosophy, and goals/objectives of the program and with professional nursing standards and guidelines. Program effectiveness reflects ongoing improvement (CCNE Evaluation Report, page 18).

Findings -

This standard is met for the Master's Program (CCNE Evaluation Report, page 18).

Rationale for Compliance -

Student performance is evaluated in the classroom and in clinical settings. Evaluation criteria and process evaluations reviewed were consistent in approach and reflected identified course objectives. Evaluation criteria were consistently identified on each course overview and consistently applied throughout the program for both didactic and clinical courses (CCNE Evaluation Report, page 18).

Standard IV (B) -

Surveys and other data sources used to collect information about student, alumni, employer satisfaction and demonstrated achievements of graduates provide evidence of program effectiveness. Data gathered about demonstrated achievements include, but are not limited to, graduation rates, NCLEX scores and job placement rates (CCNE Evaluation Report, page 19).

Rationale for Compliance -

The GSN Evaluation Plan provides for ongoing data collection relative to program effectiveness from students, alumni, and employers of GSN graduates. End-of-program alumni and employer evaluation data along with course evaluation data are tabulated by the Department of Nursing Research and forwarded to the Evaluation Committee for tracking and trending. Data analysis is also forwarded to the Dean, Associate Dean, and Department Chairs. Evaluation data are discussed at faculty meetings, which allows for immediate response to issues (CCNE Evaluation Report, page 19).

Student surveys indicate a high level of satisfaction with program effectiveness. Course evaluations include frank feedback with opportunities for improvement. Satisfaction ratings

on the Likert scale items are consistently above 3.0 on all items evaluated. Response rates from students are considered adequate and documentation supports the use of feedback to support ongoing program improvement (CCNE Evaluation Report, page 19).

Alumni survey responses indicated overall general satisfaction with the program and clinical preparation. Specific survey responses from alumni include a request for increased experiences with radiology and laboratory interpretation. More experience in implementing specific procedures such as suturing was also requested. Evidence of ongoing programmatic improvement was observed by an increased emphasis in these areas (CCNE Evaluation Report, page 19).

Employer surveys indicated an overall high rate of satisfaction with identified needs for increased emphasis in the areas of orthopedics and radiological content. A need for more well-child content was also identified. As a program response to this request, evidence indicated that the Bright Futures Conceptual Frameworks were implemented to provide increased structure for pediatric content with the curriculum (CCNE Evaluation Report, page 19).

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On behalf of the Commission on Collegiate Nursing Education (CCNE), I am pleased to advise you that the CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at USUHS for a term of 10 years. The Board additionally determined that there are no compliance concerns with respect to the key elements (CCNE letter dated May 16, 2002).

- Commission on Collegiate Nursing Education (CCNE) Evaluation Team Report on the Accreditation Review of the Master Degree Program in Nursing at USUHS, Site Visit of November 14-16, 2001, pages 18-19, and the CCNE notification letter dated May 16, 2002.

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This letter is in response to your request dated October 12, 2001, for aggregate data on your students who have taken the American Nurses Credentialing Center (ANCC) certification examination. Of the 15 Family Nurse Practitioners tested, 15 passed with a mean score of 123.3 (the national average for all tested reflects a mean score of 114.6; the passing score is set at 100).

- Letter to the Chair, GSN Department of Nurse Practitioners, from the American Nurses Credentialing Center, dated February 26, 2002.

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Implementation of Revised Alumni Survey Instruments. During both 2000 and 2001, the three GSN Departments of Nurse Practitioners, Nurse Anesthesia, and Nursing Research implemented the revised Alumni Survey Instruments; the GSN graduates from the Nurse Practitioners and Certified Registered Nurse Anesthesia Programs and their supervisors were surveyed. The alumni and supervisor survey forms are sharply focused on specific skills and competencies which the new graduates should have acquired through the training received at the GSN. For example, items on the Nurse Anesthesia Program survey form ask respondents/GSN Alumni to rate how well prepared they are in such skills as interpreting x-rays, providing regional anesthesia, management of a difficult airway, and the care of the post-operative patient. Items on the alumni survey form also call for specific information on achievements in research, publications, promotions, and presentations at conferences. In addition, the alumni survey instrument requests the graduates to rate how well they can perform functions in those areas for which they have received training at the GSN and are expected to be able to perform competently in their fields of practice.

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Supervisor's Evaluations of GSN Alumni. Through the coordinating efforts of the Department of Nursing Research, supervisors are asked to rate their satisfaction with GSN graduates and to access competencies based upon specialty criteria. Following the revision of the survey forms, the evaluation process has allowed the Department of Nursing Research to trend data received from supervisors and to compare that information with alumni assessments. Using a five-point scale, with five representing the best rating, supervisors rated the relevancy of the training received at the GSN as evidenced by the alumni under their supervision. The ratings for both the Nurse Practitioner and Nurse Anesthesia graduates averaged from between 4.2 to 4.8. In most cases, supervisors gave higher ratings than those which the GSN alumni provided for themselves. Supervisors of the GSN Nurse Practitioner alumni were most satisfied with the GSN alumni's overall performance and preparation.

Supervisors of the GSN Nurse Anesthesia almuni were also quite satisfied with the functioning of the Nurse Anesthesia graduates in a variety of settings and with their ability to use anesthesia techniques. Verbal comments reinforced the satisfaction of supervisors with the competency outcomes of the GSN alumni: **"Best Nurse Anesthetist in my department... My choice for Chief Nurse Anesthetist at any site... Extremely professional... and, the Air Force should retain people like these whatever the cost!"**

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Evaluations of GSN Almuni. During 2001, Nurse Practitioner graduates continued to be surveyed at graduation and as first- and third-year alumni. Nurse Anesthesia graduates are asked for feedback at graduation and as first-year alumni. Since the survey forms were revised to reflect consistency between supervisor and alumni perceptions, the GSN Evaluation Committee has been able to trend and compare assessments between year groups and constituency. The survey forms allow considerable opportunity for graduates to provide narrative comments about various aspects of their education received at the GSN. The completed survey forms contain many positive comments; when asked which portions of the program were particularly valuable, the GSN alumni stated: **"The variety of training, supportive instructors, and the reference resources available through the USU LRC... the didactic portion of the program... were very**

strong." Ratings from both first-year and third-year alumni consistently reflected strong ratings for their preparation in clinical skills and satisfaction with the Nurse Practitioner and the Nurse Anesthesia Programs.

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Changes Based on Alumni Survey Responses. The GSN graduates have provided numerous suggestions for program improvement which have resulted in modifications to the curriculum, in the structure and process of clinical assignments, and in other significant aspects of the GSN educational programs. Recommendations implemented into the Nurse Practitioner Program included, **"...increased experience in radiology and laboratory interpretation and in performing certain procedures... more experience in obtaining consultations from other providers and/or specialists... the need for guidance in time management.. and, increased emergency room rotations...;" all** have been found to be of significant benefit. Alumni suggestions implemented throughout the Nurse Anesthesia Program included, **"...stronger emphasis on regional anesthesia... more experience in OB anesthesia... increased emphasis on military anesthesia including more hands-on practice with the portable field anesthesia machine... the need for more mentoring by faculty while at the same time allowing students sufficient independence."** The implementation of these suggestions has strengthened the GSN educational programs.

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Future Direction of Alumni and Supervisor Surveys. Currently, survey forms are mailed out to alumni and supervisors for completion. The GSN Evaluation Committee is assessing survey computer packages for the distribution of alumni and supervisor surveys through the use of a web-based, or e-mail, implementation process to ensure timely completion and inclusive analysis by all involved. Future reports will statistically assess responses by alumni and supervisors to specific changes made in the educational programs of the GSN.

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THE GSN AND DISTANCE LEARNING

The Adult Nurse Practitioner Post-Master Program - The Department of Veterans Affairs/ Department of Defense Distance Learning Program.

The Department of Veterans Affairs (VA) and the Department of Defense (DoD) participated in their **second virtual graduation** (at the Master Degree level) from the Graduate School of Nursing at the Uniformed Services University of the Health Sciences on May 15, 2001.

On behalf of Dr. Rafael Ramirez, Acting Director of the San Juan Veterans Affairs (VA) Medical Center, I would like to congratulate our four graduates and all other site participants, on the occasion of their graduation from this innovative program.

This Distance Learning Program is particularly important to the San Juan VA Medical Center since there currently are no Nurse Practitioner Programs in the local community.

When Dr. Kizer's sweeping changes in the VA were first proposed, the goal of increasing the use of advanced practice nurses by 200 percent was put forth. We at San Juan, have met this challenge.

The USU GSN Program has been one of true excellence and has produced a group of professionals, fully prepared through course work and clinical practice, to diagnose and manage the primary care of adults. It is a living example of successful VA/DoD collaboration.

The support provided by the Distance Learning Program faculty and staff has been extraordinary. The feedback to the participants has been timely and always helpful. The site visits were one of the program elements, which helped the participants and preceptors alike to remain on course toward the goals of the program.

The VHA goals, the 6 for 2006, include several which can be linked to the successful outcomes of this VA/DoD program:

Put Quality First, Until First in Quality: Through the provision of high quality care by graduates of this demanding, top-notch program, this goal will be met.

Provide Easy Access to Medical Knowledge, Expertise and Care: This goal will be met through the Adult Nurse Practitioners from this program who will serve as primary care providers, with a focus on health promotion and prevention, early diagnosis and treatment.

Exceed Patients' Expectations. As many studies have demonstrated, patients are highly satisfied with the care provided by Nurse Practitioners such as the ones produced by this educational program.

As you prepare for your certification exams, do so with the confidence that you have been given the best preparation you could possibly have received and you have demonstrated that you have the commitment to continue achieving your goals.

- Remarks during the Virtual Graduation by **Mrs. Kathleen Collins, Chief of Nursing Service, San Juan VA Medical Center**, May 15, 2001.

Background. The popularity of distance learning is increasing due to advances in telecommunication, rapid access to knowledge, availability and access to the Internet, changes in student demographics, and interest in previously untapped rural or work-based markets. Distance education has evolved from various types of home study. First, through correspondence courses, the instructors sent assignments, study guides, and other printed materials by mail to students, who, in turn, gained credit when they completed the required assignments. This was followed by Open Universities which used audio-conferencing with telephone handsets, speakerphones, and an audio-bridge to connect multiple telephone lines. Also, radio broadcasts, recorded media such as radio, television, audio/video tapes, and telephones were used to provide opportunities for students in rural, isolated areas. The next level of distance learning emerged with the introduction of interactive and digital technologies which delivered educational projects to students via interactive television, electronic networks, and computer-based multi-media systems or synchronous technology. Today's most current level of distance learning offers both synchronous and asynchronous audio, video, and graphic communication through the use of electronic networks. The further improvement of interactive technologies by using cable, compressed video, and video teleconferencing has provided an expansion of the traditional classroom experiences to distant students.

The classroom technologies generally include desktop computers with modems to access the Internet, electronic mail, and on-line literature data bases (in this case, nursing literature). Video teleconferencing technology allows the faculty member at the control station to control and view the types of images. This allows split screens and two-way interactions including images, sound, and motion. Students at the remote sites can see, hear, and observe the instructor by using a keypad with a built-in microphone; and, they can interact with the instructor or students at other locations. Interactive video teleconferencing requires: 1) a communication network (satellite or a land-line telephone); 2) interactive equipment on site; and, 3) that transmission be communicated at a certain time to specific distant locations. **Simply stated, distance learning and/or education differs from traditional higher education classroom instruction in two ways: students and teachers are separated by geographic distance; and, electronic technology is used for communication between the instructor and students.**

The Internet has revolutionized distance learning education. Primarily, the Internet is used as a reference, or as a means of searching and obtaining information from multiple resources, on a specific topic of interest. The Internet, as a means of electronic communication, allows one to attach or retrieve multiple attachments. Thus, it is an easy process to transmit many requirements for the distance learning course. For example, the course syllabus, assignments, and required readings can be transmitted as e-mail attachments, making the distribution of information a rapid process and eliminating the time and expense required for duplicating the documents. Current software allows for controlled, on-line examinations; and, relevant course data can also be collected for outcome evaluations.

The Restructuring of the Department of Veterans Affairs Health Care System Called for an Increase in the Number of Nurse Practitioners. The Department of Veterans Affairs, Veterans Health Administration/ Department of Defense (VA/DoD) Distance Learning Program was initiated following an objective issued by the Under Secretary for Health, Department of Veterans Affairs, which called for a 200 percent increase in the number of primary care providers in the VA medical centers. This goal is in keeping with recommendations by national nursing organizations to increase the number of advanced practice nurses. As early as 1994, the National Advisory Council on Nurse Education and Practice for the Health Resources and Services Administration of the Department of Health and Human Services had identified the need to upgrade the knowledge, skills, and abilities of the existing registered nurse work force to match the practice requirements within the health care systems. As late as 1999, the American Association of Colleges of Nursing also reported that the demand for advanced registered nurses continues to increase. **Current demands across the country are for advanced practice nurses who can deliver a high complexity of care across the projected life-span of their patients within an integrated health care system.** There continues to be a shortage of advanced practice nurses who are qualified to assess, diagnose, and manage patients in primary care settings.

In response to the goal established by the Under Secretary for Health, the Department of Veterans Affairs Nursing Strategic Healthcare Group of the Office of Patient Care Services determined that one effective solution would be to assist currently employed, masters-prepared VA nurses to obtain new knowledge and skills as nurse practitioners. Since these VA employees already hold full-time positions, educational programs which complemented their existing work schedules would be most cost-effective.

At the same time, the national need for increased numbers of nurse practitioners was reflected in existing Nurse Practitioner Programs - many of which were oversubscribed and preferred full-time students. In some cases, nurses seeking additional education were often required to travel great distances or to relocate. In most cases, the demands of full-time course work, travel time, and/or relocation would force potential VA nurse practitioner students to reduce or eliminate their work responsibilities at the VA medical centers. For organizations, such as the Department of Veterans Affairs, which are in the process of rapid and dramatic change in their approach to health care delivery, the traditional model of attaining nurse practitioner education was difficult. **One promising solution was to capitalize on the increasing benefits of communication technology and to approach nurse practitioner education from a distance learning perspective.**

A 1996 survey completed by 155 VA medical centers indicated that nearly 750 masters-prepared clinical nurse specialists would be interested in enrolling in a post-degree, nurse practitioner certificate program if it were offered via distance education. Once individuals from this group were enrolled in a post-degree certificate program, they could complete additional courses, building on their current academic preparation, to become certified nurse practitioners and be prepared to provide out-patient and preventive health care. To accomplish this re-education process, the Department of Veterans Affairs needed to partner with an educational institution. At the time that the VA/DoD Distance Learning Nurse Practitioner curriculum was being designed, VA project managers could identify no programs which offered all course work via distance learning. Rather, distance learning programs in nursing required their students to spend several weeks each summer at the host campus to complete the clinical practicum. Such requirements would have significantly increased program costs for the Department of Veterans Affairs. This review process led to the coordination and collaborative efforts which took place between the Department of Veterans Affairs and the Graduate School of Nursing (GSN), Uniformed Services University of the Health Sciences (USUHS). The GSN would provide a curriculum to transition VA clinical nurse specialists into the role of adult nurse practitioners. **The USUHS GSN curriculum was unique, and a national first, because it built on the excellent**

resources of the Department of Veterans Affairs to implement well-defined, closely-monitored, clinical practica offered concurrently with didactic content provided by the fully-accredited Graduate School of Nursing in Bethesda, Maryland.

The GSN Nurse Practitioner Program meets or exceeds all standards established by the National Organization of Nurse Practitioner Faculties. An Adult Nurse Practitioner Post-Master Program was designed to meet the VA's patient care needs with a focus on adult health. Upon completion of the program, VA graduates are prepared to take the appropriate national certification examination in their nursing specialty. It was anticipated, and generally proven to be correct, that **such a program would be cost-effective and would enhance staff morale through the re-education and the re-training of a loyal cadre of long-term, competent VA staff.**

The Department of Veterans Affairs and the USUHS Graduate School of Nursing, Department of Defense, Form a Partnership. During late 1996, the GSN and the VA Nursing Strategic Healthcare Group entered into a working partnership. They agreed to conduct a two-phase project. Phase I would consist of one course to test the feasibility of the project; Phase II would contain the remainder of the curriculum study. The GSN agreed to educate the VA masters-prepared registered nurses to become adult nurse practitioners through the use of distance learning technologies.

The Graduate School of Nursing agreed to:

1) determine the length of the program;

2) establish the curriculum;

3) allocate credit for the courses;

4) assure that graduates were qualified for certification;

5) develop policies for the transfer of credit for prior courses;

6) adjust and modify institutional policies to accommodate the VA civilian registered nurse students;

7) validate appropriate faculty from VA and the GSN to instruct in the Program (each had to hold at least a Master Degree, preferably in Nursing, be prepared in a nurse practitioner specialty, and be currently certified);

8) provide support staff; and,

9) procure resources for the new program.

The Department of Veterans Affairs agreed that it would:

1) utilize its national telecommunication network for the Distance Learning Program;

2) obtain the distance learning sites at the VA medical centers;

3) select the students and submit candidates to the GSN for evaluation of academic requirements;

4) provide educational resources for the students such as library books and computers;

5) approve the assignment of VA employees to serve as on-site preceptors and to coordinate with the GSN in the Distance Learning Program; and,

6) provide the VA portion of the funding for the Project.

Each VA medical center with a distance learning site would provide the following:

1) an educational coordinator to administer the program; and,

2) a Master Degree-prepared nurse practitioner preceptor to arrange and supervise the clinical aspects of the program.

Following a survey of its potential medical centers and students, the Department of Veterans Affairs determined that the didactic courses would be scheduled **after** working hours. The classes would be designed to parallel the on-campus GSN courses and would be held twice a week for two hours, with a third hour conducted as a laboratory activity by the lead preceptor at the individual VA sites.

Phase I - The Pilot Project Test Class. Early in 1997, the USUHS Graduate School of Nursing, in cooperation with the Department of Veterans Affairs, initiated Phase I, the Pilot Project Test Class. Phase I was conducted at two VA medical centers located at Atlanta, Georgia and Fayetteville, North Carolina with a total of 11 students. The class was taught using the GSN curriculum for basic and advanced health assessment. It was offered as a two-hour didactic course with a one-hour laboratory practicum on a specific physical assessment content area. The preceptors at each VA site conducted health assessment laboratories, demonstrated "hands-on" technical skills, and supervised basic clinical experiences. The Distance Learning Project Test Video Teleconferencing Course was transmitted from the National Naval Medical Center's (NNMC) Naval Tele-Training Center located in Bethesda, Maryland. Staff from the VA Nationwide Teleconferencing System and the National Naval Medical Center worked together throughout the course to facilitate the transmission of classes which were conducted from 4:30 to 6:30 p.m., two times a week. This type of transmission was selected because the Department of Veterans Affairs has an efficient nation-wide teleconferencing network which uses telephone land-lines to connect all of the major VA medical centers. The teleconferencing sites employed PictureTel video teleconferencing systems equipment to transmit the live classes. While the pilot test class was being conducted, the GSN was in the process of planning for, and installing, such equipment on the USUHS campus. The pilot test class was designed to determine and test technical capabilities and teaching strategies and to identify the most successful technological media which could be transmitted using video teleconferencing techniques. It also tested reception at the pilot VA sites. The pilot test class allowed the faculty to evaluate the students' comprehension of the didactic portion of the course content.

The evaluation of Phase I consisted of input from the GSN and the VA administration, faculty, and students. The VA preceptors reported that there was no discernable difference in the capabilities or skills of the distance learning students as compared to other students from traditional campus-based nurse practitioner programs. Eight of the eleven students completed the course on time, with three students requesting a one-month extension (which was granted) to meet their clinical requirements. The students evaluated both the course content (flow, depth, and relevance) as well as the technology (audio, video, and transmission). The student feedback was clearly positive. At the completion of Phase I of the Distance Learning Project, the GSN and the VA administrators, faculty, and staff reviewed all of the evaluation data. Based upon that review, all parties concluded that the Distance Learning Pilot Class Project was successful. Because of personal reasons and overseas transfers, four of the members of the test pilot class were unable to proceed to Phase II.

Phase II - The Twenty-Month Distance Learning Program - Curriculum and Faculty. Following the success of Phase I, in the Fall of 1997, the Graduate School of Nursing and the Department of Veterans Affairs implemented a twenty-month program to prepare advanced practice clinical nurse specialists to diagnose and manage primary health care problems of adults and to pass certification as adult nurse practitioners. Phase II, the Adult Nurse Practitioner Post-Master Program, also known as the VA/DoD Distance Learning Program, provided education or training courses at remote (off-campus) locations via audio, video or computer technologies. Phase II began with 35 students at the following VA medical Centers: Atlanta, Georgia; Baltimore, Maryland; Bronx, New York; Charleston, South Carolina; Fayetteville, North Carolina; Leavenworth, Kansas; San Diego, California; and, West Los Angeles, California. Phase II took place in conference rooms on the USUHS campus which were fully equipped for teleconferencing. The curriculum, developed by modifying the existing GSN Nurse Practitioner curriculum, emphasized: 1) comprehensive physical and psycho-social assessment; 2) decision-making processes in both acute and chronic health conditions; and, 3) health maintenance care. The Program consisted of nine courses which stressed both health promotion and disease prevention. There were 29 credits of didactic content and a minimum of 560 hours of clinical experience over five semesters or 20 months. Students who were already certified in a sub-specialty could obtain a waiver for some, or all, of the clinical and didactic requirements for that specific specialty area.

All of the nine courses were presented using different video teleconferencing educational strategies. Generally, the courses consisted of didactic lectures using a computer-generated video shown by the instructor. The Department of Veterans Affairs initially assigned two individuals to serve as faculty on the Project: **Angela Martin, CRNP,** and **Kathleen Burkhart, CRNP.** Both individuals had extensive experience in distance education and as nurse practitioners. (Following the first graduation, **Angela Martin, RN, MSN, FNP, CS,** was appointed as the Associate Director of the Distance Learning Program in October of 1999 and currently continues in that position. She has 13 years of experience in graduate nursing education, to include six years of coordinating responsibilities for a state-wide distance learning program for a Master Degree in Nursing with a specialization as a Family Nurse Practitioner. In July of 1999, **Terry Malavakis, RN, MA,** was appointed as the Administrative Assistant for the Distance Learning Program. She is experienced in nursing practice and management and has successfully enhanced communication between the sites, faculty, and other participants who are involved in delivering this highly technical program to the distance learning students.) The didactic content, readings, and references were mailed to the students **prior** to the class lecture (until e-mail transfer could be used); all classes were taped. Those tapes were then provided to students who could not attend the class. All lectures included dialogue between students from all eight of the remote sites. Most lectures also included slide shows, overhead displays from the textbooks, anatomical

models and/or a live examination of a patient model. The students were responsible for presenting clinical material relevant to the selected topics and for preparing written assignments. Supervised clinical experience took place at all eight sites; the site preceptors identified medical clinics, health maintenance organizations, mental health clinics, retirement centers, acute care, and other settings where the students could receive positive clinical experience. Written correspondence and supervised clinical experience in the students' home areas were also included in the curriculum.

Students received a broad foundation of educational preparation in adult health, advanced nursing practice, nursing theory, and nursing research. In addition, health assessment, primary prevention, health maintenance, clinical decision making, illness management and pharmacology (including writing prescriptions) were emphasized in the classroom and clinical practicum. The faculty for the Distance Learning Program were primarily certified nurse practitioners and basic science faculty from USUHS. Each faculty member had to have a Master Degree and be prepared with a specialty as a nurse practitioner, with current certification. The partnership between the Department of Veterans Affairs and the USUHS Graduate School of Nursing included the agreement that the GSN would provide the academic rigor for the new program. The GSN would also monitor the teaching program/curriculum and conduct evaluations to ensure that all standards for certification were met. **Preceptors were located at each site** to ensure that the curriculum presented by the distance learning classroom at USUHS was comprehended and that questions were resolved immediately at each of the sites. **Each remote site had a video teleconferencing capability and an educational classroom, access to an on-line computer, and current advanced nurse practitioner bibliographic and library materials.** And, all preceptors working with the distance learning program were appointed to the GSN Department of Nurse Practitioners as adjunct clinical faculty following University protocol and policy.

Site visits were required by the Project staff to ensure that the academic supervision and clinical experiences of the Distance Learning Program met National League for Nursing and Commission on Collegiate Nursing Education accreditation requirements. **Each of the eight sites were visited by a Project staff team consisting of the GSN faculty member responsible for the specific site, the GSN Project coordinator, the Chair of the GSN Department of Nurse Practitioners, and the VA Project coordinator.** The four member team was responsible for ensuring that each VA site had: 1) appropriate space for the educational project classroom; 2) a practice laboratory; 3) appropriate video teleconferencing equipment to include technical support; 4) current materials in the library to include on-line literature searching capabilities; 5) adequate computer support; 6) appropriate clinical experience with qualified preceptors; and, 7) support from the VA medical center's administrative, medical, and nursing departments. Each site visit gave students and administrators an opportunity to discuss the quality of the educational activities and to identify any difficulties which may have arisen.

During the twenty-month program, **each of the lead preceptors and coordinators attended VA-sponsored workshops facilitated by the GSN faculty.** Additionally, the GSN faculty offered in-service education on 1) the fundamentals of distance learning; 2) the role responsibilities of the coordinators and preceptors; and, 3) the evaluation of the students' clinical performance.

Graduates of the VA/DoD Distance Learning Program are prepared to deliver, coordinate, and evaluate high-quality care; advocate for vulnerable individuals and groups; and, provide leadership in the health care delivery systems through the promotion and maintenance of adult health. Early graduates of the Program are expected to assume clinical positions within the Department of Veterans Affairs. And, graduates are eligible to sit for the American Nurses Association Credentialing Examination for Adult Nurse Practitioners.

Technology Used in the Distance Learning Program. The VA/DoD Distance Learning Program is composed of didactic course work delivered via state-of-the-art distance learning technology, including interactive video teleconferencing and the Internet. The GSN extended its network of high-speed, digital telephone lines from USUHS's compressed-video classroom to the VA telecommunication center in Martinsburg, West Virginia (the Hub) which in turn is linked to the various distance learning sites at the VA medical centers. The first distance learning program reached eight VA sites. The graduation of the first class provided both the Department of Defense and the Department of Veterans Affairs the ability to: 1) critique and assess aspects of the teaching/learning process; 2) evaluate existing technological capabilities; and, 3) determine the cost (or cost-avoidance) of implementing such a program.

During the twenty-month program, the Department of Veterans Affairs was in the process of upgrading its technological capacity. As a result, most of the VA medical centers were equipped with video teleconferencing capabilities. Several computer and educational technologies were immediately required to ensure the success of the project. These included an upgrade of the file server at the Hub in Martinsburg, West Virginia, the establishment of a video teleconferencing unit at USUHS, and the confirmation of video conferencing capability at each site. All was accomplished.

The GSN used special equipment linked to the teleconferencing unit such as: a "smart" electronic camera which could focus on the lecturer; a graphical computer (via a laptop computer); slide shows (via a slide projector); tape sequences of sound and motion (using a VCR); the demonstration of anatomical models (via a separate camera which could focus on the model); and, an overhead document camera for paper illustrations. A summary of student evaluations, clinical experiences, and faculty reviews concluded that the students, for the most part, were pleased with the technology; they were able to learn the material and grasp the master course requirements without distractions or interference resulting from the technology. **Plans were completed to adapt the course work for the World Wide Web, which allows students to undertake course-related collaborative projects and to take examinations over the Internet.**

The First Advanced-Level Virtual Graduation in the Department of Veterans Affairs and the Department of Defense. Twenty-six students, through a virtual commencement exercise, graduated from the VA/DoD Distance Learning Program on May 18, 1999. An additional student completed requirements during August of 1999, bringing the total to 27 students who graduated from the program's first class. This graduation marked the first virtual advanced-level graduation by either the Department of Veterans Affairs or the Department of Defense. The coast-to-coast, virtual graduation took place at eight Veterans Affairs medical centers: Atlanta, Georgia; Baltimore, Maryland; Bronx, New York; Charleston, South Carolina; Fayetteville, North Carolina; Fort Leavenworth, Kansas; San Diego, California; and, West Los Angeles, California. The Distance Learning Program was successfully implemented due to extensive coordination by the following individuals: the Dean, GSN; the GSN Distance Learning Advisor; Chairs of the GSN Nurse Practitioner and Research Departments; the GSN faculty; the Director of the USUHS Center for Informatics in Medicine; the VA Program Director; and, the tremendously dedicated on-site VA preceptors/coordinators.

Summary of the First Graduating Class - A Successful Collaborative Effort. Outcome data from present students, alumni, and employers reflect extremely high levels of satisfaction with this program. Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and Veteran's health care. All nurse practitioner programs within the Department of Nurse Practi-

tioners meet or exceed all standards established by the National Organization of Nurse Practitioner Faculties (NONPF). **The experience** gained by both the Graduate School of Nursing and the Department of Veterans Affairs **will allow future projects in distance learning to benefit from the lessons learned and the technologies tested during the twenty-month, VA/DoD program.** Outcome evaluations continue with the early graduates and their supervisors. The technology continues to evolve to reflect the rapid growth of the field. The difficulties faced by the project coordinators in creating a new program utilizing the latest technologies were numerous and challenging; the GSN and VA Departments, faculty, staff, and students who succeeded in doing so, were well pleased with their initial results and continued to work to improve their educational efforts in distance learning. A report was also submitted to the Congress as the Department of Veterans Affairs and the Department of Defense response to a legislative directive for a summary report on the distance learning program.

From Concept to Graduation. To ensure that other federal entities can easily access the lessons learned during the VA/DoD Distance Learning Program, a joint report was issued by the GSN and the VA Nursing Strategic Healthcare Group in November of 2000. The report, the VA/DoD Post-Master Adult Nurse Practitioner Program: From Concept to Graduation, documents, in chronological order, the formulation of the partnership between the DoD and the VA, the conceptual stages and developmental processes, learning strategies, course evolvement, assessment methodologies, clinical experiences, and the transmission effectiveness (computer technology and video teleconferencing) for the entire program. In short, the report provides an inclusive roadmap for implementing a distance learning program - from concept to the matriculation of the second class.

Curriculum and Technology Changes for the Second Class. Several curriculum changes were made to the twenty-month program in response to suggestions from the 27 graduates of the first class. Pharmacology and Pathophysiology Courses must be completed before students can enroll in the Advanced Practice Clinical Courses. In addition, the Role Course was increased from one to two credits in order to meet individual state requirements. Students can now evaluate courses on-line using course evaluation forms developed for Internet postings. Using a confidential identification code, students can anonymously evaluate a course and provide written feedback for the instructors. The evaluation results are both paperless and immediate, which reduces cost and enhances communication.

Following the first graduation, the USU SOM Department of Medical Informatics headed by **Leon Moore, Ph.D.,** and the GSN/Department of Veterans Affairs collaborated in the purchase of new video-teleconferencing equipment for a studio located at USU. This equipment allows instructors to arrange video-conferences with students, from one to four sites, without the requirement of a central bridge to handle the connection with a satellite. This capability enhances the staff's ability to communicate with students as an alternative to using e-mail or telephone conferences.

The Second Advanced-Level Virtual Graduation and the Third Distance Learning Class. The GSN Adult Nurse Practitioner Post-Master Program admitted its second class of students during 1999. Thirty-five students were enrolled as members of the Class of 2001. The nine VA distance learning sites were: Buffalo, New York; Cleveland, Ohio; Atlanta, Georgia; Detroit, Michigan; Los Angeles, California; Milwaukee, Wisconsin; San Juan, Puerto Rico; Shreveport, Louisiana; and, Washington, D.C. All of the clinical specialists enrolled in the program held a Master Degree or higher in Nursing; and, all practiced as

clinical specialists in their respective VA Medical Centers. On May 15, 2001, an additional thirty-three students graduated from the VA/DoD Distance Learning Program. **To date, 60 individuals have successfully graduated from this exceptional program.**

In August of 2000, 12 additional students were enrolled at four sites in the Continental United States, Puerto Rico, and the Virgin Islands. The current class includes a Ph.D.-prepared nurse from the National Institute of Mental Health, expanding the outreach of the program to another government agency. **The third class is scheduled to graduate in May of 2003.**

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IV. GRADUATE EDUCATION PROGRAMS

A medical school also must contribute to the intellectual growth of its students and faculty through scholarly activity, including research in the biomedical sciences, the cultural and behavioral aspects of medicine, health services, health policy, preventive medicine, and health maintenance, and the process of medical education itself.

Other educational programs conducted by medical schools or their affiliated institutions which contribute to an enriched environment for undergraduate medical education include postdoctoral fellowships, graduate education in the basic medical sciences, continuing education for physicians, and education in other health professions and allied health occupations. Postdoctoral fellowships in the biomedical sciences and in the clinical subspecialties contribute to the advancement of knowledge and to the development of future physician faculty members. Future faculty members and investigators in the basic medical sciences are developed through programs in graduate education leading to the Master of Science, Doctor of Philosophy, or Doctor of Public Health Degrees.

- Functions and Structure of a Medical School, "Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree," Liaison Committee on Medical Education (LCME), May 2001, page 1.

ESTABLISHMENT

The Uniformed Services Health Professions Revitalization Act (Public Law 92-426) Established the University in 1972 and Directed the Establishment of Graduate Education Programs. Following Congress' establishment of the University and the School of Medicine in 1972, the early founders understood that **in order to gain and sustain accreditation, Graduate Education Programs had to be structured within the School of Medicine**. The Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards. It is recognized by both the LCME and the USU Board of Regents that predoctoral graduate programs in the basic medical sciences leading to the Doctor of Philosophy Degree or to appropriate degrees at the Master Degree level are essential components of a School of Medicine dedicated to excellence in medical education.

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The Establishment of the Office of the Associate Dean for Graduate Education. In accordance with the requirement to ensure the academic excellence of the newly established Graduate Education Programs, the Dean of the USU School of Medicine (SOM) appointed **Colonel John W. Bullard, Ph.D., USA, (Retired), as the Assistant Dean of Graduate and Continuing Education Programs**. Dr. Bullard was recognized as one of the Army's experts on educational affairs, and in particular, continuing education. He had been a Medical Service Corps officer who served in Vietnam and had been previously assigned to the Army Academy of the Health Sciences, the Office of the Surgeon General of the Army, and the Office of the Assistant Secretary of Defense for Health Affairs. The SOM admitted its first graduate students in 1977. During the early 1980's, in an effort to

highlight the contributions of the Graduate Education Programs, Dr. Bullard began a research symposium to showcase the research contributions of the graduate students. Following Dr. Bullard's death in November of 1990, the Office of the Dean, SOM, with the concurrence of the USU President and Board of Regents, and in recognition of the importance of the Graduate Education Programs, determined that the leadership position for the Graduate Education Programs should be separated from the Continuing Education Programs and a subsequent search was held for the position of Assistant Dean for Graduate Education. **Michael N. Sheridan, Ph.D., Professor, USU Department of Anatomy and Cell Biology**, was selected as the second Assistant Dean for Graduate Education in 1991. The Dean, SOM, elevated the position to Associate Dean for Graduate Education in 1993; Dr. Sheridan served in that position until August of 2001, when **Cinda J. Helke, Ph.D., Professor of Pharmacology and Neuroscience**, was appointed to the position.

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Graduate Education Programs Provided at USU. The Doctoral and Master Degree Programs available at USU are:

Interdisciplinary Ph.D. Programs in Emerging Infectious Diseases, Molecular and Cellular Biology, and Neuroscience;

Departmentally-Based Ph.D. Programs in Clinical Psychology, Environmental Health Sciences, Medical Psychology, Medical Zoology, Pathology, and Applied Human Biology (Undersea Medicine);

Doctor of Public Health Program (DrPH);

Masters of Science Programs in Public Health, Molecular and Cellular Biology, and Applied Human Biology (Undersea Medicine and Aerospace Physiology);

Master of Public Health Program (MPH);

Master of Tropical Medicine and Hygiene Program (MTM&H); and,

Master of Military Medical History.

Since the establishment of the USU SOM Graduate Education Programs in 1977, through April of 2002, a total of 678 advanced degrees have been granted by the University: 216 Doctors of Philosophy; 8 Doctors of Public Health; 67 Masters of Science; 357 Masters of Public Health; 2 Masters of Science in Public Health; 25 Masters of Tropical Medicine and Hygiene; and, 3 Masters of Military Medical History. During 2001, 26 uniformed officers received advanced degrees (24 Masters Degrees and 2 Doctoral Degrees).

MISSION

"The USUHS shall: ....4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services."

- DoD Directive 5105.45, dated March 9, 2000, page two.

Mission Direction Calls for the Development of Graduate Education Programs. The goal of graduate study at the School of Medicine is to develop independent scholarship, originality, and competence in research, teaching, and professional service. This goal has guided the development of the Graduate Education Programs, which are designed for outstanding students committed to careers in the basic medical sciences, public health, or tropical medicine. The purpose of the Graduate Education Programs and their relationship to the School of Medicine were defined in the founding documents which recognized that superior Graduate Education Programs in the basic medical sciences are an essential component in the accreditation process for a school of medicine.

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Graduate Programs Benefit the Military Health System. Graduate Education Programs in the basic medical sciences benefit the USU and the Military Medical System (MHS) as follows: 1) the graduate programs provide training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USU graduate training programs under the sponsorship of their parent Service; 2) graduate students have the opportunity to become aware of the outstanding investigative programs which are on-going in the Department of Defense laboratories located throughout the Washington, D.C. area. It is anticipated that the research institutes within the Department of Defense will be assisted in their recruitment of well qualified graduates on the basis of the mutual knowledge and respect developed during the graduate students' interactions at USU; 3) the academic environment of the School of Medicine is maintained at a high level exposing the uniformed physicians-in-training to the disciplined methods of critical scientific inquiry which are the rational basis of problem solving in medical science; and, 4) graduate students participate as teaching assistants and assist in the performance of instructional and investigative efforts which are essential to the mission of the School of Medicine and significant to the Military Health System (MHS).

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Responsiveness to the Needs of the Services.

Master of Military Medical History. A specific example of the USU Graduate Education Program's direct response to the needs of the Surgeons General is the creation of a new program for the Master of Military Medical History. This program is an outgrowth of the Fellowship in Military Medical History established at USU in 1983 to train instructors of history for the United States Army Academy of the Health Sciences. A request was

received from the Medical Service Corps of the Army to establish a degree granting program so that officers could continue to be used for lessons learned and history education assignments as teachers at the Army Academy. Thus, the program was designed to meet the needs of Army officers in the Medical Service Corps Military Occupational Specialty (MOS) 70H, to prepare the officer to be an instructor in professional military medical education programs, and for utilization as a field historian for specific military medical issues. The program of study is currently limited to officers in the Medical Service Corps of the Army; three degrees have been granted in 1997, 1998, and 2001. The Program Director can be contacted by e-mail at *<dcsmith@usuhs.mil>* or at *<www.usuhs.mil/meh/gradprog.html>*.

The Graduate Program in Clinical Psychology Trains Clinical Psychologists to Serve in the Uniformed Services. The Graduate Program in Clinical Psychology is designed to train clinical psychologists to serve in the Uniformed Services. Students earn Master of Science (with master thesis) and Doctor of Philosophy (with doctoral dissertation) Degrees. This program is open to individuals who currently are serving in, or who are eligible and willing to join, the Uniformed Services. A year-long, full-time clinical internship is also required for graduation; and, the program is fully accredited by the American Psychological Association (also discussed under the Accreditation section which follows). This graduate program is designed to prepare broad-based Ph.D. clinical psychologists and to emphasize both an appreciation for, and an understanding of, the special needs of the Uniformed Services and public health. The program trains clinical psychologists to be: effective providers of mental health services; creative problem solvers; critical thinkers sensitive to organizational needs and constraints; effective managers and communicators; and, professionals with the ability to evaluate processes and outcomes designed to improve the quality of health care. To accomplish these goals, the Ph.D. Program in Clinical Psychology follows the scientist-practitioner model of training. The program strongly values the development of knowledge and skills in applied clinical psychology and trains students to apply critical thinking skills to real world patients and situations, particularly in military and public health settings. The Ph.D. Degree requires independent scholarly work, comprehensive clinical training, a strong base in the foundations of psychology, and specialty training in uniformed clinical, health, and organizational psychology. The Program Director can be contacted by e-mail at *<tsbrocco@usuhs.mil>* or at *<www.usuhs.mil/mps/Psychology/index.html>*.

Masters and Doctoral Programs in Operationally-Oriented Applied Human Biology. Another example of the University's response to the needs of military medicine has been addressed by the Department of Military and Emergency Medicine. The program of study, approved by the Graduate Education Committee on June 20, 2001, recognizes the broad range of techniques and disciplines spanned by operationally-oriented applied human biology which effects military missions, deployability, and the readiness of military personnel. Programs of study, available to Uniformed Service members, will lead to a Master of Science or a Doctor of Philosophy in Undersea Medicine, and a Master of Science in Aviation Physiology. The new program provides students with the unique opportunity to pursue an academic degree which includes a core background in the basic sciences, and other disciplines essential to applied research, coupled with experience in advanced laboratory and field studies. In sum, graduates will be prepared to understand, evaluate, and counter operational and environmental threats from the cellular to the whole body level. The Program Director can be contacted by e-mail at*<pdeuster@usuhs.mil>* or at *<www.usuhs.mil/mim/gradprog.html>*.

Three Interdisciplinary Research Programs Relevant to the Needs of the Uniformed Services. The research and development goal of the USU Strategic Plan is to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. Currently, there are three interdisciplinary research programs: 1) **Neuroscience.** The Interdisciplinary Program in Neuroscience and its Ph.D. Graduate Program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series, and a flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. Seven students entered the program in the Fall of 2001; the Program Director can be contacted by e-mail at *<rarmstrong@usuhs.mil>* or at *<www.usuhs.mil/nes/home.html>*; 2) **Molecular and Cell Biology.** An Interdisciplinary Program in Molecular and Cell Biology (including Genetics) has been developed to contribute to cross-disciplinary interactions and to develop critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. program. This interdisciplinary Ph.D. Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Prospective students should have a background in biological or chemical sciences; study for the Master Degree Program is available to uniformed officers. Research areas include molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways; exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Two students entered the program in the Fall of 2001; the program consists of faculty mainly from six SOM departments. The Program Director can be contacted by e-mail at *<wgause@usuhs.mil>* or at *<www.usuhs.mil/mcb/index.html>*; and, 3) **Emerging Infectious Diseases.** Initially, a special interest group from the USU SOM Departments of Microbiology and Immunology and Preventive Medicine and Biometrics, to include faculty from other departments who were interested in infectious diseases, began meeting and successfully submitted a proposal for an NIH training grant in this area. This effort led to the establishment of the Emerging Infectious Diseases (EID) Graduate Program. The EID Program has three academic tracks within the field of emerging infectious diseases: microbiology and immunology; pathology; and, preventive medicine/parasitology, with primary interest in the pathogenesis, host response, pathology, and epidemiology of infectious diseases. The research training emphasizes modern methods in molecular biology, cell biology, and interdisciplinary approaches. The inaugural graduate student class of 10 matriculated in the Fall of 2000; the second class with ten full-time students entered in the Fall of 2001; and, two full-time uniformed service applicants have also been accepted for the Fall of 2002. The Program Director can be contacted by e-mail at *<emetcalf@usuhs.mil>* or at *<www.usuhs.mil/mic/eid.html>* (a description of the program follows).

Additional academic departments which contribute extensively to the teaching and research training of doctoral and master degree students through interdisciplinary programs include: Anatomy, Physiology and Genetics; Biochemistry; Microbiology; Pharmacology; and, many clinical departments such as Medicine, Neurology, Pediatrics, and Psychiatry. In addition, the Department of Pathology provides programs of research and study which focus on molecular approaches to the pathology of human disease. They include genetics, carcinogenesis, immunology and cell biology. The Program Director in Pathology can be contacted by e-mail at *<rmaheshwari@usuhs.mil>* or at *<www.path.usuf2.usuhs.mil/default.html>*.

The Interdisciplinary Graduate Program in Emerging Infectious Diseases.

Background. In August of 1999, the USU Board of Regents gave its final approval to a Graduate Program in Emerging Infectious Diseases (EID). This program is designed for both military and civilian applicants who wish to pursue a program of study leading to the Ph.D. Degree in one of the academic tracks within the interdisciplinary field of Emerging Infectious Diseases. The EID Program includes training in the basic science areas of: microbial pathogenesis; host immune responses; and, the pathology and epidemiology of infectious diseases. In addition, this program provides an opportunity for military pediatric and adult Infectious Diseases Fellows to complete the research components of their Fellowships in Infectious Diseases. **With the addition of this program, the SOM has increased its capacity and commitment to interdisciplinary graduate programs and to instruct students in the biology of infectious diseases, especially in the areas of interest to military medicine.** The faculty of the EID Program are primarily full-time members of the Departments of Microbiology and Immunology, Pathology, Preventive Medicine and Biometrics, Pediatrics, and Medicine. In September of 1999, **Eleanor S. Metcalf, Ph.D., Professor of Microbiology and Immunology,** was selected as the Program Director; and, she continues to serve in that position.

Both Military and Civilian Students Are Matriculants in the EID Program. The inaugural graduate student class of 10 matriculated in the Fall of 2000. This class consisted of seven full-time and three part-time students; two of the three are in the Uniformed Services. These students are now in their second year of classes, taking both core and advanced academic track courses; they will take their Qualifying Exams in June of 2002. These Exams are being offered for the first time. A second class with 10 full-time students entered in the Fall of 2001. Two of these students are in the Uniformed Services: Army Medical Corps - 1; United States Public Health Service -1. These students are in the process of completing the first year of their Core Curriculum and have begun to take advanced courses and laboratory rotations. The program-unique course, "Models of Emerging Infectious Diseases," is underway, and for the first time, both second- and first-year EID students are together in the classroom; a situation designed to promote both academic and informal interactions between the two classes. In addition, three military Pediatric Infectious Disease Fellows are attending. Although the number of total applicants is somewhat diminished from last year, the quality of the applicant pool has improved. The EID Program has also accepted two full-time uniformed service applicants (Army - 1; Navy -1) for the Class of 2002. **Captain Tim Straight, MC, USA, USU SOM Class of 1998,** is currently an Adult Infectious Diseases Fellow at the Walter Reed Army Medical Center; his matriculation is viewed as a potential precedent for the program.

The EID Program Recognizes the Extent to which Basic Science Advances in the Area of Infectious Diseases Can Affect the Current and Future Health of Individuals Throughout the Military Health System. The Emerging Infectious Diseases Program will also serve as an opportunity for the facilitation of educational and scientific interactions between students and faculty at USU who share common interests in the contemporary approaches to the study of the molecular biology, pathogenesis, and host responses within the context of Emerging Infectious Diseases. The establishment of this Program at USU formally recognizes the breadth of disciplines spanned by Emerging Infectious Diseases and the extent to which advances in these areas can affect the current and future health of individuals within the United States and also in the global arena. **This program is of particularly critical relevance given the recent events of bioterrorism in this Nation. As part of the EID**

Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only Graduate Programs in the country to offer formal training in this critical area. The implementation of an interdisciplinary and interdepartmental Program in Emerging Infectious Diseases will also broaden and enhance the overall educational objectives of USU and bring together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. Since USU has the **only** school of medicine which offers a formal program in EID, the University plans to be at the forefront of training broadly-based military and civilian infectious diseases scientists for the future. As indicated above, the Program Director can be contacted by e-mail at <*emetcalf@usuhs.mil*> or at <*www.usuhs.mil/mic/eid.html*>.

Graduate Education Programs in Preventive Medicine Address the Special Needs of the Military Health System. The Department of Preventive Medicine and Biometrics (PMB) offers graduate programs leading to the Degree of Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (PhD) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2002, 397 individuals have graduated from these degree programs earning the following degrees: 357 MPH, 2 MSPH, 25 MTM&H, 1 MS, 8 DrPH, and 8 PhD. During 2001, 29 Preventive Medicine and Biometrics students were awarded advanced degrees: 1 Doctor of Philosophy; 4 Doctors of Public Health; and, 24 Masters of Public Health. During 2001, PMB continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the Army/USPHS Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. The PMB Department is affiliated with the United States Army and Navy Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. The MTM&H Program includes a six-week overseas clinical experience in tropical medicine; the students find excellent opportunities at these overseas laboratories. A research program also exists under an agreement with the Ministry of Health in Belize. Several doctoral students have found opportunities to do research in these various locations.

The current Graduate Program in Public Health has 41 students at the Master Degree level (MPH, MTM&H, and MSPH); these programs are designed for students with at least three years of experience in a health-related field. Thirty-eight of these students are in the Uniformed Services and three are civilians. These students include 22 physicians, 6 veterinarians, 3 Army Medical Service Corps (MSC) officers; 3 Air Force Biomedical Science Corps (BSC) officers; 1 Canadian medical officer; and 6 United States Public Health Service officers. First year residents in General Preventive Medicine/Public Health, Occupational and Environmental Medicine, and Laboratory Animal Medicine take courses and meet all of the requirements for the MPH or MTM&H Degrees as part of their residency training. At the doctoral level, 11 individuals (2 uniformed officers; 9 civilians) are Doctor of Public Health candidates and four individuals (2 uniformed officers; 2 civilians) are Doctor of Philosophy candidates. The Doctorate in Public Health Program prepares individuals for leadership roles in research, teaching, or policy development in the field of public health. In addition, two Ph.D. Programs are offered: Medical Zoology, for students with a Master Degree in Entomology or Parasitology who wish to pursue further study in field-oriented medical parasitology or vector biology; and, Environmental Health Sciences, which includes environmental health science research particularly in the area of military-relevant exposure assessment. The Program Director can be contacted by e-mail at <*ggackstetter@usuhs.mil*> or at <*www.usuhs.mil/pmb/pmb.html*>.

The Department of Preventive Medicine and Biometrics Graduate Education Programs have an outstanding record of responding to the Requirements of the Uniformed Services: 1) **A new Ph.D. Program in Environmental Health Sciences** was recently established in response to identified needs within the Uniformed Services; the first military student, an active duty Navy officer, has been admitted to the program; 2) **the Master of Science in Public Health (MSPH)** graduated its first two degree candidates during 2000, with two other individuals expected to complete the program in June of 2002; 3) **the TriService Advanced Military Tropical Medicine Course** has been offered at USU, beginning in 1996, through the Summer of 2001. During 2001, 69 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided 122.5 hours of didactic instruction. **To date, approximately 300 students have completed the course**; 4) **the Diagnostic Parasitology Course** is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study the diagnosis of parasitic infections in humans. Military and civilian medical technologists and physicians from all parts of the world have completed this course. **Since 1988, over 222 individuals have taken the course, to include 14 individuals who took the course during 2001**; and, 5) **Integrating Clinical Managerial Decisions to Improve Population Health**, a five-day training course held four times each year, responds to the Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. **To date, 24 sessions have been held in the TRICARE Regions and approximately 700 senior officers have been trained for the MHS.** (See Section II, "The USU SOM Department of Preventive Medicine and Biometrics and the Centers for Preventive Medicine and Public Health," for further discussion.)

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ACADEMIC REQUIREMENTS AND ACCREDITATION

Academic Excellence and Uniformity Ensure Accreditation. To ensure academic excellence within the Graduate Education Programs, in addition to the oversight and reviews provided by the GEC and the academic departments, a series of requirements for the Doctor of Philosophy Degree (Ph.D.) have been established. Some departments have established additional requirements. The minimum residency requirement for the Ph.D. is 36 months of full-time study; but, it may be less if a student holds an advanced degree. All requirements must be completed no later than seven years after matriculation. Formal course work, participation as teaching assistants in the SOM teaching programs, and directed research activities are all components of a student's predoctoral program. Full-time status is defined as 12 or more credit hours each quarter. The minimum course work requirement for the doctorate is 48 credit hours and the minimum for total academic credit is 144 credit hours. A qualifying examination (comprehensive exam) is conducted and graded by a committee of graduate faculty. A written dissertation based on the original experimental research, or an alternative thesis format, differentiated by the materials and methods section and results section, in the form of acceptable peer-reviewed publications is required. A total of 24 credit hours of graduate course work taken at other academic institutions, either before admission to the SOM or during study at USU, may be transferred, provided such courses are equivalent to courses at the SOM and are approved by the graduate faculty of the specific program and the Graduate Education Committee. Some departments' Ph.D. Programs of Study encompass an independent project whereby the student will receive a Master Degree while pursuing the Ph.D. Requirements are designed to ensure academic excellence and uniformity in degree programs across the departments. An approved thesis is required of all candidates for the Master of Science Degree. A thesis is not required for the Master of Public Health or the Master of Tropical Medicine and Hygiene, but an independent project paper must be completed to fulfill requirements for those degrees.

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The Graduate Education Committee and Department Reviews Ensure the Quality of the Programs. Each departmental or interdepartmental Graduate Education Program is managed by a Program Director. The Graduate Education Committee (GEC) is composed of the Graduate Program Directors, Representatives from the Basic Science Departments, the Associate Dean for Graduate Education, the Vice President for Teaching and Research Support, two members of the faculty appointed by the Dean, SOM, and a Graduate Student Representative. The GEC is responsible for periodic reviews of the policies and procedures of each Graduate Education Program, reviews of academic records and other aspects of graduate student standing, and the monitoring of the overall quality of graduate student life at the University. In addition, all graduate courses must be submitted to the GEC for consideration and approval prior to offering (over 200 individual graduate education courses have been established by the participating faculty). Significant changes to previously approved courses must also be considered by the GEC prior to incorporation. Departmental faculty annually review and update the graduate course offerings for each program. Some departments rely upon medical school course offerings for their Graduate Education Program curricula, supplemented by graduate course offerings. Some medical school courses have been subdivided into individual graduate offerings, allowing graduate students to take appropriate parts of a larger course. The GEC makes recommendations on its areas of responsibility to the Dean, SOM, through the Associate Dean for Graduate Education. Following the 1999 SOM Self-Study, no major revisions were recommended for the Graduate Education Programs.

Within the last two years, each of the established Graduate Degree Granting Programs, subsequent to the preparation of a detailed self-study, was site-visited and reviewed by an external team of graduate educators. During the initial review cycle, the Neuroscience Program, Programs in the Medical and Clinical Psychology Department, the Anatomy, Physiology and Genetics Department, and the Pharmacology Department were evaluated. In 2001, the Molecular and Cellular Biology Program, and the Programs of the Pathology Department and the Department of Microbiology and Immunology were externally reviewed. Constructive improvements to the Graduate Education Programs have resulted from these external reviews. Newer programs, including the Emerging Infectious Disease Program and the Applied Human Biology Program, will be externally reviewed within the next few years. This external review process is intended to bring attention to the strengths and weaknesses of the programs and to appropriately focus institutional resources for graduate education.

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Accreditation of USU Graduate Programs in Public Health Is Extended through December 31, 2003. The Graduate Education Programs offered by the SOM Department of Preventive Medicine and Biometrics (PMB), as an integral part of the SOM and the SOM Office of Graduate Education, are included in the full accreditation granted by the Commission on Higher Education of the Middle States Association of Colleges and Schools to the University. In addition, the PMB graduate programs are nationally accredited by the Council on Education for Public Health (CEPH). CEPH is the recognized accrediting body for graduate schools of public health and graduate programs in community health education and community health/preventive medicine. Additionally, the PMB Department has the distinction of being **one of only seven accredited resources** approved for course work in tropical medicine in the United States. Following a site-visit during 1998, the CEPH Board of Directors determined on October 3, 1998, to continue the accreditation of the USU Graduate Programs in Public Health through December 31, 2003.

Given the mission of USU and the importance of prevention to military medicine, PMB is a large and vital part of the medical school and the University. The program was initially accredited by CEPH in 1985, followed by a review in 1991 at which time accreditation was extended for a seven-year term. The most current review included a self-study process carried out by program constituents, the preparation of a self-study document, and a site visit in mid-June of 1998 by a team of external evaluators. The site visit team interviewed USU officials, department administrators, program staff, faculty, students, alumni, and community representatives. The CEPH found that..."the public health programs constitute the largest graduate program and have both visibility and appropriate decision-making prerogatives. The environment is a multi-disciplinary setting which values and supports interactions both within the department and externally with a wide variety of rich intellectual resources within the institution and with federal partners located throughout the Washington, D.C. area. **The values of the institution and the philosophy of military medicine are an exceptionally 'good fit' with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which program graduates will return after their training.** The curriculum is quantitatively-oriented and rigorous. There is a well qualified faculty (some 57 full-time, assigned faculty members), augmented by an extensive and impressive list of adjunct faculty (currently totalling 155)."

Following the CEPH accreditation process in 1998, an ad hoc committee was established to articulate the mission, goals, and objectives of the graduate programs, which has since become part of a dynamic process of program review and evaluation for continuous quality improvement. In addition, the recent addition of a CEPH requirement for a field experience in the MPH program led to the establishment of a new practicum. Along with the attention to measurable program outcomes, greater emphasis is placed on independent projects and research methodology. The Program Director can be contacted by e-mail at <*ggackstetter@usuhs.mil*> or at <*www.usuhs.mil/pmb/pmb.html*>.

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Clinical Psychology Program Receives Accreditation. The Department of Medical and Clinical Psychology's Clinical Psychology Ph.D. Program received full accreditation from the American Psychology Association's Committee on Accreditation. The program received its accreditation in record time and will be listed annually among accredited programs of professional psychology in the American Psychologist. The site visit report stressed that "the curriculum is clearly articulated and appropriately sequenced, and the practicums are organized. Well-qualified and accessible, the faculty provides excellent role models for students. Also commendable is the program's commitment to systematic self-evaluation." Doctoral programs and research in this area emphasize the application of psychology to behavioral medicine and to clinical psychology. Study in applied areas on the interface of health, psychology, and behavior, and in the basic areas of psychology is offered. The American Psychological Association-accredited Clinical Psychology Ph.D. Program is offered to selected members of the Uniformed Services. The Program Director can be contacted by e-mail at <*tsbrocco@usuhs.mil*> or at <*www.usuhs.mil/mps/Psychology/index.html*>.

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ACADEMIC RESOURCE FOR THE UNIFORMED SERVICES

The Development of Independent Scholarship. The goal of graduate study in the basic medical sciences at USU is to develop independent scholarship, originality, and competence in research, in teaching, and in professional service to the Nation. The Graduate Education Programs are designed for outstanding students with a strong commitment toward permanent careers in the basic medical sciences and potentially, in the Federal Government. Within each Ph.D. program, an individualized course of study is designed for each student to meet his or her specific needs **(over 200 individual graduate education courses have been established by the participating faculty at USU)**. The graduate programs are open to qualified civilian and uniformed personnel. Students accepted for graduate study are enrolled on a full-time basis. They assist in the performance of the instructional and investigative efforts which are carried out at the University. Active duty military and uniformed services personnel must obtain the approval and sponsorship of their parent Service; they also incur an obligation for additional service, in accordance with the regulations of the parent Service which govern sponsored graduate education. **Most of these officers will complete careers in their parent Services and use their graduate education and training to fulfill specific assignments for their Surgeons General and the Military Health System.**

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Research Day and the Graduate Student Colloquium. Since 1994, the USU Faculty Senate has sponsored an annual Research Day which is designed to promote faculty interactions and emphasize the importance of the research contributions of the University. It is composed of an afternoon symposium followed by a full day of posters and platform presentations of abstracts submitted by faculty, trainees, and students in the university community. For the past several years, the annual Graduate Student Colloquium has been held concurrently with Research Day. The Colloquium features the research accomplishments of the USU graduate students and includes a competition for the best platform and poster presentations. Awards are presented at the USU Research Day dinner which also features an invited keynote address, *The John W. Bullard Lecture*. The Lecture is presented by a distinguished scientist and educator. These activities are intended to highlight the Graduate Education Programs and to foster an intellectual exchange between graduate students and the entire University community.

The theme for the 2001 Annual Graduate Student Colloquium and Faculty Senate Research Day was *Emerging Research Technologies*. On April 10 and 11, 2001, the University celebrated its 8th Faculty Senate Research Day and Graduate Student Colloquium. These significant events were coordinated by the Faculty Senate Research Committee, the Vice President for Research, and the Associate Dean for Graduate Education. The two-day research event brought approximately 250 individuals to the USU campus, including researchers from affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, and the Walter Reed Army Institute of Research. A total of 34 panelists and 144 posters made up a full, two-day program. Researchers were represented from a wide range of Washington-area institutions on seven different panels and nine concurrent poster sessions. Topics included infectious diseases, operational medicine, combat casualty care, space medicine, cancer research, neurology, endocrinology, cardiovascular research, behavioral research, and health promotion and education. This year's event included the addition of three well-attended, pre-meeting workshops on issues related to: conducting biomedical research at USU; emerging questions on the transfer of technology from research to licenses and patents; compliance with the evolving Federal regulations on human and animal research; and, career development strategies for students graduating in the 21st Century.

The Graduate Student Colloquium consisted of a full day of activities focusing on the careers and accomplishments of the USU biomedical graduate students. A workshop, "Career Development for Graduate Students," was presented in the morning; the career development session included talks by scientists and recruiters from biotechnology companies, academic researchers, career development staff from the Career Program of Science Magazine, and Federal agencies such as the Federal Bureau of Investigation, the Food and Drug Administration, and the United States Patent Office. During the afternoon colloquium session, there were six oral presentations by USU doctoral graduate students; also, poster presentations by many other students were available for viewing throughout the day. Both oral and poster presentations were evaluated by a faculty committee and awards were presented for the best presentation in each category. Following the platform portion of the Graduate Student Colloquium, *The John W. Bullard Colloquium Lecture* was presented by **Roy Curtiss III, George William and Irene Koechig Freiberg Professor of Biology, Washington University, St. Louis, Missouri**; the lecture was entitled, "Salmonella: Our enemy and, in some forms, our friend." Prior to the afternoon sessions, graduate students were invited to join Dr. Curtiss for lunch and discussion. The keynote speaker for the 2001 USU Faculty Senate Research Day was **Olli-P Kallioniemi, M.D., Ph.D., Chief of the Cancer Genetics Branch, National Human Genome Research Institute, National Institutes of Health**. His presentation was entitled, "Biochip Technologies for High-Throughput Cancer Research in the Post-Genome Era."

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The Faculty of the Graduate Education Programs Ensure an Individualized Program Built on Quality Research and Instruction. All departments have sufficient full-time faculty to accommodate the present advising needs for the students in the Graduate Education Programs. Most academic departments reported in the 1999 SOM Self-Study that additional students are desired and could be accommodated without placing undue demand on existing faculty resources. All departments have a faculty/student ratio which provides excellent opportunities for continuous interaction; large numbers of both basic science and clinical science faculty members are involved in the didactic and research training of USU graduate students. There are 195 civilian and 109 uniformed faculty members in the USU SOM and over 150 of those 304 SOM faculty members are actively supporting the graduate education programs which include approximately 150 graduate education students. Formal occasions for faculty and graduate student interactions occur through seminars, journal clubs, research laboratory rotations, and courses; opportunities abound for students to interact with faculty on an informal and regular basis.

A faculty actively involved in research is critical to the success of the Graduate Education Programs. Through their research activities, high quality faculty members maintain themselves at the cutting edge of their various disciplines. Thus, they contribute to the research mission of the SOM by making advances in medically related research; and, they are also better equipped to function as "state-of-the-art" educators. The productivity of the USU SOM research faculty, the quality of their research, and their ability to successfully compete for extramural and intramural funding are all indications of the success of the USU research mission. The presence of strong Graduate Education Programs contributes to this success and is essential not only for the continued growth of the research activities in the University, but also for the future of medical research and education. The SOM Graduate Education Programs are clearly recognized by the institution as essential to achieving success in the University's research mission. Departments with active and vigorous graduate programs show high research productivity. USU graduate education students regularly present their research at professional meetings and publish their findings in peer-reviewed scientific journals, thus publicizing and promoting the University's reputation. The

University's reputation is also enhanced by the success of the graduates to secure postdoctoral positions in highly regarded public and private research laboratories, followed by faculty appointments or positions of responsibility in government research, regulatory agencies, and industry.

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Research Facilities Are Well Equipped and Support the Graduate Education Programs. The Graduate Education Programs are conducted in facilities on the campus of USU. Well-equipped, state-of-the-art laboratories are available to support the wide variety of research projects directed by the faculty in the basic medical sciences. Individual laboratories and core facilities are well-equipped with the instrumentation required for modern biomedical research. Special resources include high resolution transmission and scanning electron microscopes, video-based computer graphics and confocal microscopy, a central resource facility providing custom synthesis of oligonucleotides and peptides, biohazard containment laboratories, a centralized animal resources facility, a medical library, computer support to include orientation to web sites and the Internet, and a learning resources center. Students can enhance their educational experiences at USU through collaboration with the National Institutes of Health, the Library of Medicine, the Naval Medical Research Command, the Walter Reed Army Institute of Research, the Armed Forces Institute of Pathology, the Armed Forces Radiobiology Research Institute, the National Institute of Standards and Technology, numerous biotechnology companies, and other major institutions in the area.

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STUDENT AFFAIRS

Selection of Students. A formal application is required of all persons seeking admission to graduate study at USU. Applications and all supporting documentation must be received no later than January 15 for programs beginning in the following August. Applicants must have completed a Baccalaureate Degree Program from an accredited academic institution and take the Graduate Record Examination (GRE) before matriculation at USU. The GRE may be waived if the applicant possesses an advanced academic degree. All graduate students are admitted to a program of graduate study on a full-time, or part-time, basis and assist in the teaching and research programs which are integral components of the Graduate Education Programs in which they are enrolled.

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Demographics and Qualifications of the Student Body. Sixty-one new students matriculated into the Graduate Programs of the SOM during August of 2001. Of these, 28 were admitted to Ph.D. Degree Programs and 33 were admitted to Masters Degree Programs. Of the Ph.D. matriculants, the greatest number enrolled in interdisciplinary programs: Emerging Infectious Disease Programs - 12 students; the Neuroscience Program - 7 students; and, the Molecular and Cellular Biology Program - 2 students. Departmentally-based programs in Medical and Clinical Psychology enrolled 5 students; and, Pathology and Medical Zoology each enrolled one student. The students in Masters Degree Programs are almost entirely enrolled in the Master of Public Health Program of the Department of Preventive Medicine and Biometrics.

The 149 students currently enrolled in the Doctoral and Masters Degree Programs at USU come from all parts of the country, from all types of undergraduate academic institutions, and from many different career-paths. Of these individuals, 108 are Ph.D. or DrPH students, while 41 are Masters Degree candidates. Approximately 50 percent of the graduate students attend USU as active duty members of the Uniformed Services (United States Army, Navy, Air Force, Public Health Service, and Coast Guard). Most students are enrolled on a full-time status; however, a few exceptional students are accepted into degree-granting programs as part-time students. The MPH Program is generally completed in one year (as a full-time student); the Masters Degree Programs take approximately two years to complete; and, the Doctoral Programs take from three to seven years to complete (four to five years is the average time for the Ph.D. Program).

Active-duty military personnel accepted to study full-time must have the consent and sponsorship of their parent Services and incur a service obligation to the United States Government after the completion of their graduate training programs. The University offers USU-supported stipends on a competitive basis to civilian doctoral students who are U.S. Citizens or resident aliens. Forty-nine of the Ph.D. students receive stipends; all but eight of the 149 students are U.S. Citizens or Permanent Residents. Outstanding applicants may be nominated for the Dean's Special Fellowship which also supports a stipend.

Applicants must have completed a Bachelor Degree from an accredited academic institution prior to enrollment; they must arrange for: official transcripts of all prior college-level courses; GRE scores taken within the last two years; and, letters of recommendation from three individuals who are familiar with their academic

work. Information and application forms can be downloaded from <*http://www.usuhs.mil/geo/gradpgm/index.html*>. Completed applications must be received before January 15th for matriculation in late August; there is no application fee.

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22nd Commencement - May 19, 2001. Well over 2,000 family members and guests attended the 22nd Commencement Ceremony at The Daughters of the American Revolution Constitution Hall in Washington, D.C., on May 19, 2001. At the graduation ceremony, the School of Medicine's Graduate Education Programs awarded: 11 Doctor of Philosophy Degrees; 2 Doctor of Public Health Degrees; 9 Masters of Science Degrees; and, 23 Masters of Public Health Degrees.

The USU Graduate Education Programs Have Granted a Total of 678 Degrees. Since the establishment of the USU SOM Graduate Education Programs in 1977 through April of 2002, the Graduate Education Programs have granted a total of 678 degrees: 216 Doctors of Philosophy; 8 Doctors of Public Health; 67 Masters of Science; 357 Masters of Public Health; 2 Masters of Science in Public Health; 25 Masters of Tropical Medicine and Hygiene; and, 3 Masters of Military Medical History. During 2001, 26 uniformed officers received advanced degrees (24 Masters Degrees and 2 Doctoral Degrees).

The 2001 Graduate Student Award. The Graduate Student Award was presented to **Seth Ettenberg, Ph.D.** This award was presented during the 2001 USU Graduation Ceremonies to recognize this graduating student for his outstanding and exceptional service rendered to the student body, medical school, and the University. During the graduation ceremonies, Mr. Ettenberg received a Doctor of Philosophy for his work in the Molecular and Cell Biology Program. This award recognizes Doctor Ettenberg's academic achievements, participation in the academic and intellectual life of the community, and contributions to the welfare and morale of other graduate and medical students.

The Henry M. Jackson Foundation Fellowship in Medical Sciences Awards. The Henry M. Jackson Foundation inaugurated a Foundation Fellowship to provide stipend and travel support for an outstanding graduate student during the terminal year of his/her program of study at the Uniformed Services University. Last year, the Foundation generously agreed to offer two fellowships. These Fellowships will be awarded annually to USU graduate students who are expected to complete their research and defend their dissertations in sufficient time to participate in commencement activities. The 2001 Awards were presented to **Grant Huang, Ph.D.**, from the Department of Medical and Clinical Psychology, and **Roseann Waterhouse, Ph.D., Department of Pathology.**

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The University Has Granted a Total of 26 Honorary Degrees Since its Establishment. Since the first Honorary Degree, which was granted in 1991, through April of 2002, a total of 26 recipients have been selected. The Honorary Degree recognizes individuals who have demonstrated outstanding support for the Military Health System and/or the Uniformed Services University of the Health Sciences. The following have received Honorary Degrees:

1991 **Jay Sanford, M.D., Third President of the University and first Dean of the School of Medicine,** recognized as a major participant in the establishment and early leadership of the University;

1992 **Harry C. Holloway, M.D., Professor, USU Department of Psychiatry, and Deputy Dean from 1990 through June 1992,** recognized for unwavering support during a transitional period;

1993 **The Honorable Daniel K. Inouye, United States Senator from Hawaii,** Senate Appropriations Committee, recognized for continuous leadership and support for Military Medicine and the University as one of the original members of the Congress who supported the establishment of the University;

1994 **Mr. Zachary Fisher, Champion of the Armed Forces,** recognized for his founding of the Intrepid Museum, the Fisher House Foundation, the Fisher Armed Services Foundation, and his tremendous support for both Military Medicine and the University;

The Honorable David Packard, Former Deputy Secretary of Defense, first Chairman of the USU Board of Regents, and Acting President of USU from 1976 to 1981, recognized for his constant support of Military Medicine and the University and oversight during the original construction of the USU campus;

1995 **The Honorable Sam Nixon, M.D., former Chairman of the USU Board of Regents and Founder of the USU Tradition of the Mace** for the University Commencement Ceremonies, recognized for his dedication to Military Medicine and the superb leadership he provided to the University;

Frank Reynolds, M.D., Internationally recognized throughout the practice of civilian medicine and for his continuous support and interest in both Military Medicine and the University; he was also the commencement speaker for the 1995 Commencement Ceremonies;

The Honorable Strom Thurmond, United States Senator from South Carolina, Chairman, Senate Armed Services Committee, recognized for continuous leadership and support for Military Medicine and the University and as one of the original members of the Congress who supported the establishment of the University;

1996 **Michael E. DeBakey, M.D., Renowned Surgeon who has been recognized by numerous Presidents of the United States** and leaders of multiple nations for his knowledge of medicine and his unwavering support for Military Medicine and the University;

The Honorable Melvin R. Laird, Former Secretary of Defense and continuous supporter of Military Medicine and the University, has provided essential guidance and support since the establishment of USU;

Francis D. Moore, M.D., Internationally recognized as a distinguished Surgeon and supporter of Military Medicine and for his consistent support to the educational programs within the University;

1997 **Donald L. Custis, M.D., Vice Admiral (Retired), former Surgeon General of the United States Navy,** recognized for his career of dedicated service to Military Medicine and consistent support for the University;

The Honorable C. Everett Koop, M.D., Former Surgeon General of the United States and Member of the USU Board of Regents, recognized for his consistent support for Uniformed Medicine and the University;

The Honorable Constance Morella, Member of the United States House of Representatives from the State of Maryland, recognized for her outstanding dedication to quality health care, medical research and technology, and for her unwavering support for the University;

President Ronald W. Reagan, President of the United States from 1980 through 1988, recognized for his dedication to the welfare of the Armed Forces, Military Medicine, and the University;

1998 **General Charles Krulak, Commandant, United States Marine Corps,** recognized for his outstanding support for Military Medicine and for the welfare of the University; he presented the commencement address for the 1998 graduation ceremonies;

Joshua Lederberg, Ph.D., Nobel Laureate and internationally recognized as a leader in medicine and for his participation in, and support of, University activities and programs;

V. M. Rexroad, Brigadier General, United States Air Force (Retired), recognized as one of the original supporters of the University and for his dedication to Military Medicine and continuous dedication to the welfare of the University;

David C. Sabiston, Jr. M.D., Internationally recognized throughout the civilian practice of medicine for his dedication and support of Military Medicine in general and the University;

1999 **Oliver H. Beahrs, M.D., Professor of Surgery, Emeritus, Mayo Medical School, Past President of the American College of Surgeons,** recognized for his continuous support for Military Medicine in general and for his on-going and dedicated support to the University;

Sheila Burke, Executive Dean, Lecturer in Public Policy, John F. Kennedy School of Government, Harvard University, former Chief of Staff, Office of the Republican Leader, U.S. Senate, from 1986 to 1996, recognized for her dedication to Military Medicine and the University;

The Honorable Paul S. Sarbanes, United States Senator from Maryland, recognized for his unwavering support of, and dedication to, essential legislation for both the Military Health System and the University;

2000 **The Honorable William S. Cohen, Secretary of Defense,** recognized for his outstanding support and dedication to Military Medicine and to the welfare of the University;

2001 **The Honorable Robert J. Dole, Former United States Senator from Kansas and Senate Majority Leader,** recognized for his tremendous history of service to his Nation during War and Peace and for his commitment to the health care of the Armed Forces and to the University (description follows);

Val G. Hemming, M.D., Professor and Dean, USU School of Medicine, recognized for his dedicated and outstanding service to the Nation which began in 1965 through his scheduled retirement in 2002; his sincere and successful leadership has resulted in tremendous acclaim for the University from the Department of Defense and the United States Congress (description follows); and,

The Honorable Theodore F. Stevens, United States Senator from Alaska and Chairman of the Senate Appropriations Committee, recognized for his great dedication to the Nation and to the health care of the Armed Forces and the continuation of the University (description follows).

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Three Honorary Degrees Recognized During the 2001 Commencement Ceremonies.

The Honorable Robert J. Dole, Former United States Senator from Kansas and the Senate Majority Leader, received the Doctor of Medical Jurisprudence, *Honoris Causa*, during the 2001 Commencement Ceremonies at Constitution Hall on May 19, 2001. Senator Dole was recognized for his political achievements which are second to none. In addition to being one of 16 Americans to serve as the Senate Majority Leader, the Chairman of the Senate Finance Committee, and the Chairman of the Republican Party, Senator Dole is highly valued by the American People for his tremendous history of service to his Nation during War and Peace.

During World War II, Robert Dole was a platoon leader in the legendary.Tenth Mountain Division in Italy. In 1945, he was gravely wounded on the battlefield and was twice decorated for heroic achievement. His decorations include two Purple Hearts and a Bronze Star with Oak Leaf Cluster. Without a doubt, Senator Dole is recognized as one of the United States' most prominent political figures of the Twentieth Century. He has earned national acclaim for his leadership on behalf of the disadvantaged and Americans with disabilities. During his extensive and memorable career in the United States Senate, his commitment to the health care of the Armed Forces won him the sincere respect of the General Public, the Military Health System, and the University. Millions of soldiers, sailors, airmen, and Marines have benefited due to his uncompromising commitment to excellence in military medicine. Directly due to his support, both the importance of the early detection and the treatment of prostate cancer have made significant progress. Through his unwavering leadership, uniformed physicians, graduate nurses, and scientists are providing state-of-the-art support to the Military Health System and USU has become a part of this legacy.

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Val G. Hemming, M.D., Professor and Dean, USU School of Medicine, received the Doctor of Military Medicine, *Honoris Causa*, during the 2001 Commencement Ceremonies. Dean Hemming was chosen as the Dean of the School of Medicine in May of 1996; prior to his appointment, he had served as the Interim Dean since the Summer of 1995. Dean Hemming was accepted into the United States Air Force Senior Medical Student Program in 1965; and, served on active duty with the Air Force until his retirement at the rank of 0-6, in 1990. He was assigned to the USU SOM Department of Pediatrics in 1980, and, following a national search, appointed as the Chair of Pediatrics in 1987. In addition to these responsibilities, Dean Hemming also served, from 1983 through 1990 as the Specialty Consultant in Pediatrics to the Air Force Surgeon General, and from 1987 through 1990, as the Consultant in Pediatrics to the Assistant Secretary of Defense for Health Affairs.

Dean Hemming is recognized as a physician, teacher, scientist, military officer, humanitarian, husband, father, and grandfather. He has dedicated his life to serving his Nation. Countless physicians and scientists have come to recognize his accomplishments; literally thousands of children and families in distress have been aided directly by his successful research to secure a cure for the *Respiratory Syncytial Virus* infection. Under Dean Hemming's leadership, the curriculum of the SOM was thoroughly reviewed and enhanced to better meet the special needs of the Uniformed Services; his academic and research accomplishments have left a remarkable legacy for both the Military Health System and the University.

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The Honorable Theodore F. Stevens, United States Senator from Alaska and Chairman of the Senate Appropriations Committee, was recognized for his thirty-three years of outstanding service as the United States Senator from the State of Alaska. His tenure in the Senate makes him the sixth most senior member among his colleagues, and second among Republicans. During World War II, Senator Stevens served as a pilot in the China-Burma-India theater, supporting the Flying Tigers of the 14th Air Force. He received two Distinguished Flying Crosses, two Air Medals, and the Yuan Hai Medal awarded by the Republic of China. Following his graduation from law school, he was elected in 1964 to the Alaska House of Representatives; then, in 1968, he was appointed as the United States Senator from Alaska. He has continuously been re-elected since that time.

In 1997, Senator Stevens assumed the role of Chairman of the Senate Appropriations Committee, responsible for the allocation of more than a half-trillion dollars in federal funds among various government programs, agencies, and departments. Senator Stevens also provides oversight over the Nation's defense in his role as Chairman of the Appropriations Committee. The Senator's commitment to the health care of the Armed Forces has won him the sincere respect of the General Public, millions of men and women in the Armed Forces, and the University. Directly due to his support, state-of-the-art research is being conducted and superb clinical care is being provided in the detection and treatment of prostate cancer.

Senator Stevens received the Doctor of Medical Jurisprudence, *Honoris Causa*, at the USU campus on April 19, 2001. Following his hooding, he addressed an audience of approximately 350 USU faculty, staff, students, and distinguished guests (to include **the Honorable Daniel K. Inouye, United States Senator from Hawaii**). His words were filled with hope for tomorrow and the assurance of his on-going commitment to providing quality health care for those who serve in the Armed Forces.

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The University Medal.

Background. The University Medal is one of the University's highest honors. It was created in 1999, to pay tribute to deserving alumni, staff, and faculty members, friends and supporters of the University, its schools, programs, and mission. The recipients are recognized for professional or academic success or public service. Receipt of the University Medal is by endorsement and recommendation of the USU Committee for Names and Honors with the approval of the USU Board of Regents.

The University Medal, molded from silver, displays the University Seal on the front side; the medal's number, recipient's name, and the award date are engraved on the reverse side. 2001 marked the second annual presentation of the University Medal during the USU Commencement Ceremonies. As of April 2002, a total of ten individuals have received the University Medal.

University Medal Recipients:

1999 **Lieutenant General Ronald Blanck, Surgeon General of the Army,** received the first University Medal at the November 1, 1999 Meeting of the Board of Regents. As Surgeon General, he served as a member and Chair of the USU Executive Committee; he was also the Assistant Dean of Student Affairs at USU from 1976 through 1979;

2000 **David O. Cooke, Director of Administration and Management, Office of the Secretary of Defense,** was awarded the University Medal during the USU Commencement Ceremonies on May 20, 2000, in recognition of his continuous service in the Office of the Secretary of Defense since 1958. During these many years, Mr. Cooke has provided continuous support and administrative guidance for Military Medicine and the University;

Rear Admiral Michael L. Cowan, MC, USN, Chief of Staff for the Assistant Secretary of Defense for Health Affairs (and later Surgeon General of the Navy), received the University Medal in recognition of thirty years of dedicated service in support of Military Medicine and the University. Admiral Cowan received the University Medal during the USU Commencement Ceremonies on May 20, 2000, following his presentation of the Commencement Address;

Jeffrey R. Swope, Director, USU Audio Visual Center, upon his retirement from public service, was recognized for his leadership in the establishment of the University Audio Visual Center during 1977 and for his 23 years of continuous dedication and unwavering support to the USU community. The University Medal was presented on May 20, 2000, during the USU Commencement Ceremonies.

2001

Lieutenant Colonel Yvonne Andejeski, MC, USA, USU SOM Class of 1983, completed a residency in radiation oncology; she was board-certified in 1987 and was active in patient care and research. She had served as the Acting Chief of Radiation Oncology at the National Naval Medical Center and as the Chief of Radiation Oncology at the Walter Reed Army Medical Center, as well as the Radiation Oncology Consultant to the Surgeon General of the Army. In addition to serving as the Program Manager for a congressionally-directed $240 million breast cancer research program, in 1998, she co-designed and co-managed the development of the DoD Breast Cancer Treatment Guidelines using a TriService, multi-specialty panel of oncologic, surgical, and primary care and psycho-social clinicians. Following her own diagnosis of breast cancer in 1994, she selflessly continued her work through the Spring of 2001 when she retired from the Army and assumed a position at the National Cancer Institute. On March 31, 2001, during a retirement party in Doctor Andejeski's honor, Doctor Lee Poth presented the University Medal, on behalf of the University, in recognition of LTC Andejeski's significant contributions to research, medicine, the military, and the University. Doctor Andejeski died in October of 2001.

Gerald W. Fischer, M.D., Colonel, MC, USA (Ret.), received his U.S. Army commission in 1971, and began his pediatric training at the Madigan Army Medical Center, followed by an infectious disease fellowship at the Tripler Army Medical Center. After arriving at USU in 1977, he earned the faculty rank of professor within four years. During his twenty-year tenure in the USU Department of Pediatrics, he held numerous positions of importance. He is a superb clinician who has trained numerous military physicians as fellows in his specialty. His scientific career has been quite successful, earning both national and international recognition; he has also founded his own biotechnology company, Biosynexus. The University Medal was presented on May 19, 2001, during the 2001 Commencement Ceremonies.

Connie Mariano, Rear Admiral, MC, USN, USU SOM Class of 1981, the first USU SOM Graduate to be promoted to 0-7, was the Commencement Speaker during the 2001 USU Graduation Ceremonies. During June of 1992, RADM Mariano became the first military woman to be named White House Physician; in February of 1994, she was promoted to Director of the White House Medical Unit and Senior White House Physician. Dr. Mariano was promoted to Rear Admiral (lower half) on July 1, 2000, making her the first Filipino American to become an admiral in the history of the United States Navy. The University Medal was awarded following RADM Mariano's presentation of the USU Commencement Address on May 19, 2001.

Michael N. Sheridan, Ph.D., USU SOM Associate Dean for Graduate Education, was recognized for his tremendous service to the University since 1980. Following his planned retirement during 2002, the University's presentation of this award reflected the tremendous respect and gratitude held by all for Dr. Sheridan's dedicated service and accomplishments during his more than twenty years of outstanding service to the University. The University Medal was presented during the USU Commencement Ceremonies on May 19, 2001.

Craig Llewellyn, M.D., Professor and Chair, Department of Military and Emergency Medicine, received the University Medal on August 23, 2001, during the welcoming ceremonies for the new students. The award recognizes the superb dedication of Doctor Llewellyn who served as the Department Chair of Military and Emergency Medicine for 14 years (1987 through 2001). Doctor Llewellyn first joined USU in 1982, when he was selected to serve as the Commandant of Students from 1982 through 1987. Doctor Llewellyn has served as a foundation for the University in its continuous efforts to effectively respond to the special needs of military medicine. He will remain at USU as a tenured professor and also as the Director of the Center for Disaster and Humanitarian Assistance Medicine (CDHAM).

Norman M. Rich, M.D., Professor and Chair, Department of Surgery, was awarded the University Medal on August 23, 2001, during the 16th Annual Surgery for Trauma Day. Since the very inception of the University, Doctor Rich has continuously provided support and encouragement to the faculty, students, and graduates of the School of Medicine. On both the national and international scenes, Doctor Rich has contributed to a positive awareness of the University through his international efforts and memberships in elite organizations. He has been responsible for on-going visits by prestigious organizations to USU. Two examples include the Society of University Surgeons (this premier organization for young academic surgeons has held two meetings at USU, whereas the majority of United States medical schools have never been visited) and, the International Surgical Group composed of Professors from leading Canadian, British, Scandinavian, and United States Schools of Medicine.

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The Carol Johns, M.D., Medal.

Background. Doctor Carol J. Johns was a long-time enthusiastic and effective supporter of the University. Doctor Johns worked for the health and survival of the University in numerous ways. She served as a member of the USU Board of Regents from 1985 until her death in 2000. A warm and gifted woman with remarkable personal humility and gentleness, Doctor Johns achieved the highest honors in academic medicine as a nationally recognized clinician, academician, and teacher. The University established an annual award in her name, the Carol J. Johns, M.D. Medal. The Medal will honor the faculty member whose accomplishments emulate Doctor Johns' spirit in: furthering the welfare and excellence of the USU faculty; promoting outstanding educational programs for the students; and, advancing the reputation of the University locally, nationally, and internationally. The Carol J. Johns M.D. Medal was presented for the first time during the 2001 USU Commencement Ceremonies.

Louis Pangaro, M.D., Colonel, MC, USA (Ret.), was the first individual to receive the newly established Carol J. Johns M.D. Medal during the 2001 USU Commencement Ceremonies on May 19, 2001. Internationally recognized as a leader in academic medicine and board-certified in internal medicine and endocrinology, Doctor Louis Pangaro, Professor of Medicine, was selected to receive this award due to his excellence in teaching

students and faculty at all levels for which he has received numerous awards. Most noteworthy is that he was the 1990 recipient of the William P. Clements Award for Excellence in Education. His innovations in academic medicine led to his selection as Vice Chairman for Educational Programs in the USU SOM Department of Medicine. Doctor Pangaro's commitment to promoting outstanding educational programs is further acknowledged by his on-going selection to university and national initiatives dealing with curriculum reform and through his numerous peer review publications on academic medicine. He joined the USU faculty in 1978 as an endocrinology fellow and has shown an on-going high regard for the welfare of the USU faculty since that time.

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2001 School of Medicine Biomedical Graduate Educator Award. As part of the 2001 USU Graduation Ceremonies, **Michael N. Sheridan, Ph.D., Professor and Associate Dean for Graduate Education,** received the Biomedical Graduate Educator Award. The award recognized the outstanding contributions of Doctor Sheridan for over twenty years of dedicated service to the University. Doctor Sheridan was selected to receive this award because of his demonstrated commitment to graduate education through his extensive and outstanding contributions to the education of the graduate students at USU. Dr. Sheridan has provided outstanding leadership to the Graduate Education Programs of USU since his appointment as the Associate Dean for Graduate Education in 1991. He has served on the SOM Curriculum, Graduate Education, Student Promotions, Graduation, and Medical School Admissions Committees and as President of the Faculty Senate. In addition, Doctor Sheridan served as the Chair of the USU Academic Enrichment Program and as Chair of the Self-Study Steering Committee for the Middle States Accreditation. This award recognizes excellence in teaching, the mentorship of graduate students, the administration of graduate programs, and the promotion of the interests of graduate education. Doctor Sheridan has been an on-going tower of patience and support for students, faculty, and the USU administration.

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ALUMNI AFFAIRS

Selected Profiles of Graduates from the Graduate Education Programs.

Class of 1981.

Stephen J. Huot, Ph.D., was the first graduate student in the USU SOM Physiology Doctoral Program. Doctor Huot was **the only graduate student at USU** and after four years of work in cardiovascular physiology, with an emphasis on hypertension, he became the first basic science program alumnus. As of April 2002, Doctor Huot is one of over 678 graduates who have received advanced degrees from the University's Graduate Education Programs. He has since gone on to earn a Doctor of Medicine Degree from Duke University in 1985, complete residency training in internal medicine at the Yale University School of Medicine, and he now serves as the Director of the same Graduate Medical Education Program at Yale from which he graduated.

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Class of 1984.

CAPT Jay Paulsen, M.D., MPH, USPHS, was in the Charter Class of the USU MPH Program in 1982, which included an Army veterinarian, a civilian physician with the State Department, three Navy physicians, and Doctor Paulsen, a United States Public Health Service physician. After earning his MPH Degree in Health Services Administration in 1984, Doctor Paulsen spent a year with the Federal Employee Occupational Health Program, in the Health Resources and Services Administration of the Department of Health and Human Services in Rockville, Maryland. The following year, he transferred to Seattle, Washington, where he served as a Regional Clinical Coordinator for the Bureau of Primary Health Care's Community and Migrant Health Care Programs. Still with the USPHS, he has served as the Region X Associate Regional Health Administrator (Clinical Affairs), and the Regional AIDS Coordinator under the National AIDS Program Office. Since 1993, Doctor Paulsen has been with the Seattle Area Office of Federal Occupational Health (FOH) serving as a Senior Occupational Medical Consultant, the National Lead for the FOH Medical Surveillance Program, and as the Medical Officer for the U.S. Department of the Interior.

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Class of 1986.

Robert Mansbach, Ph.D., finished his Ph.D. Program in Medical and Clinical Psychology and then accepted a post-doctoral position in psychiatry at the University of California, San Diego, studying the neurobiology of schizophrenia. In 1988, he and his colleagues at UCSD published data in the Journal, Psychopharmacology, showing that apomorphine, a competitive dopamine agonist, disrupted information processing in the rat in a manner similar to schizophrenia. The deficit was reversed by the standard anti-psychotic medication haloperidol. The procedure has since become a standard testing procedure in the pharmaceutical industry. Doctor Mansbach later took a position as an Assistant Professor in the Department of Pharmacology and Toxicology at the Medical

College of Virginia, Virginia Commonwealth University, where his research focused on the abuse-related behavioral effects of drugs, primarily PCP and cocaine. Doctor Mansbach is very active in the drug abuse research community, and serves as an active member of the College on Problems of Drug Dependence and as a review consultant to the National Institute on Drug Abuse. In 1991, he received the American Psychological Association's Young Psychopharmacologist Award. Two years later, he accepted his current position as a staff scientist in the Neuroscience Department at Pfizer Pharmaceuticals Central Research. His major focus has been to develop animal models useful in the discovery of medications for psychiatric disorders.

James Remenick, Ph.D., came to USU with an undergraduate degree in zoology and biochemistry form Iowa State University. In 1986, he completed the Graduate Education Program in Microbiology and Immunology and then went to the National Institutes of Health, where he served as a staff fellow in the Laboratory of Molecular Virology at the National Cancer Institute, while simultaneously pursuing a degree from the Washington College of Law of The American University in Washington, D.C. In 1990, he completed his law degree and left NIH to serve for two years as an associate in the firm of Finnegan, Henderson, Farabow, Garrett and Dunner in Washington, D.C. He moved to Baker Botts, LLP, where he was a partner and associate for the next eight years. In 2000, Doctor Remenick was hired as a partner in the firm of Brobeck, Phleger and Harrison, LLP, where he serves as an intellectual property attorney specializing in the development and protection of technology, with an emphasis on biotechnology.

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Class of 1987.

Janet Yu-Yahiro, Ph.D., graduated in 1987 from USU with a Doctor of Philosophy Degree in Physiology. Doctor Yu-Yahiro is now the Director of Orthopaedic Research at the Union Memorial Hospital in Baltimore, Maryland. She holds a faculty position at the University of Maryland in the Department of Epidemiology and Public Health. Doctor Yu-Yahiro is currently involved in the fields of osteoporosis, hip fracture, and bone metabolism; she is working on two National Institutes of Health-funded grants to study recovery from hip fracture.

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Class of 1988.

Steven Wietstock, Ph.D., upon receiving his Doctoral Degree in Biochemistry, immediately joined the Alma College in Alma, Michigan, for a one-year teaching appointment to help create a biochemistry major and department. At the end of his first year, he was offered a tenure-track appointment, and within two years, the Biochemistry Degree Program at Alma College had been certified by the American Chemical Society. In 1996, Doctor Wietstock became the Coordinator of Instructional Programs at Indiana University in Bloomington, Indiana; and, he currently remains in that position. He is responsible for the daily operation of the Undergraduate Chemistry Program, and more specifically, for all of the advising for the University's 300 undergraduate majors. Doctor Wietstock also works on curriculum and pedagogical innovations, directs the placement program for the department, writes grant proposals, and teaches one to two courses per year. He serves on the IU, Professional Staff Council, the Career Planning and Placement Directors Council, and is currently serving as the President of the Bloomington Advisors Council.

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Class of 1989.

Colonel Glenn Mitchell, MC, USA, MPH, earned his graduate degree from USU in 1989. An Army physician, Colonel Mitchell has held a variety of military assignments since leaving USU, including two and a half years as the Command Surgeon at the United States Southern Command in Miami, for which he received the Defense Superior Service Medal. During his assignment, Colonel Mitchell was responsible for the United States medical responses to Hurricanes Mitch and Georges, earthquakes in Colombia, mud-slides in Venezuela, and threatened volcanic eruptions in Equador. Colonel Mitchell is now the Chief of Consultants for the Army Medical Department and Chief of the Clinical Services Division at the Army Medical Command in San Antonia, Texas.

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Class of 1990.

Paul Ling, Ph.D., graduated from USU with a Doctor of Philosophy Degree in Microbiology and Immunology. He is an Assistant Professor in the Department of Molecular Virology and Microbiology at the Baylor College of Medicine of the Texas Medical College in Houston, Texas. After earning his degree from USU, Doctor Ling completed a post-doctoral fellowship at the Johns Hopkins University School of Medicine in the Department of Pharmacology and Molecular Sciences. He received a National Research Service Award post-doctoral fellowship, and following that, a Leukemia Society of America Special Fellow Award which supported his studies at the Johns Hopkins University. In 1995, he moved to Texas to his current assignment where he receives grants funded by the National Institutes of Health, the American Cancer Society, Zeneca Pharmaceuticals, and NASA. Doctor Ling is studying the Epstein-Barr Virus (EBV) which is implicated in a number of human cancers, including B-cell lymphoma, or cancer of the white blood cells, and nasopharyngeal cancer. He is interested in the functions of viral proteins called EBV nuclear antigens which are expressed in the cancer cells.

Eric Reichman, Ph.D., following the receipt of his Doctoral Degree in Anatomy, earned his Doctor of Medicine from the Medical College of Wisconsin in Milwaukee in 1993. He completed a transitional internship at the St. Luke's Medical Center in Milwaukee, followed by an Emergency Medicine Residency at the Medical College of Wisconsin affiliated hospitals. Doctor Reichman is currently serving as an emergency physician in Chicago, Illinois.

Lawrence Sung, Ph.D., completed his Ph.D. in Microbiology and Immunology in 1990, and left USU to pursue a career in law. Doctor Sung entered the Washington College of Law of The American University. Three years later, he graduated cum laude with a law degree. During law school, Doctor Sung served as a legal intern in the Office of Technology Assessment for the United States Congress, and later as a clerk for the firm of Finnegan, Henderson, Farabow, Garrett and Dunner. After graduating, he served as a judicial clerk for Circuit Judge Raymond C. Clevenger III, in the United States Court of Appeals for the Federal Circuit. In 1995, Doctor Sung joined the firm of Foley and Lardner in Washington, D.C., as an associate in the Intellectual Property, Customs, Trade and Technology Department, before assuming his current position as Assistant Professor of Law at the Northwestern School of Law of Lewis and Clark College in Portland, Oregon. Doctor Sung teaches and specializes in patent law, civil procedure, international intellectual property, licensing and technology transfer, and the legal aspects of biotechnology.

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Class of 1991.

Ann Miller Donoghue, Ph.D., is a research leader with the Poultry Production and Product Safety Unit of the Agricultural Research Service, United States Department of Agriculture (USDA), at the University of Arkansas in Fayetteville, as well as an adjunct faculty member in the University's Department of Poultry Science. She entered USU in 1987 with a background in animal science beginning at the San Diego Zoo and ending with a Master of Science Degree from Texas A&M University in reproductive physiology. While a Ph.D. student at USU, Donoghue was awarded a pre-doctoral fellowship through the Smithsonian Institution National Zoological Park's Scholarly Studies Program. She also served as a guest researcher at the National Cancer Institute Section of Genetics and the National Institutes of Health Veterinary Resource Branch. Her work at the National Zoo led to the successful birth of rare white tiger cubs. After receiving her Ph.D. in Physiology, in 1991, Doctor Donoghue continued her studies at the National Zoo with a post-doctoral fellowship, followed by a position as a physiologist in 1992 at the Directorate of Health Sciences, with the United States Consumer Product Safety Commission. The following year, she moved to the USDA, working as a poultry research physiologist in the Germplasm and Gamete Physiology Laboratory, specializing in turkeys. **Her efforts resulted in being named Maryland's Distinguished Young Scientist in 1997, and the USDA's Herbert L. Rothbart Outstanding Early Career Research Scientist of the Year in 1999. In April of 2000, Doctor Donoghue received the United States Presidential Early Career Award for Scientists and Engineers, a $25,000 research award, which was presented at a ceremony at the White House.** Doctor Donoghue left Maryland in the Summer of 2000 to assume her current position in Arkansas.

CAPT Nicholas Fleischer, Ph.D., USPHS (Retired), came to USU from the Food and Drug Administration (FDA). After completing his Ph.D. in Pharmacology in 1991, he returned to the FDA Center for Drug Evaluation and Research. For several years, Doctor Fleischer was a Supervisor and Division Director in the Office of Clinical Pharmacology and Biopharmaceutics where he supervised pharmacokinetics scientists who reviewed the Human Pharmacokinetics and Bioavailability information in new drug applications. In February of 1997, Doctor Fleischer became the Director of the Division of Bioequivalence in the FDA Office of Generic Drugs, which is responsible for reviewing the bioequivalence information supporting abbreviated new drug (generic drug) applications. He retired in November of 1997 from the FDA and the Commissioned Corps of the United States Public Health Service as an 0-6 after 26 years of service. Currently, Doctor Fleischer is a consultant with The Weinberg Group, Inc., a Washington, D.C., consulting firm, advising clients on issues of bioequivalence, pharmacokinetics, and FDA regulatory matters.

Lieutenant Colonel Earl Grant, MS, USA, Ph.D., is the Program and Grants Manager in the congressionally-directed Medical Research Programs Office of the United States Army Medical Research and Materiel Command at Fort Detrick, Maryland. He earned his Doctor of Philosophy Degree in Biochemistry. As an active duty Army officer, Doctor Grant's next assignment, following graduation, was the position of Laboratory Director in the Department of Clinical Investigation at the Brooke Army Medical Center in Fort Sam Houston, Texas. Next, he served as the Chief of the Chemistry Division at the Landstuhl Regional Medical Center in Germany. After Landstuhl, he served as the Chief of the Force Protection Branch, of the Directorate of Combat and Doctrine Development at the Army Medical Department Center and School in San Antonio, Texas, before assuming his current position.

Major Taras Masnyk, MC, USA, Ph.D., received a four-year Army Reserve Officer Training Corps (ROTC) Scholarship to attend Johns Hopkins University in Baltimore, Maryland, graduating in 1984. He deferred active duty while pursuing his Doctor of Philosophy Degree in Pathology at USU, which he completed in 1991. Immediately afterward, he returned to Johns Hopkins for a Doctor of Medicine Degree. He graduated in 1993, and moved to Chicago, Illinois, for a neurosurgery residency at the University of Chicago Hospital. After completing his residency, he returned to active duty. Major Masnyk is now Chief of Neurosurgery at the William Beaumont Army Medical Center in El Paso, Texas. He is a member of the Alpha Omega Alpha Honor Medical Society, and has clinical interests in tumors and radiosurgery.

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Class of 1992.

Christopher Oligny, MPH, received his Master of Public Health Degree in 1992. After leaving USU, the physician assistant, moved to California for a position with the Department of Veterans Affairs. As the Director of Clinical Research at the Veterans Administration (VA) Medical Center in San Francisco, California, Oligny was responsible for managing the creation of a Clinical Research Center from inception to its opening in 1999. He presently has a staff of six employees and administers over 130 industry-sponsored research projects for VA investigators. He supports all pre- and post-award activities as well as study coordination of clinical trials. Since his arrival, the Center has become known for its expertise related to good clinical practices and the Center's staff is challenged by the heightened interest of Congress in human subject protection at the VA.

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Class of 1993.

Frances Murphy, M.D., Master of Public Health, was appointed as the Deputy Under Secretary for Health during 2001, the highest position ever held by a woman in the Department of Veteran's Affairs (VA) Health Care System. In her position, Doctor Murphy, a USU SOM Clinical Professor of Neurology, is the Chief Operating Officer for the Nation's largest integrated health care system, with more than 1,200 sites of care, including 172 medical centers, almost 700 out-patient clinics, and 100 long-term care facilities. Doctor Murphy is a board-certified neurologist and an Air Force veteran. She joined the VA in 1987, and had been serving as the Acting Deputy Under Secretary since August of 1999.

Elizabeth Mezzacappa, Ph.D., earned a Ph.D. in Medical Psychology. She left USU for a post-doctoral fellowship at the State University of New York at Stony Brook, learning psychophysiological methods. While at Stony Brook, Doctor Mezzacappa became interested in the maternal effects of breast-feeding, including psychological, physiological, and health effects. From there, she completed another post-doctoral fellowship in the Behavioral Medicine Program at Columbia University where she studied cardiac psychophysiology. As a dually-appointed research assistant professor at both universities, Doctor Mezzacappa has identified a phenomenon called "vagal rebound" which is an index of how well the heart recovers after stress. Vagal rebound has been associated with risk factors of coronary heart disease. Her main work is in the maternal effects of breast feeding, and a recent study of hers was published last Summer in the Annuals of Behavioral Medicine. The findings are generally that breast-feeding is almost as good for the mother as it is for the baby.

Lieutenant Colonel Curtis Yeager, MS, USA, Ph.D., graduated from USU with a Doctor of Philosophy Degree in Microbiology and Immunology. As an Army officer, Doctor Yeager was transferred to the Brooke Army Medical Center, where he served as a staff microbiologist and subsequently as the Laboratory Director in the Department of Clinical Investigation. In 1995, he was assigned to the Madigan Army Medical Center in the Department of Clinical Investigation as a staff microbiologist and Director of the Research Support Service. He later transferred within the Medical Center to the Pathology Department to assume the position of Chief of the Microbiology Section. While there, he was promoted to Lieutenant Colonel. Since 1999, Lieutenant Colonel Yeager has been serving as the Chief of the Microbiology Branch of the Department of Clinical Support Services at the United States Army Medical Center and School in San Antonio, Texas.

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Class of 1996.

Laura C. Klein, Ph.D., earned her Doctoral Degree in Medical Psychology and accepted a position as an Assistant Research Professor in the Psychology and Social Behavior Department at the University of California, Irvine. Doctor Klein sought to bridge her USU doctoral research on animal models of stress and drug abuse into a human population. Her findings replicated her work at USU, and were published during 2001 in the Journal of Applied Biobehavioral Research. Her experience at UC Irvine gave rise to her next position at the University of California, Los Angeles, where she received a post-doctoral fellowship in health psychology from the National Institute of Mental Health, studying the biobehavioral effects of social relationships on health. Along with her post-doctoral mentor, Doctor Shelley Taylor, Doctor Klein received funding from the National Science Foundation to investigate their hypothesis that the hormone, oxytocin, plays a key role in mitigating sex differences in stress reactivity and may help explain why women live longer than men. Doctor Klein is now an Assistant Professor of Biobehavioral Health at Pennsylvania State University. Since arriving at Pennsylvania State, she was the first to develop an animal model of the epidemiologic report that children who smoke are more likely to use drugs as they get older. She began this research with her USU doctoral thesis, which earned her the 1998 Society for Research on Nicotine and Tobacco Young Investigator Award.

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Class of 1998.

Lieutenant Commander Keith Cook, USPHS, MPH, a graduate of the USU Master of Public Health Program, transferred to Anchorage, Alaska, where he serves as the Environmental Control Officer for the Alaska Native Tribal Health Consortium.

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V. GRADUATE MEDICAL EDUCATION

ESTABLISHMENT

Background - Graduate Medical Education Programs in the Military Health System. Graduate medical education (GME) comprises the second phase of the formal educational process which prepares physicians for medical practice. GME is required of all medical school graduates seeking full medical licensure and board certification in one of the specialties and/or subspecialties of medicine. This phase of medical education is, of necessity, conducted primarily in clinical settings, and requires direct participation by residents in the delivery of patient care services. Conducting high quality GME has always been a demanding undertaking. Ensuring an optimal learning environment and creating a proper balance between education and patient care activities have been the principal challenges to medical educators. In recent years, those challenges have become increasingly formidable due to the impact that the tremendous changes in the health care delivery system have had on the patient care environments in which GME is conducted. Certain of these changes have presented particularly difficult challenges for GME. Of special note, the shortened length of hospital stays, the increased emphasis on ambulatory care, the reductions in support staff, and the increased acuity of the average in-patient have placed increased demands on residency programs across the United States. The military GME programs in the National Capital Area have addressed many of these concerns through the use of simulated patients and virtual clinical experiences as discussed later in this section.

Following their graduation from the USU School of Medicine, the USU physician-graduates become active duty officers in the Military Health System (MHS) and are assigned to serve as residents in the MHS Graduate Medical Education Programs. The length of time served as a resident depends upon the individual specialty area. Residents in the MHS enjoy unique educational advantages. For example, the uniformed faculty at the military teaching hospitals are all full-time, ensuring a level of involvement in student and resident (GME) education that is unmatched at other settings. The military GME system is second in size only to that of the Department of Veterans Affairs; and, it is committed to medical education at all levels over a broad range of disciplines. The National Capital Consortium (NCC) residents, as well as all other residents in the integrated GME programs throughout the Military Health System, significantly benefit from the dedicated uniformed faculty and staff who provide educational GME programs and training at the military medical centers. And, as mentioned above, the NCC residents also have the advantage of participating in state-of-the-art simulated education and training.

The military resident, in most programs, also serves as an educator or trainer of medical students and junior residents. This proves to be a unique growth opportunity; and, most often, the resident comes to understand that teaching is actually an advanced expression of learning. Preparation for student lectures and teaching rounds is a reiterative process which consolidates the resident's own base of medical knowledge. The USU medical students and the more junior NCC residents are the indirect beneficiaries of the senior residents' training as they observe and participate in conferences, activities and clinics directed toward their education.

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The USU School of Medicine Office of Graduate Medical Education (GME). The USU SOM Office of Graduate Medical Education was established in 1986 to provide consultation on GME programs (internship, residency, and fellowship training for physicians) for Program Directors and the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). From 1986 to present, USU GME, under the leadership of the Associate Dean for Graduate Medical Education, has provided DoD-wide consultation and oversight for numerous GME programs.

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MISSION

USU Office of GME Serves as a Significant Academic Component for Graduate Medical Education in the Military Health System. The University is directed to educate and train competent medical personnel qualified to serve the needs of the MHS through the provision of quality education programs in the health sciences. The Graduate Medical Education Programs of the MHS are of critical importance to both the University and to the entire network of Military Treatment Facilities. In light of this, the USU SOM Office of Graduate Medical Education serves as a significant academic component in the development of the medical expertise of the MHS residents in their assignments throughout the military GME programs. The following responsibilities are currently assigned to the USU GME program: 1) oversight for the National Capital Consortium; the USU SOM Associate Dean for Graduate Medical Education serves as the NCC Administrative Director; 2) collection and evaluation of data on the DoD GME programs to ensure academic and scientific excellence; 3) oversight for the integration of the DoD GME programs to ensure that accreditation is not jeopardized; and, 4) provision of consultation and advice for the Dean, School of Medicine, the President, USU, and others on military-unique medical curricula.

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USU GME Office Assists in the Coordination of Simulated Training for the National Capital Consortium.

Simulated Operating Rooms for Specific Specialties Are Available on the Main USU Campus. The advanced training provided by the USU Clinical Simulator and Patient Simulator Laboratory is described in Section I, pages 68-69, of this report. When the anesthesiology residents come from the National Capital Area Anesthesiology Program, the training is intense. The scenarios are designed to present specific patients who provide complex clinical problems. Residents are purposely pushed beyond their competency levels, until they begin to make mistakes; those lessons will be remembered. Thus, critical experience is acquired without putting human patients or the residents at risk. Recent incoming classes of anesthesia residents to the Walter Reed Army Medical Center were provided extensive trauma training/evaluation with the simulator.

The USU Patient Simulator Laboratory is fully equipped with all of the functional equipment of an operating room, including the standard monitoring equipment, the life support system (anesthesia machine and ventilator), a defibrillator, and instruments used in treatment. The laboratory also includes complete audio/video recording and playback equipment. Training sessions are recorded, and the residents review their performance with the instructors. The simulated patient provides a unique opportunity to experience relatively rare cases, military relevant, and combat trauma scenarios. The residents gain experience in recognizing problems, developing

decision-making skills, familiarizing themselves with instruments and equipment, and refining techniques and procedures. Residents are able to repeat the scenarios until they are performed correctly.

The National Capital Area Medical Simulation Center Offers State-of-the-Art Simulated Training. Following collaborative efforts that began in 1995, the University and the Surgeons General instituted a new teaching facility, the National Capital Area Medical Simulation Center, for all GME and National Capital Consortium training programs (the Center is described at length in Section I, pages 73-77 of this report). The Simulation Center, a satellite facility located in Silver Spring, Maryland, began initial operations in the Fall of 1999. The administrative requirements and management of the Center are assigned to the USU SOM Assistant Dean for Simulation Education. This unique Center is available for training purposes for all GME-sponsored programs.

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POLICY FOR MILITARY UNIQUE TRAINING IN DOD-SPONSORED GRADUATE MEDICAL EDUCATION PROGRAMS

The USUHS shall coordinate efforts of the Services in developing the necessary curricula (for military unique training in DoD-sponsored Graduate Medical Education Programs) and shall establish a centralized repository of information on educational materials and courses to support the implementation of the curricula.

- Policy Memorandum, Office of the Assistant Secretary of Defense, Health Affairs, dated June 28, 1999, page one.

Graduate Medical Education Policy Is Issued by the Assistant Secretary of Defense for Health Affairs on June 28, 1999. In a memorandum dated June 28, 1999, the Assistant Secretary of Defense for Health Affairs (ASD/HA) stated that the Graduate Medical Education (GME) Programs conducted for military trainees in DoD facilities offer an opportunity to include military unique aspects to prepare physicians for the rigorous demands of practice in a wartime or contingency environment. The memorandum pointed out that it is essential for the military medical services to avail themselves of this opportunity in a comprehensive, yet efficient, manner; and, that new policies relative to DoD-sponsored GME programs are being established.

Army graduate medical education (GME) programs are the keystones to the quality of Army medicine. Our GME programs include military-unique aspects of a given specialty, which prepare physicians for the rigorous demands of practice in a wartime or contingency environment. Residents receive orientations and lectures concerning war zone injuries, trauma, and military deployments. Additionally, they attend formal training which includes a centralized combat casualty care course, advanced trauma life support, and medical management of chemical and biological casualties. After completing an Army graduate medical education, a physician is uniquely qualified to deploy at all levels within the theater of operations to support the military medical mission. We now place board-certified physicians in our brigade and division surgeon positions to ensure that our divisional soldiers receive the highest levels of care regardless of where they are in the world.

- Testimony by **Lieutenant General James B. Peake, the Surgeon General of the Army**, before the House Committee on Armed Services, Subcommittee on Defense, April 10, 2002.

Each Program Must Include a Military Unique Curriculum which is Standardized and Specialty Specific. The GME policy memorandum of June 28, 1999, specified that at the entry level, each GME program must incorporate a standardized curriculum which includes a core of those topics essential to every physician who will practice medicine in the military. This curriculum should be augmented by an orientation to field medicine such as the Combat Casualty Care Course (C4) or equivalent experience. The curriculum should be designed to complement, not replace, military training obtained through other means and only those elements that are both necessary and appropriate to the GME education program should be included. Beyond the entry year, each

program should also include a military unique curriculum which is standardized and specialty specific. For subspecialty training, the curriculum may be directed toward the projected utilization of the trainee, usually in his/her core specialty. An appropriate exposure to the practice of the specialty in an austere or contingent environment should be an essential element of each program.

USU School of Medicine Office of Graduate Medical Education Coordinates the Development of Curricula. The USU School of Medicine Office of Graduate Medical Education was tasked by the Assistant Secretary of Defense for Health Affairs to coordinate the efforts of the Services in developing the necessary curricula and to establish a centralized repository of information on educational materials and courses to support the implementation of a military unique curriculum which is both standardized and specialty specific.

The policy memorandum also directs that military unique training in GME programs must be documented on an annual basis and reported to the ASD(HA) by the Services by September 30 of the completed training year. Each program review must confirm that a military unique curriculum is in place and that it is being utilized; it should also confirm that appropriate opportunities to experience specialty practice in constrained environments exist and are being utilized.

Following the receipt of the June 28, 1999 Policy Memorandum, the military unique curriculum for each major specialty was developed and posted on the Graduate Medical Education Web Site <*http://cim.usuhs.mil/dodgme/*>. Subject matter expert panels are currently being reconstituted to accomplish the biennial revision.

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NATIONAL CAPITAL CONSORTIUM

Mission of the National Capital Consortium. The National Capital Consortium (NCC) serves as the institutional sponsor for the GME-integrated programs offered by the three major Medical Treatment Facilities (MTFs) in the National Capital Region: the Walter Reed Army Medical Center, the National Naval Medical Center, and the Malcolm Grow Medical Center. The three MTFs comprise the NCC membership; and, the USUHS SOM serves as the fourth, and final, member of the NCC. The USU Office of GME also serves as the Administrative Office for the NCC.

The mission of the NCC is to educate physicians, dentists, and other health care professionals who provide care for the soldiers, sailors, airmen, and marines of all ages, throughout the Military Health System, to include their families. **The NCC provides a scholarly environment and is dedicated to: excellence in both education and health care; and, the provision of ethical values and standards to all trainees, such as would be expected of those who devote their lives to careers in public service.** Information about the NCC programs, governance, Bylaws, and NCC Administrative Handbook can be accessed via the NCC web site: *<http:// www.usuhs/mil/gme/NCC.htm>*.

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Accreditation. The Accreditation Council for Graduate Medical Education (ACGME) is responsible for the accreditation of post-medical doctorate (M.D.) physician training programs within the United States. Accreditation is accomplished through a peer review process and is based upon established standards and guidelines. The mission of the ACGME is to improve the quality of health care in the United States by ensuring and improving the quality of graduate medical education experiences for physicians in training. The ACGME established national standards for graduate medical education by which it approves and continually assesses educational programs under its aegis. It uses the most effective methods available to evaluate the quality of graduate medical education programs; and, it strives to improve evaluation methods and processes so that they are valid, fair, open,, and ethical. In carrying out these activities, the ACGME is responsive to change and innovation in education and current practice; it promotes the use of effective measurement tools to assess resident physician competency; and, it encourages educational improvement.

The National Capital Consortium, by supplying leadership and resources, complies with the ACGME Institutional Requirements and ensures that Consortium-sponsored programs comply with ACGME program requirements. Consortium-sponsored GME programs operate under the authority and control of the Consortium (the NCC). The Consortium regularly assesses the quality of the NCC educational programs.

During 2001, the NCC Uniformed Services Residency in Obstetrics and Gynecology was granted a maximum five-year accreditation by the Obstetrics and Gynecology Residency Review Committee of the ACGME. The program, directed by **Lieutenant Colonel Andrew Satin, USAF, MC, USU Class of 1986, Vice Chair of the USU SOM Department of Obstetrics and Gynecology**, is the *first* residency in Obstetrics and Gynecology to move from provisional status as a newly integrated program directly to the status of maximum accreditation

for five years. It is a fully integrated residency program under the institutional sponsorship of the NCC. Furthermore, of the more than 250 Obstetrics and Gynecology Residency Programs in the United States, only a total of nine have achieved maximum accreditation for the term of five years.

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Development of the National Capital Consortium. In 1993, the Assistant Secretary of Defense for Health Affairs directed the integration of duplicate GME programs in the National Capital Region (NCR). In accordance with that directive, the National Capital Consortium was established by the Commanding Officers of the Walter Reed Army Medical Center (WRAMC), the National Naval Medical Center (NNMC), the Malcolm Grow Medical Center (MCMG), and the Dean, USU School of Medicine, on January 25, 1995.

The NCC initially identified five programs for integration: Obstetrics and Gynecology; Otolaryngology/ Head and Neck Surgery; Pathology; Pediatrics; and, Psychiatry. The process for the selection of program directors for the integrated residencies and arrangements for site surveys by the Accreditation Council for Graduate Medical Education (ACGME) began immediately; and, **by the end of 1995, there were a total of seven GME programs under the NCC.**

During 1996, the pace of integration progressed toward the integration of all duplicative programs with the possible exception of several specialties which had identified specific impediments to integration. Non-duplicative Fellowship Programs joined the Consortium as their parent programs were integrated. By the end of 1996, there were a total of 19 GME programs included within the NCC.

On June 20, 1997, the first joint graduation exercise for the National Capital Region was held at the Walter Reed Army Medical Center with more than 350 graduates participating. By July of 1997, there were 15 programs under Consortium sponsorship as well as seven integrated programs under the sponsorship of one of the TriServices. An institutional site survey of the NCC by the ACGME was completed in July of 1997, and resulted in a favorable decision. In September of 1997, the USU Office of Graduate Medical Education was selected as the Administrative Office for the National Capital Consortium; this delegation of responsibility was placed under the leadership of **Howard E. Fauver, Jr., M.D., USU SOM Associate Dean for Graduate Medical Education**. There were 25 programs under the Consortium sponsorship at the end of 1997.

As of December 31, 2001, 55 integrated GME programs are under the NCC. The Consortium hopes to have all of the 62 GME programs, found throughout the four Member institutions, under its sponsorship during the Year 2002. The following chart provides the status of the GME programs from 1995 through 2001:

	1995	1996	1997	1998	1999	2001
TOTAL	86	71	69	66	62	62
WRAMC	41	28	26	11	5	2
NNMC	27	14	10	8	7	5
MGMC	2	2	3	0	0	0
USUHS	9	8	5	0	0	0
NCC	7	19	25	47	50	55

NCC/GME Academic Achievements (2000-2001). Significant accomplishments were achieved throughout the GME programs. During 2000 through 2001, many of the achievements of the NCC program trainees and staff were reported to the USU Office of GME. For example, **NCC residents published 183 articles and over 179 abstracts** for their respective NCC core and sub-specialty programs. In addition, the **NCC staff published 489 articles and over 340 abstracts.** The selected examples which follow reflect only a few of the outstanding academic accomplishments which occurred throughout the NCC Programs during the 2000-2001 Academic Year.

Residents of the Pediatric NCC Fellowship Training Programs and the USU SOM Center for Pediatric Molecular Medicine. The USU SOM Center for Pediatric Molecular Medicine, sponsored by the USU SOM Department of Pediatrics, is available to medical students, house-officers, fellows, and faculty who wish to pursue Pediatric Research. The NCC Fellowship Training Programs in the Pediatric Subspecialties of Endocrinology, Gastroenterology, Hematology/Oncology, Infectious Diseases, and Neonatology have extensive research requirements for their fellows and utilize the facilities at the USU SOM Center for Pediatric Molecular Medicine to a significant degree. The Center has supported award-winning studies by USU medical students, residents, and fellows. During 2001, **Residents of the Pediatric NCC Fellowship Training Programs, Captain Ann M. Straight, MC, USA, Instructor, USU SOM Department of Pediatrics**, and **Captain Craig P. Dobson, MC, USA, Instructor, USU SOM Department of Pediatrics**, were awarded travel grants from the Lawson Wilkins Pediatric Endocrine Society to present their findings at the national meeting in July of 2001. In addition, **Major Andrew J. Bauer, MC, USA, Teaching Fellow, USU SOM Department of Pediatrics, NCC Pediatric Endocrinology Program**, a second year fellow, was awarded the Thyroid Research Award from the Endocrine Society. **Captain Ann M. Straight, MC, USA**, also received the Howard Johnson Award from the Uniformed Services Section of the American Academy of Pediatrics for the most outstanding research performed by a house officer on active duty in the Uniformed Services of the United States.

In addition, **Major James Rick, USAF, MC, Teaching Fellow, USU SOM Department of Pediatrics, NCC Pediatric Gastroenterology Program**, a second year fellow, was a semi-finalist for the Andrew Margileth Clinical Research Award at the 2001 Uniformed Services Pediatric Seminar. **Major Margaret Merino, MC, USA, Assistant Professor, USU SOM Department of Pediatrics, and Fellow, NCC Pediatric Hematology/ Oncology Program**, received the Uniformed Services Section of the American Academy of Pediatrics' Bruton Award in the 2001 Scientific Awards Competition for her research accomplished during her Pediatric Hematology/ Oncology Fellowship in the National Capital Consortium.

NCC Residents and Staff Are Selected for Podium Presentations during the Associates Competition at the National American College of Physicians-American Society of Internal Medicine. The Associates Competition at the National American College of Physicians-American Society of Internal Medicine receives several thousand abstracts each year for consideration as podium or poster presentations. Each year, ten of those abstracts are selected for podium presentation in the Research Category and ten abstracts are selected for podium presentation in the Clinical Vignette Category. During January of 2002, the USU SOM Chairman of the Department of Medicine announced that, out of a total of 20 possible presentations, three NCC Residents had been selected for podium presentations. In the Research Category: **Captain Andrew Shorr, USAR, Assistant Professor, USU SOM Department of Medicine, Walter Reed Army Medical Center**, was chosen to make a podium presentation on the utility of routine abdominal radiography in patients with gastrointestinal hemorrhage who are admitted to the intensive care unit. Also in the Research Category, **Captain John H. Sherner, MC, USA, Teaching Fellow, USU SOM Department of Medicine, Walter Reed Army Medical Center; Captain Donald L. Helman, MC, USA, Instructor, USU SOM Department of Medicine, Walter Reed Army Medical Center**; and, **Captain Andrew Shorr, USAR, Assistant Professor, USU SOM Department of Medicine, Walter Reed Army Medical Center**, were chosen to make a podium presentation on simple interventions to improve the quality of care in the ICU - computerized standard orders for the elevation of the head of the bed. In the Clinical Vignette Category: **Lieutenant Colonel Lisa K. Moores, MC, USA, Associate Professor, USU SOM Department of Medicine, Walter Reed Army Medical Center**, was chosen to make a podium presentation on a novel diagnostic modality for acute pulmonary embolism: 99Tc-AcuTec Scintigraphy in a patient with an acute pulmonary embolism. As stated by **Robert E. Goldstein, Professor and Chair, USU SOM Department of Medicine**, "Much more than individual achievements, this recognition by the National ACP-ASIM speaks volumes about the superb academic qualities of the NCC Internal Medicine Residency Programs at the Walter Reed Army Medical Center... the trainees, mentors, and the general educational environment. It is eloquent testimony to the residents' capacity for novel observation, interpretation, and creativity... plus, the energy and persistence to bring their work to a podium presentation at a distinguished national forum."

Captain Mary (McNerney) Klote, MC, USA, USU SOM Class of 1999, Teaching Fellow, Walter Reed Army Medical Center, was one of 50 physicians to receive the American Medical Association Foundation Leadership Award, which is given annually to 25 medical students and 25 residents and fellow physicians for leadership among their peers and achievements in non-clinical community activities. Captain Klote, an internal medicine resident, served as the President of the Military Medical Student Association, a national service organization through which she helped students from the Health Professions Scholarship Program to gain access to uniformed program directors nation-wide. She was also the Editor-in-Chief of the Journal of the Military Medical Student Association.

Residents in the NCC Surgery Training Programs Win Significant Recognition. **Lieutenant Colonel Eric A. Mair, USAF, MC, Assistant Professor, USU SOM Department of Surgery, Teaching Fellow, NCC Otolaryngology Training Program**, received the 20th Annual Lieutenant General Claire L. Chennault Award for Outstanding Teaching Faculty. In addition, **Captain Scott Brietzke, USAF, MC, Teaching Fellow, NCC Otolaryngology Training Program**, presented the opening paper on a new simple treatment for snoring at the Fall Meeting of the American Academhy of Otolaryngology-Head and Neck Surgery in Washington, D.C. As a result of his research, he was interviewed by all three major television networks, NBC, ABC, and CBS, during a segment of "Good Morning America," and numerous magazines and cable news shows. **Captain Brietzke** also won first place for the top paper from the Society of Military Otolaryngologists.

NCC Proposal to Develop a Child and Adolescent Forensic Psychiatry Track Wins ACGME Acceptance. The Accreditation Council for Graduate Medical Education accepted the NCC proposal to develop a Child and Adolescent Forensic Psychiatry Track, the first of its kind. The Child and Adolescent Forensic Psychiatry Program was granted temporary accreditation for three residents in 2001-2002; all three positions were filled. It is anticipated that three residents will also be selected for the Program in 2002-2003. The NCC Program Director and two Fellows presented at the annual meeting of the American Academy of Psychiatry and the Law. The Program Director and both Fellows also lectured at the Judge Advocate General (JAG) School in Charlottesville, Virginia. In addition, they directed the 11th Forensic Psychiatry Symposium at the Walter Reed Army Medical Center which was attended by over 160 military and civilian mental health, legal, and law enforcement professionals. It was the first-ever live Video-Teleconferenced Continuing Medical Education Program sponsored by the Walter Reed Army Medical Center Department of Psychiatry; and, the program was viewed by over 50 participants located throughout the United States and overseas. The Program Director also received the Lieutenant General Claire Chennault Award for Outstanding NCC Psychiatry Faculty.

USU SOM Class of 1999 Alumni is the First Recipient of the Sherry K. Henderson Award for Excellence in Clinical Communication. **Captain Theresa (McFall) Goodman, USAF, MC, USU Class of 1999**, is the first recipient of the Sherry K. Henderson Award for Excellence in Clinical Communication. The USU SOM Department of Family Medicine, in cooperation with the Uniformed Services Academy of Family Physicians, established the award to recognize a resident who has demonstrated excellence in communication skills. Captain Goodman is a second-year NCC Family Practice Resident at Andrews Air Force Base, Maryland. The award is named for Sherry Henderson, M.D., a former member of the USU SOM Department of Family Medicine.

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VI. THE OFFICE OF CONTINUING EDUCATION FOR HEALTH PROFESSIONALS

Dear Captain Mead:

At its July 2001 meeting, the Accreditation Council for Continuing Medical Education (ACCME) took action on the reaccreditation of the Uniformed Services University of the Health Sciences. The ACCME awarded the Uniformed Services University of the Health Sciences full accreditation with a four year term. The attached July 2001 ACCME ACTION outlines the specific details of the ACCME decision using the ACCME's Essential Areas, Elements, and Decision Making Criteria (July 2001 ACCME ACTION: Full Accreditation Status has been recommended; an ACCME progress report is not required; an on-site accreditation survey is not required; all Essential Areas, Elements, and Decision Making Criteria received ratings of full compliance). **Congratulations!**

Your new accreditation term will end in July 2005... we look forward to your continuing association with the ACCME.

- Letter to **Captain Jane Mead, NC, USN, Senior Executive Director for the USU Office of Continuing Education for Health Professionals**, from **Murray Kopelow, M.D., MSC, FRCPC, Chief Executive, Accreditation Council for Continuing Medical Education, dated July 18, 2001.**

MISSION

USU is Mandated by Congress to Provide Continuing Education for Health Professionals. Under Title 10, U.S. Code (Section 2113), USU is mandated by Congress to "establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services." The mission of the USU Office of Continuing Education for Health Professionals (CHE) is to sponsor, directly or jointly, activities in continuing education for members of the Federal health care delivery system to ensure that high standards of health care are maintained within the Federal health care services. This standard of excellence is achieved through a vigorous and creative evaluation process. The Office of CHE plays a central role in facilitating the continued professional growth of health care professionals in the Federal Services by providing live courses and conferences, enduring materials, and journal CME. In addition, the Office of CHE establishes activities for non-Federal civilian health professionals in disciplines where the body of knowledge is available primarily within the Federal Services medical domain and when that knowledge will contribute to the health of the Nation, other countries, or the global community.

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Six Factors Mandate CHE's Essential Role in Today's Military Health System. Continuing education (CE) has always been recognized as an essential component of the continuum of education for health professionals. Current educational, social, and political factors which highlight the critical role of CE in the educational spectrum follow:

- Heightened patient safety concerns in response to the Institute of Medicine's report, *To Err is Human*;

- Enhanced awareness of the role of health care providers during the threat of, or the event of, nuclear, biological, or chemical terrorism;

- The use of CE as evidence of medical practice skill level competence for re-licensure, hospital privileging, credentialing, specialty re-certification, professional society membership, and selected other requirements;

- The incorporation of evidence-based medicine, clinical practice guidelines, accountability, and financial incentives into daily medical practice;

- Rapid advances in biomedical knowledge and the resulting application to health care; and,

- Increased incidence of military medicine partnerships with Federal and private sector medicine.

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CHE Must Ensure Academic Involvement in all Phases of Educational Activities Designated for Credit. The Office of Continuing Education for Health Professionals is under the leadership of the Senior Executive Director, who reports directly to the USU President, and is responsible for academic involvement in all phases of the educational activities designated for credit to include:

- Educational needs assessment, planning, implementation, and evaluation of continuing education activities for members of the health professions serving in the Uniformed and other Federal Services. The topics for continuing education activities are based on formal surveys, structured interviews, current professional topics, and those activities directed from higher authority. In every case, the particular interest and needs of a specific audience are considered during planning, preparation, delivery, and evaluation;

- Acquisition and maintenance of continuing education accreditation at USU; attendance at professional conferences and meetings conducted by the accrediting agencies or peer groups to ensure compliance for the University with all continuing education requirements of the Accreditation Council for Continuing Medical Education, the American Nurses Credentialing Center's Commission on Accreditation, the American Psychological Association, the American College of Healthcare Executives, and the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners;

- Administrative and logistical support and determination of budgetary requirements for continuing education activities sponsored by the University;

- Maintenance of professional and educational liaisons with military and civilian professional organizations and academic institutions; and,

- Monitoring the quality of continuing education activities and using evaluative data and research findings to improve the quality of those activities at the University. (Annual total program evaluations identify areas where improvement could enhance the continuing education services provided by the University. Mechanisms, such as the evaluation of events by participants, by faculty, and by office staff, help to improve the quality of similar future events. A consistent focus on developing employee potential through cross-training within the office and additional training within the University and from outside sources also improves the provision of services. Continuous quality improvement is active in all areas of the Office of CHE.)

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NATIONALLY RECOGNIZED CONTINUING EDUCATION CREDIT

Unique Accreditation Within the Military Health System. The USU Office of Continuing Education for Health Professionals provides nationally recognized continuing education credit for physicians, nurses, psychologists, healthcare executives, and social workers through its accreditation by: 1) the Accreditation Council for Continuing Medical Education (accredited through July of 2005); 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing (accredited through August of 2007); 3) the American Psychological Association (accredited through March of 2003); 4) the American College of Healthcare Executives (ACHE) authorized USU to award pre-approved Category II (non-ACHE) continuing education credit through May of 2005; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners (indefinitely). This inclusive provision of continuing education for multiple disciplines, from one office, is believed to be unique within the Military Health System (MHS).

The Office of CHE, under the academic umbrella of the University, is exceptionally positioned to perform a significant role in facilitating the continued professional growth of health care professionals in the MHS. The principal responsibilities of the office are the identification of education needs, planning, implementation, and the evaluation of continuing education activities and outcomes and resuscitative medicine programs for members of the health professions. CHE is also responsible for the acquisition and maintenance of the University's continuing education accreditations and for the trauma and resuscitative medicine training program affiliations.

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The Continuing Health Education Committee. The Continuing Health Education (CHE) Committee serves as an approving body and as an advisory committee to the USU President and to the Office of CHE. The CHE Committee members are appointed by the USU President. Other faculty members are invited to participate in the committee activities on an *ad hoc* basis. The committee membership, across all disciplines and departments, facilitates communication and provides a forum for planning education activities and for the discussion of issues and policies which affect continuing medical education.

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INCREASED SUPPORT FOR THE MILITARY HEALTH SYSTEM

CHE Support for Graduate Medical Education Programs. In conjunction with the National Capital Consortium (the institutional entity for the National Capital Region's GME-integrated programs offered by the Walter Reed Army Medical Center, the National Naval Medical Center, and the Malcolm Grow Medical Center), the Office of CHE's involvement has greatly increased through the sponsoring of on-going continuing medical education (CME) activities such as Grand Rounds in Faculty Development, Family Medicine, Preventive Medicine, Ophthalmology, Pediatrics, and Psychiatry.

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CHE Support for TRICARE/Health Affairs Initiatives. During Fiscal Year 2001, the USU Office of CHE supported the Office of the Secretary of Defense (OSD), Health Affairs (HA) with the following activities: DoD Patient Safety Program Training (four iterations); the TRICARE Winter Conference; the Health Information and Management Systems Society Conference; four Medical Executive Skills Courses; 15 Medical Effects of Ionizing Radiation (MEIR) Courses both CONUS (continental United States) and OCONUS (Overseas); a videotaped MEIR Course; the Interagency Institute for Federal Health Care Executives; and, the Women's Memorial Health Care Seminars.

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Specialty and Review Courses for the Military Health System. The Office of CHE sponsored continuing education for numerous specialty and review courses for the Military Health System during 2001.

Medical Readiness - The Military Medical Humanitarian Assistance Course. The Military Medical Humanitarian Assistance Course is a two-day interactive course designed to train United States military health care providers to deliver optimal medical care to civilian populations, primarily women and children, in the aftermath of humanitarian emergencies. Prior to this course, a void existed in preparing medical officers with the necessary skills, knowledge, and confidence to actively participate in such missions. Given the United States military's increasing involvement in Military Operations Other Than War (MOOTW), the focus of this course is centered on familiarizing clinicians with the unique aspects of humanitarian missions, so that they are best prepared to actively participate and lead future missions. Though the health issues are often predictable, the paradigm presents issues which rapidly progress to the severest degree. Resources are typically more limited than in other operations, complicating any attempt for immediate intervention. The course emphasizes practical skills and techniques, not often addressed in the curriculum of American medical education which will be useful to the provider who is challenged to provide the best possible medical care in an austere environment. The faculty who present this course are committed to the quality and credibility of this educational experience. Thus, all clinical instructors have not only mastered the clinical material, but also have had personal experience practicing medicine in an austere health environment. All of the clinical cases are derived from real experiences in operational medicine. This course was developed at USU under the sponsorship of the Dean, School of Medicine, and the Department of Pediatrics. The course was held five times for 118 physicians, two nurses, and two others during 2001. Specific Medical Humanitarian Assistance Courses were also held for Advanced Practice Nurses, Dermatologists, and Internists.

Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror, Part I and Part II. For the first time, CHE supported two courses, Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror: Part I and Part II, provided by the USU SOM Department of Pathology. Part I, first offered in the Spring of 2001 without CE credit, provides an understanding of the medical features and medical countermeasures for living agents or organic products which have potential use in warfare, terrorism, or criminal activities in the context of the political implications of such weapons of mass destruction. Also incorporated into the course is a hands-on training phase conducted in the USU Patient Simulation Laboratory (PSL). The PSL includes a mannequin, operated through computers and attached to standard clinical monitors; it is used as a teaching tool for medical, nursing, and graduate students, as well as for residents, physicians, and others. Scenarios of medical disasters can be scheduled and students can practice repetitively until they gain familiarity, competence, and poise with the unexpected. The PSL, in conjunction with these courses, has produced inhalational anthrax, pneumonic plague, and marine toxin exposure scenarios, with another featuring smallpox currently in development. Part II, first offered in the Fall of 2001, focuses on nuclear, radiological, high explosives, chemical agents, and unusual weapons; these scenarios are also acted out during hands-on training sessions through the PSL.

Other Courses/Activities Sponsored by CHE During 2001:

- The International Spine Workshops (Cervical, Peripheral Nerve, Thoraco-Lumbar);

- The Capital Conference Family Practice Review;

- Surgical Topics (Advanced Gynecological Laparoscopy and Hysteroscopy, Ultrasound for the General Surgeon (three, including two sessions offered in Korea), the 28th Military Vascular Surgery Symposium, and Pediatric Surgery Day);

- Two courses on TriService Video Endoscopy for Perioperative Nurses were held, one at the USU campus and one in San Antonio, Texas;

- The Biomedical Ethics Course, now the Toolbox for Ethics Program Development, was held in Texas and in Japan;

- The Fifteenth Conference on Military Medicine, *A Challenge to Readiness: Maintaining Currency in Military Health Care Education*; and,

- Anesthesia Crisis Resource Management, a half-day activity held twice in the USU Patient Simulation Laboratory, was offered for the first time during 2001. This activity allows students to manage critical anesthesia events and to review their own performance of mandatory and recommended steps as compared to ideal case management; and, it provides an opportunity to observe and critique their own behavior and actions during crisis events.

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Association of Military Surgeons of the United States (AMSUS) Annual Meeting. Since the 99th Annual Meeting in 1992, CHE has worked with AMSUS to provide continuing education credit for their Annual Meetings. AMSUS was established in 1891, and incorporated by an Act of Congress in 1903, as the Society of the Federal Health Agencies. As such, it contributes to the improvement of all phases of the Federal Health Services. The constituent services of AMSUS include the medical departments of the United States Army, Navy, Air Force, and Public Health Service, and the Department of Veterans Affairs. The Department of Veterans Affairs hosted the 107th Annual Meeting, *Information Management: One Key to Healthcare Success* held on November 5 - 10, 2000, in Las Vegas, Nevada. The agenda emphasized Federal medicine and took full advantage of the unique forum offered by the meeting and the 6,710 attendees. For Fiscal Year 2001, the USU Office of CHE offered 206 sessions for continuing education credit in four disciplines (a significant increase from the 47 sessions offered in two disciplines during Fiscal Year 1993).

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Women's Memorial Health Seminars. Brigadier General Wilma L. Vaught, USAF (Ret.), President of the Women in Military Service for America Memorial Foundation, envisioned a series of seminars for a National Forum on Women's Health Issues at the Women's Memorial Education Center beginning in the Spring of 2000. The Assistant Secretary of Defense for Health Affairs and the USU President tasked the USU Graduate School of Nursing to coordinate the undertaking. There were seven seminars in Fiscal Year 2001. Sixty-eight certificates were presented to nurses, 16 to physicians, and 34 to others. The two-day symposium planned for September of 2001 was re-scheduled to 2002.

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GENERATED COST AVOIDANCE FOR DOD BY CHE

CHE Generates Cost Avoidance for DoD. In carrying out its principal responsibilities during Fiscal Year 2001, CHE sponsored continuing medical education for 499 activities with an attendance of 4,072 physicians; provided continuing nursing education for 52 activities with an attendance of 2,458 nurses; and, approved Category II (non-ACHE) continuing education credit for 17 activities for 592 members of the American College of Healthcare Executives. CHE also provided one continuing education activity for 24 social workers. Because the USU Office of CHE brings medical training to the medical health care professionals, **an estimated cost avoidance of $1,858,265 was generated for the DoD** by eliminating extensive travel expenses and time away from the hospitals and clinics (the total cost avoidance was calculated by subtracting all of the operating costs for the USU Office of CHE, to include civilian and military manpower, from the total of savings generated by the elimination of travel, per diem and significant commercial registration expenses ($2,655,540 - $797,275 = $1,858,265).

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SUPPORT FOR OTHER FEDERAL ORGANIZATIONS

Department of State Programs. Each year since 1998, USU has provided two iterations of a continuing education program for the Office of Medical Services of the Department of State. During Fiscal Year 2001, topics included forensics, infectious diseases, mental health, patient safety, pediatrics, and surgical issues. Fifty-nine physicians and 25 advanced practice nurses were able to earn up to 27.5 hours of CME or 33 nursing contact hours. The Basic Life Support for Instructors Course was also given.

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NASA Teleconference Continuing Education Series. Another example of service to other Federal agencies was the NASA series on Aging and Occupational and Environmental Health & Safety. Video-teleconferencing systems connected live seminars to: the Institute for Biomedical Problems located in Moscow; the Institute of Telemedicine in Toulouse, France; the Medical Informatics Center at the Medical College of Virginia; the USU campus; the Robert Byrd Health Sciences Center at West Virginia University; and, the 14 NASA Centers. Thirty physicians, five nurses, two members of the American College of Healthcare Executives (ACHE), and 46 others participated in the Aging seminars. These seminars are part of the continual initiative of the NASA Office of Life and Microgravity Sciences and Applications to provide continuing education to the NASA employees and contractors and to promote international understanding and interactions among the international Space Station Project Partners. USU has provided CME, CNE, and ACHE continuing education support for the NASA seminar series since 1998. The Occupational and Environmental Health & Safety series was continued into 2002.

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MILITARY TRAINING NETWORK

Mission. The mission of the Military Training Network (MTN) is to: 1) provide an efficient administrative framework which assures course accessibility; 2) develop and implement policy guidance; and, 3) ensure compliance with curriculum and administrative standards for resuscitative and trauma medicine training programs for the Uniformed Services and Department of Defense affiliates. The USU TriService MTN staff provides specific service expertise, central record keeping, world-wide coordination of programs and ensures that national resuscitative and trauma medicine organizations are aware of the unique requirements of military medicine.

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Background. The MTN was established in 1982 by the DoD Health Council for the purpose of training, registration, coordination, and centralized record keeping for resuscitative medicine programs. The MTN falls under the purview of USU, and more specifically, the Senior Executive Director of the USU Office of CHE.

The MTN is billeted and resourced equally by the Surgeons General of the United States Army, Navy, and Air Force. The operation of the MTN would not be possible without the additional resources provided by the University in support of the administrative staff of the MTN.

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Strategic Goals. The MTN has identified eight goals for its strategic focus:

Promote quality resuscitative and trauma medicine training programs for the DoD to ensure optimal Medical Readiness;

Provide top-notch customer service for every MTN affiliated program and individual;

Enhance organizational processes by upgrading office systems automation;

Ensure fair cost structures from vendors and international and national organizations which support programs under the MTN sponsorship;

Ensure that the DoD units eligible for MTN affiliation are apprised of the benefits of an MTN affiliation;

Promote uniform resuscitative and trauma medicine training opportunities for both active duty and reserve forces (mirror force);

Ensure that the MTN affiliates are in compliance with the American Heart Association 2000 Guidelines for Emergency Cardiac Care, through site visits and record audits; and,

Optimize the MTN role in military and Federal medical education and research by incorporating DoD educational activities into the MTN.

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World-Wide Capabilities Essential to Medical Readiness. The USU MTN is designed as the DoD affiliate for the American Heart Association and the American College of Surgeons for resuscitative and trauma medicine training programs. The resuscitative and trauma medical programs administered by the MTN include: Advanced Cardiac Life Support (ACLS); Advanced Trauma Life Support (ATLS); Pediatric Advanced Life Support (PALS); Army Emergency Medical Technician (EMT); and, Basic Life Support (BLS).

Currently, the USU MTN is the **only** American Heart Association Affiliate with worldwide reciprocity for health care providers. The USU MTN provision of this training enhances DoD's ability to provide training in strategically critical areas throughout the world (e.g., Bosnia, Korea, and Turkey), on operational platforms (e.g., aboard aircraft carriers), and remote sites where civilian training would not be available. All of these capabilities are essential to the wartime medical readiness of the Uniformed Services.

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MTN Generates Estimated Savings for DoD. Department of Defense sites affiliated with the MTN are approved to conduct self-sustained resuscitative and trauma medicine training. This continues to prove cost-effective to the Military Health System because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. For example, during Fiscal Year 2001, **179,150** defense personnel were trained through the USU MTN. The average commercial cost for providing that training would have conservatively totaled at least $12,124,980. The cost avoidance generated for the DoD during 2001, an estimated total of **$11,424,909**, was calculated by subtracting all of the operating costs, to include civilian and military manpower, provided by the three Services from the average commercial cost ($12,124,980 - $700,071 = $11,424,909).

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VII. THE ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE

I want to thank you personally for the help we at CIA have received from AFRRI. CIA has been committed to ensuring the safety of our mail and AFRRI has been absolutely essential in our efforts. The assessment of the effectiveness of our mail treatment processes would be impossible without your help. (Prior to September 11, 2001, and the distribution of anthrax through several United States Post Offices, AFRRI researchers had studied the effects of irradiation on biological agents and had established a standard dosage of radiation necessary to eradicate anthrax spores. A surrogate spore, developed by AFRRI, while not causing harm, replicates the properties found in live anthrax. This non-toxic spore can easily be placed in an envelope, and then tested after irradiation procedures at a specific mailing distribution area; the spore allows extensive testing for quality assurance to ensure the safety of those individuals who will handle the mail. Since September 11th, AFRRI scientists have provided relevant information and briefings to numerous entities such as the White House Medical Unit, the House Science Committee, Senate and House professional staff, the Office of Homeland Defense, the Centers for Disease Control, the Armed Forces Institute of Pathology, the General Accounting Office, and the Federal Bureau of Investigation.) **Specifically, I want to point out the following individuals for their superb effort: Gregory Knudson, Ph.D.; Mike Shoemaker, Ph.D.; and, Thomas Elliott, Ph.D. They have been most gracious and accommodating to our needs at the CIA. Without the help of these individuals, we at CIA would not have been able to achieve our goals as quickly. It has been and will continue to be a pleasure to work with these individuals.**

- Letter to **Colonel Robert Eng, Director, AFRRI,** from **Dr. Brian Hollibush, Environmental Health and Preventive Medicine Officer, Central Intelligence Agency,** dated May 8, 2002.

I. RELEVANCE

Background. The Armed Forces Radiobiology Research Institute (AFRRI), a TriService organization, is located in a 173,242 square foot complex on the campus of the National Naval Medical Center (NNMC) in Bethesda, Maryland. AFRRI was chartered in 1961 to conduct relevant applied radiobiological research in support of the military medical mission and to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations. The AFRRI complex houses a 1 Megawatt TRIGA nuclear reactor, a cobalt-60 irradiation facility licensed for up to 400,000 Curies, a 54 Mev linear accelerator, a 100 Curie cobalt-60 chronic irradiation facility, a full-service veterinary facility accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International, and a full complement of laboratory and administrative spaces. Particularly unique features of the TRIGA nuclear reactor are its ability to simulate the high prompt doses of gamma and neutron radiation from the detonation of a nuclear weapon, and its two exposure rooms which can accommodate large-animal experimental models and other large irradiation studies. Human resources consist of 160 professional, technical, and administrative personnel. About 60 percent are civilian; and, 40 percent are military personnel.

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Governance. On September 22, 1992, the Deputy Secretary of Defense approved a program decision memorandum and transferred the management of AFRRI from the Defense Nuclear Agency (DNA) to USU; the Director of AFRRI reports directly to the President of USU. An Administrative Plan for program execution and administrative support for the integration of AFRRI as an Institute within USU was coordinated by the USU Vice President for Administration and Management and the Director of AFRRI; the plan was approved by the USU President in October of 2000. The Office of the Director, Defense Research and Engineering (DDR&E) directly funded AFRRI's programs and provided management oversight of its research programs through the Director, Bio Systems.

On August 17, 2000, the DDR&E suggested that USU revise its DoD Directive 5105.45 to reflect the placement of AFRRI within USU. That suggestion was followed and on November 13, 2000, the USU President approved a draft revision of the USU Directive as coordinated by the USU Vice President for Administration and Management and the Director of AFRRI with the executive staff of both USU and AFRRI. Upon further guidance from the Office of the Secretary of Defense (OSD), the submission of the draft DoD Directive for OSD approval was postponed pending the reprogramming of funding lines in a new Program Budget Decision (PBD). Once funding and governance issues have been resolved, USU will proceed to complete the coordination process (with Health Affairs, the Bureau of Medicine, the USU Executive Committee, the current AFRRI Board of Governors, the Graduate School of Nursing Executive Council, DDR&E, and others, as appropriate) to revise DoD Directive 5105.45 during 2002.

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Mission. AFRRI must 1) conduct applied radiobiological research to develop militarily relevant medical countermeasures against radiation injuries alone or in combination with biological or chemical injuries; 2) maintain a Medical Radiobiology Advisory Team to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations; 3) advise the Joint Chiefs of Staff (J-4 Medical); the Deputy Assistant to the Secretary of Defense, Nuclear Matters; the Joint Forces Command; and, the Surgeons reporting to the Commander-In-Chiefs (CINCs) on medical nuclear defense; and, 4) train DoD medical personnel on the management and treatment of radiation casualties (Medical Effects of Ionizing Radiation (MEIR) Course).

A Unique Program. There is no other comprehensive, militarily relevant radiobiological research program like AFRRI's. While several initiatives exist in universities and private industry to develop pharmacologic strategies to prevent collateral injury in radiation therapy patients, no other program exists which addresses the spectrum of radiological injuries anticipated under combat situations involving nuclear or radiological weapons use. AFRRI does, however, leverage findings from private sector initiatives to develop countermeasures not only to prevent injuries but also to treat and assess radiological injuries under military operational scenarios. **Only AFRRI offers a program dedicated to these special military requirements.** And, **no other program within the Department of Defense addresses medical radiological defense research requirements.**

The AFRRI complex was designed and built to conduct radiobiology research and to develop medical radiological countermeasures in support of the military medical mission. The TRIGA nuclear reactor provides an ideal source to simulate the prompt radiation pulse from a nuclear weapon. The AFRRI reactor also provides a

source of fission spectrum neutrons to conduct radiobiology experiments at very low-doses and dose rates to simulate chronic exposure scenarios. Although there are 49 of these small research reactors in the world, and 18 in the United States, **only the AFRRI reactor is designed for and is wholly dedicated to applied medical radiobiology research for medical readiness**. AFRRI's second major source is a cobalt-60 irradiation facility. It is designed to safely hold up to 500,000 Curies of cobalt-60, but is currently licensed for 400,000 Curies. Because this source can produce a high exposure rate consisting of monoenergetic gamma-rays, it is ideally suited as a source for the high-energy photons needed in applied military radiobiology research.

Documented Relevance. Following the terrorist attacks of September 11, 2001, the risk of radiological injury is has been increasing. A growing threat exists from small-scale conflicts, terrorist incidents, accidents, and even peacekeeping missions in troubled areas around the world. Each of these scenarios involves real prospects for the use of nuclear or radiological devices, or the uncontrolled or intentional release of hazardous radioactive materials posing a challenge on the battlefield and to homeland security. Unlike a strategic nuclear exchange which would devastate infrastructure and all but eliminate prospects for the delivery of any remaining health care resources, most casualties of nuclear/radiological incidents in today's threat environments should expect to have quick access to sophisticated medical care. It is essential to ensure that the best possible products of today's technology are available to the personnel of the health care delivery systems who must respond to such disaster scenarios. The military has a clear need for information on the sources and complicating effects of radiation during wartime, terrorist, and accident scenarios.

Military planning, deployment and employment decisions in response to nuclear/radiological incidents depend on information available only from test (i.e., experimental), theoretical and/or empirical (event-generated) data. AFRRI has played a significant role in providing information to devise strategies for early response to high, acute doses of radiation. In addition, ..."**Needs have changed in response to the contemporary world's environment; low-dose, chronic exposures are more likely to occur. There is a growing concern to define accurately the consequences of a variety of such scenarios.... They (AFRRI) demonstrated dedication to, and focus on, the real and current need for information to deal with risk situations already being encountered, or likely to be encountered, by Armed Services Personnel. It was made clear that changing world conditions have posed new threats for which there are little or no data. The need for new data comes at a time when the scientific community's ability to respond has been severely restricted by worldwide closings of radiobiological research centers. AFRRI has value because it is designed and organized to generate these types of data, and because it is one of the very few places that can do so**" (American Institute for Biological Sciences (AIBS) Peer Review on AFRRI, Executive Summary, dated July 1996, pages 1 and 2).

Response Agreements with the Office of the Secretary of Defense Confirm AFRRI's Relevance to DoD. The relevance of AFRRI's mission is solidified by the direct support provided to the Office of the Secretary of Defense (OSD) and Joint Chiefs of Staff (JCS). Upon request during emergency situations, AFRRI deploys teams of technical and scientific experts as consultants to these offices within a three-hour response time.

March 2001 Technology Area Review and Assessment. The bi-annual Technology Area Review and Assessment (TARA), held during the week of February 26, 2001, in San Antonio, Texas, noted that advances in medical science and technology indeed portend the prospects that "radiation-induced injuries can be managed" and that major elements of AFRRI's program are "focused on an important problem, with potential impact on homeland defense."

In summary, the DoD's annual funding of the Medical Radiological Defense Research Program at the Armed Forces Radiobiology Research Institute is a timely investment which supports relevant medical requirements of the Services. A value-added benefit to DoD and national security is derived from AFRRI's pool of scientific and technical experts in government service who are available on short notice to provide advice and guidance to high-level offices within DoD during national emergencies. AFRRI is poised to continue paying dividends well into the future by ensuring enhanced medical readiness which will save lives and reduce injuries in nuclear/radiological and combined NBC threat environments.

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II. TIMELINESS

Doctor Marburger, President Bush's Science Advisor, sent a six-person team, including two AFRRI scientists to the Lima, Ohio plant to evaluate the mail irradiation facility and process. AFRRI scientists, working with National Institutes of Standards and Technology personnel, assembled a container of mail with dosimeters and surrogate spores, took it to Lima, had it irradiated as a quality assessment check, and briefed Doctor Marburger on the results, which found no growth spores at the radiation dose recommended by AFRRI. Dr. Marburger will later brief several government agencies, including the Office of Homeland Defense, at the White House on the results.

- Weekly Activities Report, Health Affairs, Office of the Secretary of Defense, Uniformed Services University, November 5-9, 2001.

An Impressive Response. AFRRI routinely disseminates its research findings with the scientific community, within DoD, the private sector, and internationally. Its investigators' publications in peer-reviewed journals, presentations at professional conferences, and reports and recommendations to the TriServices and CINC Surgeons provide timely information on the mitigation of radiation hazards and optimization of medical treatment strategies for radiation casualties. Research findings are also integrated into the AFRRI-sponsored accredited course on the Medical Effects of Ionizing Radiation, (MEIR), the only high level training medium available to the medical personnel of the Armed Forces for the management of radiological injuries. Attendance and presentations at national and international conferences ensures that AFRRI investigators stay abreast of the latest developments around the world. It provides an important source of critical feedback through direct peer interaction; and, it fosters recruitment of other scientists to contribute independently to solving problems in radiobiology common to both the military and private sectors. Past studies focused primarily on high radiation doses, because the military was then concerned with the high prompt dose effects from nuclear weapons detonations. Today, ... **"the AFRRI investigators have been able to use this knowledge, and the experimental approaches which allowed its development, to design reasonable and logical approaches to the extremely difficult problems of current interest which (in addition to on-going nuclear threats from terrorist activities) involve low doses and possible low dose rates.... AFRRI has always played a national and international role in solving radiobiological problems, interacting with NATO, sending response teams anywhere in the world where they are needed, and training physicians and military personnel to respond to radiation accidents. This role is expanding due to the default of other centers. Key to the ability to uphold this responsibility, and a major strength, is the combination of dedicated radiation sources, animal facilities, and the mixture of military and civilian personnel with expertise in many relevant fields. This allows a think tank approach to experimental design, rapid execution of experiments, and frugal use of resources, including experimental animals"** (AIBS Peer Review on AFRRI, dated July of 1996, page 2).

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AFRRI Fields Medical Training and Provides Rapid Response in Support of DoD Missions.

Medical Radiobiology Advisory Team. The AFRRI Medical Radiobiology Advisory Team (MRAT) provides medical and health physics consultation and dose assessment capabilities to the United States military and private sectors around the world for contending with a broad spectrum of nuclear or radiological accidents, incidents, or injuries. For example, the team was on full alert after the terrorist attacks at the World Trade Center and at the Pentagon and during the crisis between India and Pakistan. The AFRRI MRAT is a critical arm of the Defense Consequence Management Advisory Team fielded by the Defense Threat Reduction Agency, and is called upon to deploy worldwide in response to incidents involving nuclear weapons, radiological devices, or nuclear power reactor emergencies (an article in U.S. News and World Report, during February of 2001, illustrated an example of the heightened risk for a radiological event by citing the prospects for nuclear accidents at several locations across the former Soviet Union).

October 2, 1999 Response to the Tokaimura Nuclear Criticality Accident in Japan. AFRRI was in consultation with Dr. Haraguichi at the Tokaimura Prefecture Emergency Operations Center addressing his questions on public health and methods to mitigate the adverse radiophobia and psychological effects of the nuclear incident on the public. AFRRI also provided guidance to the United States Army Japan on measures to reassure the United States military members and their families that they were not in harm's way, to include the monitoring of food sources for the United States community.

August 14, 2000 Response Capability to the Accident of the Russian Submarine Kursk. During the aftermath of the Russian submarine accident, AFRRI was asked by the Defense Threat Reduction Agency for medical capabilities which could be offered to the Russians in anticipation of an official Russian request. AFRRI immediately responded with radiation biodosimetry support to assess the radiation dose to the surviving Russian sailors.

January 8, 2001 Response to a Request from the German Ministry of Defense. The recent upheaval within the NATO alliance, stemming from claims by some allied forces and their governments that depleted uranium (DU) exposures during their operations in the Balkans were the cause of serious personal illness, prompted the German Ministry of Defense to seek AFRRI's support in dispelling such claims. The request recognized AFRRI's worldwide leadership role and scientific expertise in studies on the health effects of chronic exposures to DU. Through AFRRI's capacity as Chair of Technical Group-006 of the NATO Human Factors and Medicine Panel, information was provided which greatly helped to defuse the crisis.

Support to the Secretary of Defense. On January 10, 2001, AFRRI provided the Office of the Secretary of Defense with the most current scientific information on the human bioeffects of depleted uranium resulting from various sources of exposure (dermal, inhalation, and wounding). The information was used later that day by the Secretary of Defense to address the National Press Club on European concerns over DU exposures among NATO forces in the Balkans.

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III. SCIENTIFIC MERIT

Internal and External Review Mechanisms Ensure Standards of Scientific Excellence. USU and AFRRI have implemented internal and external review mechanisms for the systematic planning, review and analysis of AFRRI's programs to ensure the highest standards of scientific excellence. The USU School of Medicine Committees provide significant support during the review process.

Strategic Approach to Program Management. AFRRI management has implemented a three-tiered hierarchy of management controls which provide a clear picture of all funded work in the context of logical levels of effort. The system provides a road map showing how the over-arching goals and objectives of the two Program Elements are to be achieved. It serves as the basis for the planning, funding, review, and analysis of all work; and, it ensures that resources are appropriately allocated so that programmatically relevant goals are achieved within specified time frames and clearly defined metrics of acceptability. The three-tiered hierarchy consists of team-based Project Areas, Task Areas within each Project Area, and Studies within each Task Area.

Project Areas encompass major programmatic thrusts toward related product goals which are identified based on military requirements. A Team Leader who is responsible for managing, organizing, planning, and executing coordinated scientific investigations heads each Project Area.

Task Areas define subsets of related efforts within a Project Area. Studies within a Task Area are executed by a highly coordinated group of collaborating investigators, each pursuing a critical element of work needed to support a targeted product under development within the Project Area. Task Areas also serve as cost centers to better control the allocation and tracking of financial, capital, and human resources.

Studies are the basic unit of research and are defined by a detailed written protocol. The protocol contains a clearly stated objective, a tenable scientific hypothesis, an experimental approach, a statement of program relevancy, a table of milestones and metrics, and an assessment of resource requirements. Each Study protocol is reviewed and approved by AFRRI's Research Management Council (RCM) composed of the Institute's senior science managers and the Scientific Director; and, recommendations for funding are forwarded to the AFRRI Director before the start of work. The Study may last no more than three years, at which time the RCM performs a formal assessment of progress. If warranted, a new protocol is written to continue the line of work.

The three management tiers of Project Areas, Task Areas, and Studies and accompanying documentation are the administrative tools by which key individuals, from investigators to the institute Director, execute the program. Overlaying this process is a three-part quality assurance mechanism to monitor program execution using the tiered management process as a basis for oversight review.

A Three-Part Approach for Quality Assurance. In response to a direction from the USU President, from April through October of 2000, the senior management of USU and AFRRI coordinated and developed an administrative operation plan for the integration of AFRRI within USU. On October 27, 2000, the USU President accepted the proposed operating plan. Section 16 of that plan includes the area of Research Administration. The executive leadership of both USU and AFRRI finalized a three-part process already initiated by AFRRI for quality assurance for the AFRRI research programs. The three-part process includes a planning phase for review, approval, and funding of the proposed work and a three-tiered phase for the review and analysis of progress, which is described in further detail below. The management process starts with the documentation, review, and approval of research plans, which includes a USU/AFRRI Merit Review Committee Assessment of written protocols prior to the funding and initiation of new studies. All funded work must be approved in this manner as the basis for the rest of the management process. The purpose of this up-front critical look is to ensure that the scientific merit and program relevancy of the work meet the program's needs. Also, its purpose is to assess the work's risk in terms of the likelihood of achieving the stated goals relative to resource requirements and technical challenges. As such, the planning process is included as one of the fundamental tiers of program management.

Complementing the planning and funding is a follow-on process of structured review and analysis of progress which is currently being implemented. As previously mentioned, this will take the form of annual, in-house self-examinations by an In-Process Review mechanism. Capping the In-Process Review is a completely independent assessment such as many organizations commission the American Institute of Biological Sciences (AIBS) to do. Panelists are selected by the AIBS to provide an unbiased assessment of the program; and, such reviews will be conducted every three to five years, or as deemed appropriate. Although the program management process as detailed below identifies the two major elements of planning and funding versus review and analysis, it should be understood that the AIBS program assessment, which focuses primarily on review and analysis, also takes into consideration how effectively AFRRI/USU management executes the planning and funding process.

Part I - Program Planning. Part I of the process is the planning and programming of Studies within the Task Areas. Investigators write detailed protocols for up to three years of effort. Prior to the funding and commencement of work, the protocols must be subjected to critical review by a sub-panel of the USU School of Medicine Merit Review Committee, composed of both USU and AFRRI scientists. The purpose of this up-front critical look is to ensure that the scientific merit of the proposed work meets the program's needs. The review also assesses the work's risk in terms of the likelihood of achieving the stated goals relative to resource requirements and technical challenges. Program military relevancy will be evaluated by the JTCG-7 with representatives from the Offices of the Surgeons General and other appropriate organizations.

Part II - Internal Annual Reviews. In-process reviews of all outstanding studies are conducted annually. Investigators are required to provide short written summaries of progress in the context of the milestones and metrics of approved protocols. Written reviews give principal investigators the opportunity to critically assess their own progress and to justify the continuation of the effort. The reviews provide program managers and the AFRRI Director assurances that Studies, Tasks, and Projects are on course and properly resourced. Reviews have also provided the basis for annual reporting requirements and budget submissions to DDR&E.

Part III - Independent Peer Review. Capping the three-part quality assurance review process will be an independent periodic review by the American Institute for Biological Sciences (AIBS) on a three to five year time cycle. The AIBS review panel examines the entire program for relevance and scientific merit and provides a comprehensive written review that will go to the Bio Systems Director of DDR&E in addition to senior AFRRI and USU management. The next AIBS review is scheduled for the end of Fiscal Year 2002.

Department of Radiobiology, School of Medicine. The development of an academic Department of Radiobiology for placement within the USU School of Medicine will take place during the next few years, resources permitting. Both USU and AFRRI agree that, if possible, the AFRRI Scientific Director should also serve as the Chair of the new department. The SOM Department of Radiobiology will require a basic research foundation which will support AFRRI's Medical Radiological Defense Research Program mission. The Chairman of the Department of Radiobiology will directly report to the Dean of the School of Medicine.

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The Quality of AFRRI's Science Measures Well Against National Scientific Capabilities and Standards for Technical Merit.

March 2001 Technology Area Review and Assessment. The Technology Area Review and Assessment (TARA) panel noted that AFRRI's research thrusts are characterized by "quality, hypothesis-driven science" and that major elements of the program employ "novel methodology" and "logical approach" in executing studies which have the "potential for significant impact on treatment decisions."

AFRRI Publications in Peer-Reviewed Journals. The quality and productivity of AFRRI's science is reflected in its record of peer-reviewed publications and other printed materials. (A Record of AFFRI Publications, for 1998-2001, is provided at Appendix C.)

Recent Endorsements of the Quality of the AFRRI Research Programs. AFRRI's research programs are highly regarded throughout the scientific and medical communities, both nationally and internationally. The following selected accounts of recent activities and engagements testify to this fact:

- One of AFRRI's senior scientists was invited to deliver a keynote lecture at the "Advanced Research Workshop on Protracted, Intermittent or Chronic Irradiation: Biological Effects and Mechanisms of Tolerance." The workshop was an international meeting held at the University of Ulm, in Ulm, Germany, on May 14 – 17, 2001; it was sponsored by the European Commission Directorate for General Research and Technical Development, the International Searle Foundation, and the University of Ulm.

- AFRRI's Radiation Casualty Management Team Leader holds the Chair of the NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures. This task group falls under the Human Factors and Medicine Panel of NATO and its membership includes radiobiology experts from 13 NATO countries, with Australia as an observer nation.

- Upon invitation, another AFRRI senior scientist serves as the United States representative to the International Standards Organization (ISO) Working Group #18, tasked to develop performance standards for specialized laboratories performing radiation dose assessments using cytogenetic procedures.

- AFRRI planned, organized and hosted a highly successful International Conference on Low-Level Radiation Injury and Medical Countermeasures. Held in November of 1999, the conference attracted over 147 participants and included several of the world's most preeminent radiobiologists. A combined total of 72 oral presentations and posters were given over the course of three days. The proceedings of the conference were published in a special issue of Military Medicine, the International Journal of AMSUS, Supplement to Military Medicine, Volume 167, No 2, in February of 2002.

- AFRRI scientists are invited members of the International Atomic Energy Agency's (IAEA) working group to review and update the agency's Biodosimetry Manual (IAEA Report No. 260). This manual serves as the current basis for the standardization of cytogenetic-based assays for radiation dose assessment. **The updated manual, released in 2001, includes, for the first time, reference to the premature chromosomecondensation assay pioneered and published by the AFRRI Biodosimetry Team.**

- Members of the AFRRI Depleted Uranium (DU) Team were invited to make formal presentations on AFRRI's DU research findings to the National Academy of Sciences, Institute of Medicine, Committee on Health Effects Associated with Exposures during the Gulf War (National Academy of Sciences, Washington, D.C.) on June 14, 1999). Information presented by the DU Team was included in the published book summarizing the Committee's findings: Gulf War and Health, Volume 1, Depleted Uranium, Pyridostigmine Bromide, Sarin, Vaccines, (Fulco, C.E., C.T. Liverman, H.C. Sox, eds.) National Academy Press, Washington, D.C. 2000.

- An AFRRI senior scientist was an invited speaker at the 4th International Conference on the Medical Basis for Radiation Accident Preparedness sponsored by the Radiation Emergency Assistance Center/ Training Site (REAC/TS) of the Department of Energy. The conference was held in March of 2001 and addressed issues and current advances in the management of acutely irradiated or contaminated patients. The AFRRI Biodosimetry Team also organized and hosted a workshop, "Updates on the Current Dose Assessment Techniques: Biological," in conjunction with the REAC/TS Conference.

- AFRRI planned, organized, and hosted a highly successful International Conference on the Operational Impact of Psychological Casualties from Weapons of Mass Destruction in July of 2000. Keynote speakers included the Principal Deputy Under Secretary of Defense for Personnel and Readiness and the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense.

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IV. TECHNICAL QUALITY

The Transition of New and Improved Medical Technologies. AFRRI's Science and Technology Programs are expected to transition new and improved medical technologies into advanced development with Food and Drug Administration (FDA) approval and eventual fielding.

Four Defense Technology Objectives (DTOs) Guide the Thrust of AFRRI's Research. AFRRI's research programs present a strategic commitment which leans heavily toward moving products of basic and developmental research into definitive applied studies of safety and efficacy aimed at transitioning new and improved medical technologies into advanced development, with FDA approval, and eventual fielding.

Since 1998, AFRRI has been assigned four Defense Technology Objectives (DTOs). A DTO is a specifically recognized high priority element of technology advancement which will be developed or demonstrated and has an anticipated delivery date. The product of a DTO is expected not only to enhance military operational capability but also to address other important issues such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy.

Four Research Thrusts. There are four major AFRRI research thrusts which are carried out by AFRRI teams:

The Radiation Casualty Management Team. The Radiation Casualty Management Team investigates the full spectrum of medical countermeasures for an external exposure to ionizing radiation. Compounds are under development which can raise the threshold of hazardous radiation doses, save lives, and reduce injuries. The team investigates compounds which carry anti-oxidant or DNA damage surveillance and repair stimulating properties, or impart cell-cycle regulatory activities or immune system-enhancing characteristics which, when combined, provide important radioprotective qualities. The team also develops treatments for life-threatening injuries to the blood forming and gastrointestinal systems, to include the lungs. During 1999, AFRRI investigators demonstrated significant radioprotective qualities of a non-androgenic steroid, 5-androstenedial (5-AED). The drug has no measurable toxicity at the doses being used to achieve protection. On-going research includes attempts to deliver similar protective efficacy by the oral route of administration and should lead to a product which can be more easily managed logistically and used by deployed military troops. Transition of a cytokine treatment regimen is expected to occur within the next three to five years. On October 15, 2001, **Tom Seed, Ph.D.**, and **Mark Whitnall, Ph.D.**, members of the AFRRI Radiation Casualty Management Team, addressed the merits of 5-androstenedial as a radioprotectant during a meeting at the FDA. It is proposed that further development will result in a drug which can be administered about 24 hours before a military operation, where there is a significant risk of radiation exposure, in order to prevent the acute suppression of the immune and blood-forming systems of the body and associated pathologic complications.

The Biological Dosimetry Team. The Biological Dosimetry Team has made important technical achievements which significantly advance the science and medical application of cytogenetic-based methods of radiation dose assessment. The purpose of this research is to: develop rapid assays to measure radiation exposure to casualties; enhance both treatment and management; and, distinguish the "worried well" from those with radiation injuries. Development of a combined chemical and enzymatic treatment of peripheral blood lymphocytes

makes it possible to assess radiation exposures across a very broad dose range not possible with conventional cytogenetic procedures. The new procedure allows testing of large sample numbers within a single day's time instead of the usual three days. Further enhancing this development, the team, in collaboration with private industry under a cooperative research and development agreement, has developed an automated microscopic imaging system which will facilitate the processing of even larger numbers of samples with higher precision and accuracy. This new procedure known as the Premature Chromosome Condensation (PCC) assay promises to supplant the current gold standard dicentric assay for cytogenetic-based biodosimetry. A recently published report on the procedure and abstract presentations at several national and international conferences has drawn considerable attention from around the world to AFRRI and its Biological Dosimetry Team. AFRRI is rapidly becoming recognized as a leader in experimental biological dosimetry. The team is also at the forefront of discovery involving the identification and development of novel DNA and RNA molecular markers of radiation exposure. These markers can be measured rapidly and accurately with high precision and sensitivity using hand-held battery-operated analytical platforms designed for field use. Success in this area will, for the first time, allow use of radiation dose assessment and diagnostic techniques to aid triage and medical management decisions during field operations. The PCC assay and a software package for biodosimetry assessment are expected to transition within the next three to five years. During 2001, the United States Joint Standing Committee on Nuclear Energy Cooperation (JSCNEC) requested discussions on training and consultation in the areas of emergency radiological medical response and biodosimetry. **Dr. Chong-Won Cho, Director General of South Korea's Atomic Energy Bureau, Ministry of Science and Technology,** and a principal participant in the United States discussions with North Korea on the construction of nuclear power plants in North Korea, made the request following AFRRI's presentations at the State Department's 22nd JSCNEC Meeting on May 16-18, 2001.

The Depleted Uranium Team. In partial response to concerns over Gulf War Illness, the Depleted Uranium Team was established to study the biological consequences and potential health risks from chronic exposure to tissue-embedded depleted uranium (DU). The team's research findings have resulted in a recent change to medical doctrine which calls for a more aggressive removal of DU shrapnel fragments. The AFRRI team also works closely with the Office of the Special Assistant for Gulf War Illness as subject matter experts and consultants on DU issues, and collaborates with the Department of Veterans Affairs in its program to medically follow Gulf War veterans wounded by DU shrapnel. Team members have been called upon on several occasions to give testimony before Congress in this regard. Development and refinement of an inductively coupled mass spectrometry procedure which cana differentiate DU from natural uranium in biological samples has become an integral part of this collaborative study and has contributed to AFRRI's being recognized as a center of excellence in DU studies. Development of a simple chemical assay for DU which can be configured into a compact, rapid field test to aid triage and medical management decisions is another achievement of the DU team. Together, these accomplishments and their validation in peer-reviewed publications have made the AFRRI DU Team a focal point of recognized expertise frequently consulted by DoD and other United States and NATO government policy-makers. The rapid field-based DU detection assay has been patented and is expected to transition within the next two to three years. As discussed earlier, on January 8, 2001, AFRRI's consultation and expertise greatly helped to defuse the crisis within the NATO alliance, stemming from claims by some allied forces that DU exposures during operations in the Balkans were the cause of serious personal illness. In addition, on January 10, 2001, AFRRI provided the Office of the Secretary of Defense with the most current scientific information on the human bioeffects of DU resulting from various sources of exposure.

The Nuclear, Biological, and Chemical Interactions and Countermeasures Team. The Nuclear, Biological, and Chemical Interactions and Countermeasures Team was established to examine the biological effects of combined exposure to sublethal doses of radiation and biological or chemical warfare agents. The team focuses on quantifying the synergistic effects of combined exposures across the entire spectrum of doses, dose rates and time courses which can be expected in a battlefield scenario. The Defense Threat Reduction Agency (DTRA) component responsible for the building of casualty prediction models used for wartime planning and execution relies on the data generated in these detailed studies. **The team has made an important finding involving the combined insults of radiation and Bacillus anthraces, the bacterial agent causing anthrax. This finding should prove critical for guiding successful antibiotic treatment of combined exposure casualties.** The team's product is primarily informational in nature and experimental data is already being transferred to the DTRA casualty-modeling component.

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V. RESPONSE TO THE SPECIAL REQUIREMENTS OF MEDICAL READINESS

AFRRI Projects Address Requirements of Military Operations and Homeland Defense. AFRRI's portfolio of current and planned projects adequately addresses needs related to military operations and homeland defense through an on-going review process by five entities.

> **The United States and its Allies have an obvious need for a source of reliable and relevant information on the complicating effects of irradiation on the health and safety of its military personnel and citizenry. The AFRRI expertise is intramural, dedicated, and performing original work of the highest quality in response to mission-driven questions.**
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> - AIBS Peer Review on AFRRI, dated July of 1996, page 29.

Five Entities Provide Oversight and Review. Five entities provide oversight and review of AFRRI research programs or provide guidance on program objectives and product development based on specific military requirements.

The AFRRI Board of Governors. At least once each year, the AFRRI Board of Governors meets to assist in the oversight of AFRRI's radiobiology research, to advise and review program plans and accomplishments, and to ensure compliance with Service Requirements. The AFRRI Board of Governors consists of the Assistant Secretary of Defense for Health Affairs; the Surgeons General of the Army, Navy, and Air Force; the Deputy Chiefs of Staff for Operations of the Army, Navy, and Air Force, or their designated representatives; and, the President of USU.

On October 17, 2001, the AFRRI Board of Governors met and discussed four issues following an overview briefing by the Director of AFRRI. The first issue was the Service support needed for medical nuclear/radiological defense requirements. The Board recommended that the Joint Staff articulate Joint Service Operational Requirements; and, DDR&E would ascertain which OSD office would oversee the proposed transition to the P6.4 and P6.5 Advanced Development of AFRRI's products. The second issue was the Service policy for the Medical Effects of Ionizing Radiation (MEIR) Course; the Board recommended that AFRRI develop an Advanced Distance Learning interactive training module. The third issue was the replacement of the AFRRI Board of Governors with an AFRRI Board of Advisors; this concept was approved, together with a Council of Colonels/ Captains; the DDMRD J-4 would chair the Board of Advisors. The fourth issue was the selection of the next Director of AFRRI; DDR&E noted that if a qualified candidate could not be identified, that the current Director should be extended for an additional year. And, there was a new business discussion on the suitability of the use of AFRRI to sterilize mail.

The United States Army Nuclear Chemical Agency. Every two years, the United States Army Nuclear Chemical Agency (USANCA), with the assistance of AFRRI subject matter experts, publishes its Specific Military Requirements for Nuclear and Chemical Defense. Three of USANCA's top 20 requirements fall within the mandates of AFRRI's Medical Radiological Defense Research Program and were influential in the establishment of AFRRI's current Defense Technology Objectives.

The Medical Programs Sub-Panel of the Joint Service Integration Group under the Joint NBC Defense Board. Although not a voting member, AFRRI is an invited guest to meetings of the Medical Programs Sub Panel (MPSP) of the Joint Service Integration Group under the NBC Defense Board. An important function of the MPSP is the establishment and prioritization of joint service operational requirements documents and mission needs statements which serve as guidance for product acquisition and justify specific research efforts in the technology base. Participation in the MPSP process keeps the AFRRI Director closely informed on newly established requirements.

The Medical Force Protection Integrated Concept Team. AFRRI is a member of the Medical Force Protection (MFP) Integrated Concept Team (ICT). This team has the responsibility to identify futuristic medical requirements for addressing MFP for the total force under all combat and non-combat conditions; this includes protection of the service member on the battlefield, at the site of injury, through his/her time spent on active duty, and following the service member's departure into civilian life and retirement. It is well within the scope of the MFP/ICT to recommend that joint requirement documents be established for medical radiological defense products such as pretreatment and treatment pharmaceuticals and fieldable and rapid assessment biodosimetry techniques.

The Office of the Director, Defense Research and Engineering. The Office of the Director, Defense Research and Engineering (DDR&E) conducts a technology area review and assessment every two years. AFRRI is part of the review process which includes, but is not limited to, the status of AFRRI's four DTO's (Defense Technology Objectives) and the milestones established for each DTO and, AFRRI's response to meeting DoD requirements. A program overview sponsored by DDR&E was held on June 25-27, 2001. AFRRI presented each protocol related to four main program areas: Biological Dosimetry; Depleted Uranium; Radiation Casualty Management; and, NBC Combined Effects and Countermeasures. The main finding was the requirement to define a process to transition products from the Science and Technology P6.3 Program to the Advanced Development Programs, P6.4 and P6.5.

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VI. OPTIMIZATION OF FUTURE OPERATIONS

Resource Sharing Continues Between USU and AFRRI.

Continuation and Expansion of On-Going Cost-Avoidance Measures by USU and AFRRI. In addition to AFRRI's significant reductions in staffing which have taken place since 1992, both USU and AFRRI agree that on-going, cost-effective measures will continue and be expanded as appropriate. Some examples follow: 1) the frequent review of all contracts and maintenance agreements for cost avoidance and savings; 2) the USU Security Division will continue to process security background investigations for the contracted employees assigned at AFRRI; 3) the USU Civilian Human Resources Directorate will continue to provide all personnel requirements for AFRRI in accordance with current agreements; 4) the USU Administrative Support Division will continue to provide support for AFRRI's visa/passport requirements; 5) the USU Contracting Directorate will continue to provide guidance and back-up support for the employee assigned with the AFRRI contracting/support requirements; this contracting employee is seated within the USU Contracting Division; 6) the AFRRI and USU Directors of Laboratory Animal Medicine will continue to share equipment and use joint purchases for supplies; 7) the USU Learning Resources Center (Library) will continue to provide all related services for AFRRI in accordance with current agreements; 8) collaboration on occupational medicine training requirements will continue; 9) the USU Veterinary Pathology Division will continue its support for AFRRI's microbiology and electron microscopy requirements; the AFRRI Veterinarian Pathologist will continue to assist USU as required; 10) USU will continue to serve as the Internet Service Provider for AFRRI; the on-going sharing of Self-Help videos and distance learning expertise will continue; and, 11) the USU Military Personnel Office will continue to share its Equal Opportunity and mandatory training classes with the AFRRI military personnel.

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Necessary Steps Are Identified to Remedy Deficiencies in Resourcing.

Determination of Staffing/Funding Requirements. Generally, when an organization is integrated within another, there are anticipated savings in manpower and operating costs throughout the administrative and support areas. However, due to continuous and significant reductions in the AFRRI budget over the past eight years (beginning in 1992/3 when AFRRI's funding was reduced by over 40 percent), the manpower levels in the AFRRI administrative support areas have been consistently reduced, at times below recommended manpower levels. At the same time, the USU administrative support staff has been maintained at the minimum level required to support the University's mission and to assure compliance with its controlling regulations. A joint recommendation by both USU and AFRRI has been documented in the Administration Plan of October 2000 for five additional administrative hires in the areas of Security, Facilities, and Research Administration. The inclusion of the funding for these additional five hires **($262,000)** has been included in the estimated cost of staffing AFRRI during FY2002 and beyond.

One-Time Property Renovation Costs. AFRRI's urgent requirements for real property maintenance and repair and/or renovation projects have not been addressed due to consistent budget reductions since 1993. The Facilities Divisions of USU and AFRRI coordinated to provide an estimated total cost for addressing these concerns. The estimated one-time cost for renovations and/or repairs totals **$4,000,000**. These real property maintenance and renovation projects are urgently required for the continued use of the AFRRI 173,000 square foot complex; the costs have been discussed with the Office of the Director of Defense Research and Engineering. These projects include: the building of firewalls; the renovation of the heating, ventilation, and air conditioning systems; major laboratory upgrades; and, the renovation of elevators. All of these projects are five to ten years beyond the recommended timeframes for implementation. (The $4,000,000 total reflects DDR&E input on the original October 2000 submission of $4,500,000.)

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AFRRI's Internal Response to Budget Deficiencies.

AFRRI's Internal Program Management. Due to consistent budgetary reductions, in order to maintain a vibrant and productive program, AFRRI has re-engineered its strategic approach to program management and resource allocation. A system of planning, programming, budgeting, review and analysis rounds out a streamlined process which. focuses on programmatic relevance, scientific merit, and monitored productivity. This system is structured so that professional and technical staff at all levels within the Institute become stakeholders in the program and are more fully committed to meeting the Institute's goals and objectives. The implementation of this comprehensive management strategy has had a profound impact on productivity and the quality enhancement of program output.

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Product Transition.

Efforts by AFRRI to Obtain Higher Level Programmed Funding Lines. To date, DoD supports AFRRI's Medical Radiological Defense Research Program (MRDRP) initiatives up to, and including, pre-clinical trials for efficacy in surrogate animal model systems (P6.2/P6.3 funding lines). Conducting pre-clinical safety trials under current Good Laboratory Practices (cGLP) and transitioning products into advanced development involving clinical studies in humans requires higher level programmed funding lines (P6.4/P6.5), which are unfunded requirements. Also needed is a sophisticated project management process compliant with Food and Drug Administration (FDA) regulatory affairs, which AFRRI does not have. In order to partially meet this requirement, a memorandum of agreement between AFRRI and the United States Army Medical Research and Material Command was signed in 2000; it provides project management and regulatory affairs support from the United States Army Medical Material Development Activity (USAMMDA). Funding constraints are a serious detriment to the transitioning of products into advanced development and obtaining FDA approval for medicals to protect and treat radiation injuries. One approach, though not the total solution, is to partner with pharmaceutical companies to develop products with dual military and civilian applications and to share in both the cost of obtaining FDA approval and the intellectual properties.

Products Identified for Transition. AFRRI has identified numerous candidate products for transition within the next ten years. With funding projections in hand, AFRRI has identified the unfunded requirements. These products include true anti-radiation drugs to protect service members and emergency response personnel from radiation injuries in a nuclear environment. They also include treatment drugs for radiation injuries to enhance the immune system,and the blood-forming system; and, drugs for testing treat radiation-induced infections. There are treatment strategies being developed to replace the trauma of bone marrow transplants and their possible rejection. In addition, rapid assessment of the radiation dose is being developed to permit the effective treatment and management of patients and also to distinguish between the truly physically injured and the "worried well." In the event of a serious incident, radiophobia and psychologically stressed populations would be significant and must be quickly dealt with in order to reassure the general public, to effectively manage the response, and to act appropriately. Operational requirements for these products are being promulgated through the Medical Programs Sub-Panel of the Joint Service Integration Group under the Joint NBC Defense Board and other requirements processes.

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Department of Defense
DIRECTIVE

NUMBER 5105.45
March 9, 2000

DA&M

SUBJECT: Uniformed Services University of the Health Sciences (USUHS)

(a) DoD Directive 5105.45, subject as above, May 17, 1999 (hereby canceled)
(b) Chapter 104 et seq. of title 10, United States Code
(c) Secretary of Defense Report, "Defense Reform Initiative," November 1997[1]
(d) Program Budget Decision 711R, "Defense Reform Initiative - Office of the Secretary of Defense and the Defense Agencies," December 17, 1997
(e) through (g), see enclosure 1

1. REISSUANCE AND PURPOSE

This Directive reissues reference (a) to:

1.1. Update the mission, policy, organization and management, responsibilities and functions, relationships, and authorities of the USUHS.

1.2. Provide for USUHS governance under reference (b).

1.3. Establish the USUHS Executive Committee, pursuant to the direction of reference (c).

1.4. Designate the Secretary of the Navy as the "DoD Executive Agent" for administrative support of the USUHS, in accordance with reference (d).

1 Availabile at http://www.defenselink.mil/pubs/dodreform/

2. APPLICABILITY

This Directive applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as "the DoD Components").

3. DEFINITIONS

3.1. Academic Affairs. Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well-being of the USUHS.

3.2. Uniformed Services. The Army, the Navy, the Air Force, the Marine Corps, the Coast Guard, the Commissioned Corps of the U.S. Public Health Service, and the Commissioned Corps of the National Oceanic and Atmospheric Administration.

4. MISSION

The USUHS shall:

4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences.

4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces.

4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

5. POLICY

It is DoD policy that:

5.1. Consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences education, the Department of Defense recognizes the unique role of the USUHS Board of Regents in advising the Secretary of Defense. Consistent with applicable law and accomplishment of the DoD mission, the Assistant Secretary of Defense for Health Affairs (ASD(HA)), the USUHS Executive Committee, and the President of the USUHS shall be guided by the advice of the USUHS Board of Regents on academic affairs.

5.2. USUHS funding shall be within the Defense Health Program.

6. ORGANIZATION AND MANAGEMENT

6.1. The USUHS is a joint entity of the three Military Departments, subject to the overall supervision of the ASD(HA) and the management direction of the USUHS Executive Committee, and shall consist of the following:

6.1.1. A Board of Regents that shall be established and operated, in accordance with 5 U.S.C. Appendix (Federal Advisory Committee Act) (reference (e)), and shall consist of members appointed under Section 2113(a), Chapter 104 of 10 U.S.C. (reference (b)).

6.1.2. A President of the USUHS, who shall be the chief executive officer of the USUHS, and who also is the Dean of the USUHS, as described in reference (b), and who shall report to the ASD(HA), through the USUHS Executive Committee.

6.1.3. A Dean of the F. Edward Hebert School of Medicine, who shall function as the chief academic officer of the F. Edward Hebert School of Medicine and report to the President of the USUHS.

6.1.4. A Dean of the Graduate School of Nursing, who shall function as the chief academic officer of the Graduate School of Nursing and report to the President of the USUHS.

6.1.5. Other subordinate positions and elements as are established by the President of the USUHS within authorized resources.

6.1.6. Students selected under procedures prescribed, in accordance with Chapter 104 of reference (b), and graduate students.

6.2. The USUHS Executive Committee is established to provide the supervision and management of the USUHS, pursuant to the Defense Reform Initiative (reference (c)), and consistent with the direction of the Secretary of Defense to reduce the operational and program management responsibilities of the OSD.

6.2.1. The USUHS Executive Committee shall consist of the Surgeons General of the three Military Departments and shall report to the ASD(HA) on USUHS matters.

6.2.2. A Chair shall be designated from among the membership, as mutually determined by the membership.

6.2.3. The President of the USUHS shall provide an Executive Secretary and associated staff support.

6.2.4. The DoD Executive Agent shall be represented on the USUHS Executive Committee by the Surgeon General of the Navy.

7. RESPONSIBILITIES AND FUNCTIONS

7.1. The Assistant Secretary of Defense for Health Affairs, under the Under Secretary of Defense for Personnel and Readiness, shall:

7.1.1. In accordance with DoD Directive 5136.1 (reference (f)), exercise authority, direction and control over the medical personnel, facilities, programs, funding, and associated resources in the Department of Defense as they relate to the USUHS.

7.1.2. Exercise the authorities over the USUHS vested in the Secretary of Defense by Chapter 104 of 10 U.S.C. (reference (b)), except that the authority to appoint the President of the USUHS is reserved to the Secretary of Defense.

7.1.3. Develop policies and issue policy guidelines to ensure the effective integration of USUHS programs and activities in the DoD Health Program. That includes, but is not limited to, the development of DoD Directives, the issuance of DoD Instructions, and OSD-level participation in the Planning, Programming, and Budgeting System process.

7.1.4. Ensure that the advice of the Board of Regents in matters of academic affairs is considered, in accordance with the policy in section 5.1., above.

7.1.5. Ensure that the Board of Regents shall participate in the governance of the USUHS by advising the Secretary of Defense, through the ASD(HA), on academic affairs and on the administration and management of the USUHS.

7.1.6. Ensure that the President of the USUHS shall:

7.1.6.1. Make certain that educational programs leading to a Doctor of Medicine or other advanced degrees in the health professions meet the standards of applicable and recognized, accrediting, licensing, and certifying Agencies.

7.1.6.2. Carry out those responsibilities and functions pertaining to the supervision and management of University programs, activities, personnel, and resources as the ASD(HA) and Executive Committee prescribe.

7.1.7. Ensure that the Dean of the F. Edward Hebert School of Medicine shall develop and administer policies and procedures on the academic affairs of the F. Edward Hebert School of Medicine.

7.1.8. Ensure that the Dean of the Graduate School of Nursing shall develop and administer policies and procedures on the academic affairs of the Graduate School of Nursing.

7.2. The Secretary of the Navy shall serve as the DoD Executive Agent for administrative support of the USUHS, to include budget, personnel, information, facilities, and other resource responsibilities required for the mission of the USUHS.

7.2.1. Civilian personnel authorizations shall be under the purview of the DoD Executive Agent and civilian employees shall be carried on the rolls of the Department of the Navy.

7.2.2. The USUHS funding and personnel requirements shall not be offset against the Navy Surgeon General budget or work-year allocations.

7.3. The Director, Defense Legal Services Agency, shall provide legal advice and services for the USUHS.

7.4. The USUHS Executive Committee, consistent with the policy guidance of the ASD(HA), shall:

7.4.1. Oversee the operation of the USUHS and provide management direction to the President of the USUHS on the day-to-day operation of the USUHS.

7.4.2. Provide guidance to the President of the USUHS and advice to the ASD(HA) on the annual USUHS program and budget submissions.

7.4.3. Provide advice to the ASD(HA) on health policy matters relating to the USUHS.

8. RELATIONSHIPS

8.1. In carrying out the responsibilities and functions of the chief executive officer of the USUHS, the President of the USUHS shall:

8.1.1. Obtain advice from the USUHS Executive Committee and the Board of Regents, as necessary, to assist the President of the USUHS in performing the President's duties.

8.1.2. Coordinate and exchange information and advice with elements of the OSD and the other DoD Components having collateral or related responsibilities.

8.1.3. Make use of established facilities and services in the Department of Defense and other Government Agencies, when practical, to avoid duplication and achieve maximum efficiency and economy.

8.1.4. Consult and coordinate with other Governmental Agencies and non-Governmental agencies on matters for the mission and programs of the USUHS.

8.2. The Heads of the DoD Components shall coordinate with the ASD(HA) on all matters relating to the mission and programs of the USUHS.

9. AUTHORITIES

The President of the USUHS is specifically delegated the authority to:

9.1. Obtain reports, information, advice, and assistance consistent with DoD Directive 8910.1 (reference (g)), as necessary, to carry out assigned responsibilities and functions.

9.2. Communicate directly with appropriate representatives of the DoD Components and other Executive Departments and Agencies, and members of the public, as appropriate, on matters related to the mission and programs of the USUHS.

9.3. Appoint civilian members of the faculty and staff under salary schedules and grant retirement and other related benefits prescribed by the Secretary of Defense so as to place the employees of the USUHS on a comparable basis with the employees of fully accredited schools of the health professions within the vicinity of the District of Columbia, as provided by law (reference (b)).

9.4. Exercise the administrative authorities contained in enclosure 2.

10. EFFECTIVE DATE

This Directive is effective immediately.

John J. Hamre
Deputy Secretary of Defense

Enclosures - 2
- E1. References, continued
- E2. Delegations of Authority

E1. ENCLOSURE 1

REFERENCES, continued

(e) Title 5, United States Code
(f) DoD Directive 5136.1, "Assistant Secretary of Defense for Health Affairs (ASD(HA))," May 27, 1994
(g) DoD Directive 8910.1, "Management and Control of Information Requirements," June 11, 1993

E2. ENCLOSURE 2

DELEGATIONS OF AUTHORITY

E2.1.1. Under the authority vested in the Secretary of Defense, and subject to the authority, direction, and control of the Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, and the ASD(HA), the President of the USUHS is hereby delegated authority, subject to paragraph E2.1.2., below, as required in the administration and operation of the USUHS, to:

E2.1.1.1. Exercise the powers vested in the Secretary of Defense by 5 U.S.C. 301, 302(b), 3101, and 5107 on the employment, direction, and general administration of USUHS civilian personnel.

E2.1.1.2. Fix rates of pay for wage-rate employees exempted from the "Classification Act of 1949" by 5 U.S.C. 5102 on the basis of rates established under the Federal Wage System. The fixing of such rates shall follow the wage schedule established by the DoD Wage Fixing Authority.

E2.1.1.3. Administer oaths of office to those entering the Executive Branch of the Federal Government, in accordance with 5 U.S.C. 2903, and designate in writing, as may be necessary, officers and employees of the USUHS to perform that function.

E2.1.1.4. Establish a USUHS Incentive Awards Board and pay cash awards to, and incur necessary expenses for the honorary recognition of, civilian employees of the Government whose suggestions, inventions, superior accomplishments, or other personal efforts, including special acts or services, benefit or affect the USUHS or its subordinate activities, in accordance with 5 U.S.C. 4503; Office of Personnel Management (OPM) regulations; and DoD 1400.25-M, "DoD Civilian Personnel Manual (CPM)," Chapter 400, Subchapter 451, "Awards," December 1996, authorized by DoD Directive 1400.25, November 25, 1996.

E2.1.1.5. Maintain an official seal and attest to the authenticity of official USUHS records under that seal.

E2.1.1.6. Establish advisory committees and employ part-time advisors, as approved by the Secretary of Defense, for the performance of USUHS functions,

consistent with the 10 U.S.C. 173, 5 U.S.C. 3109(b), and DoD Directive 5105.4, "Department of Defense Federal Advisory Committee Management Program," September 5, 1989.

E2.1.1.7. In accordance with Executive Order (E.O.) 10450, "Security Requirements for Government Employment," April 27, 1953; E.O. 12333, "United States Intelligence Activities," December 4, 1981; and E.O. 12968, "Access to Classified Information," August 4, 1995; and DoD Directive 5200.2, "DoD Personnel Security Program (DoDSP)," April 9, 1999, as appropriate:

E2.1.1.7.1. Designate any position in the USUHS as a "sensitive" position.

E2.1.1.7.2. Authorize, in case of an emergency, the appointment of a person to a sensitive position in the USUHS for a limited period of time and for whom a full field investigation or other applicable investigation, including the National Agency Check, has not been completed.

E2.1.1.7.3. Initiate personnel security investigations, and, if necessary, in the interest of national security, suspend a security clearance for personnel assigned, detailed to, or employed by the USUHS. Any action under this paragraph shall be taken, in accordance with procedures prescribed in DoD 5200.2-R, "DoD Personnel Security Program," January 1987, authorized by DoD Directive 5200.2, April 9, 1999.

E2.1.1.8. Act as the agent for the collection and payment of employment taxes imposed by Chapter 21 of the Internal Revenue Code of 1954, as amended; and, as such agent, make all determinations and certifications required or provided for under Section 3122 of the Internal Revenue Code of 1954, as amended, and Sections 205(p)(1) and 205(p)(2) of the "Social Security Act," as amended (42 U.S.C. 405(p)(1) and 405(p)(2)), about USUHS employees.

E2.1.1.9. Authorize and approve the following:

E2.1.1.9.1. Temporary duty travel for military personnel assigned or detailed to the USUHS, in accordance with the Joint Federal Travel Regulations (JFTR), Volume 1, "Uniformed Service Members," current edition.

E2.1.1.9.2. Travel for USUHS civilian personnel, in accordance with the Joint Travel Regulations (JTR), Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.3. Invitational travel to non-DoD employees whose

consultative, advisory, or other highly specialized technical services are required in a capacity that is directly related to, or with, USUHS activities, in accordance with the JTR, Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.4. Overtime work for the USUHS civilian personnel, in accordance with 5 U.S.C. Chapter 55, Subchapter V, and applicable OPM regulations.

E2.1.1.10. Approve the expenditure of funds available for travel by military personnel assigned or detailed to the USUHS for expenses incident to attendance at meetings of technical, scientific, professional, or other similar organizations in such instances when the approval of the Secretary of Defense, or designee, is required by 37 U.S.C. 412 and 5 U.S.C. 4110 and 4111.

E2.1.1.11. Develop, establish, and maintain an active and continuing Records Management Program under 44 U.S.C. 3102 and DoD Directive 5015.2, "DoD Records Management Program," April 11, 1997.

E2.1.1.12. Utilize the Government purchase card for making micro-purchases of material and services, other than personal services, for the USUHS, when it is determined more advantageous and consistent with the best interests of the Government.

E2.1.1.13. Authorize the publication of advertisements, notices, or proposals in newspapers, magazines, or other public periodicals, as required for the effective administration and operation of the USUHS, consistent with 44 U.S.C. 3702.

E2.1.1.14. Establish and maintain, for the functions assigned, an applicable publications system for the promulgation of common supply and service regulations, instructions, and reference documents, and changes thereto, under the policies and prescribed procedures in DoD 5025.1-M, "Department of Defense Directives System Procedures," August 1994, authorized by DoD Directive 5025.1, June 24, 1994.

E2.1.1.15. Enter into support and service agreements with the Military Departments, the other DoD Components, and the other Government Agencies, as required for the effective performance of USUHS functions and responsibilities.

E2.1.1.16. Enter into and administer contracts, directly or through a Military Department, a DoD contract administration services component, or other Federal Agency, as applicable for supplies, equipment, and services required to accomplish the mission of the USUHS. To the extent that any law or E.O. specifically limits the exercise of such authority to persons at the Secretariat level, such authority shall be

exercised by the applicable Under Secretary of Defense or Assistant Secretary of Defense.

E2.1.1.17. Establish and maintain appropriate property accounts for the USUHS, and appoint Boards of Survey, approve reports of survey, relieve personal liability, and drop accountability for USUHS property in the authorized property accounts that is lost, damaged, stolen, destroyed, or otherwise rendered unserviceable, in accordance with applicable laws and regulations.

E2.1.1.18. Promulgate the necessary security regulations for the protection of property and places under the jurisdiction of the President of the USUHS, under DoD Directive 5200.8, "Security of DoD Installations and Resources," April 25, 1991.

E2.1.1.19. Exercise the authority delegated to the Secretary of Defense by the Administrator of the General Services Administration for the disposal of surplus personal property.

E2.1.2. The delegations of authority provided by paragraph E2.1.1, above, are also subject to the following, in order of precedence:

E2.1.2.1. The authority, direction, and control of the ASD(HA).

E2.1.2.2. The management direction and control of the USUHS Executive Committee.

E2.1.2.3. Regulations and procedures of the DoD Executive Agent, applicable to the USUHS, under section 7.2. of this Directive, for administration of the USUHS.

E2.1.3. The President of the USUHS may redelegate those authorities, as applicable, and in writing, except as otherwise specifically indicated in paragraph E2.1.1. through subparagraph E2.1.2.3., above, or as otherwise provided by law or regulation.

CHARTER

THE BOARD OF REGENTS
OF THE
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

A. **Official Designation:** The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS). As an advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), and DoD Directive 5105.4, the "DoD Federal Advisory Committee Management Program."

B. **Objective and Scope of Activity:** To provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs for the operation of the Uniformed Services University of the Health Sciences. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.

C. **Period of Time Required:** This Committee is established pursuant to 10 U.S.C. 2112 et seq. and exists indefinitely.

D. **Official or Sponsoring Proponent to Whom the Committee Reports:** The Secretary of Defense through the Assistant Secretary of Defense for Health Affairs.

E. **Support Agency:** The Uniformed Services University of the Health Sciences.

F. **Duties and Responsibilities:**

1. The business of the University shall be conducted by the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and the USUHS Executive Committee with the advice of the Board of Regents (hereinafter referred to as the "Board") with funds appropriated for and provided by the Department of Defense within the Defense Health Program. The Board shall consist of

a. nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;

b. the Secretary of Defense, or designee, who shall be an ex-officio member;

c. the Surgeons General of the Uniformed Services, who shall be ex-officio members; and

d. the person referred to in subsection (4).

2. The term of office for each member of the Board (other than an ex-officio member) shall be six years except that

a. any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

b. any member whose term of office has expired shall continue to serve until his successor is appointed.

3. One of the members of the Board (other than an ex-officio member) shall be designated by the President as Chairman and shall be the presiding officer of the Board.

4. The Board shall provide advice regarding the appointment of a President of the University (hereinafter in this charter referred to as the "President") who shall also serve as a non-voting ex-officio member of the Board. The Board shall also provide advice regarding the appointment of a Dean of the Medical School and Dean of the Graduate School of Nursing.

5. Members of the Board (other than ex-officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary of Defense, but not exceeding $100.00 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

6. The Board may recommend academic titles, as appropriate, upon military and civilian members of the faculty. The Board may recommend the awarding of appropriate academic degrees to successful candidates.

7. The Board is authorized to recommend negotiation of agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities will retain their identities and basic missions. The Board is also authorized to recommend affiliation agreements with an accredited university or universities. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs.

8. The Board may recommend establishment of postdoctoral, postgraduate, and technological institutes.

9. The Board may recommend establishment of programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

10. The Board may recommend to the Assistant Secretary of Defense for Health Affairs that the University, upon approval of the Secretary of Defense, may enter into agreements with foreign military medical schools for reciprocal education programs under which students at the University receive specialized military medical instruction at the foreign military medical school and military medical personnel of the country of such medical school receive specialized military medical instruction at the University. Any such agreement may be made on a reimbursable basis or a nonreimbursable basis.

11. In carrying out the specific functions listed above and in performing other activities, the Board shall serve as the primary advisor to the Secretary of Defense, to the Assistant Secretary of Defense (Health Affairs), to the USUHS Executive Committee, and to the President of USUHS concerning academic affairs of the University.

G. Estimated Annual Operating Costs and Estimated Man-Years: $185,600.00; 2.5 FTE

H. Number of Meetings: This Committee is established by statute, 10 U.S.C. 2112 et seq., and shall meet at least four (4) times per year and as often as the Secretary or Chairperson of the Board shall deem necessary to conduct University business.

I. Termination Date: The Committee by statute has no termination date (Cf Sec. 8091, P.L. 101-511, DoD Appropriations Act, 1991).

J. Date Charter is Filed: April 4, 2001

Bylaws
of the
Uniformed Services University of the Health Sciences
Board of Regents

Article I

Name

The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS).

Official Designation

As a federal advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), DoD Directive 5105.4, "Federal Advisory Committee Management Program," and DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."

Article II

Purpose and Objective

A. The purpose of the Board of Regents shall be to provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and also to the USUHS Executive Committee for the operation of the Uniformed Services University of the Health Sciences.

B. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.

C. Other specific purposes as identified in DoD Directive 5105.45.

Article III

Members
The Board shall consist of:

A. Nine persons, outstanding in the fields of health and health education, who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;

B. The Secretary of Defense, or designee, who shall be an ex-officio Member;

C. The Surgeons General of the Uniformed Services, or their designees, who shall be ex-officio Members; and

D. The President/Dean of the University who shall also serve as a non-voting ex-officio Member of the Board.

Term of Office
The term of office for each Member of the Board (other than an ex-officio Member) shall be six years except:

A. Any Member appointed to fill a vacancy, occurring before the expiration of the term for which his predecessor was appointed, shall be appointed for the remainder of such term;

B. Any Member whose term of office has expired shall continue to serve until a successor is appointed. These appointments will be renewed annually on the anniversary of the original appointment date.

Appointment of Chair

One of the Members of the Board (other than ex-officio Members) shall be designated by the President of the United States as Chair and shall be the Presiding Officer of the Board. The term of the Chair shall continue until a successor is appointed.

Selection of Vice-Chair

The Chair shall appoint a person to serve as Vice Chair.

Article IV

Duties and Responsibilities

A. The Board shall advise the Secretary of Defense, through the Assistant Secretary of Defense, regarding the appointment of the President of the University and the appointments of Deans to the School of Medicine and the Graduate School of Nursing, and approve the nomination from the Deans of the Schools of the Department Chairs. (See U.S. Code Title 10, Section 2113, attached.)

B. The Board shall be informed by the President of the University of appointments of associate deans and assistant deans.

C. The Board shall recommend the awarding of appropriate academic degrees to successful candidates.

D. The Board will ensure that the University maintains appropriate accreditation requirements.

E. The Board shall act upon recommendations made by the Committees on Appointments, Promotion, and Tenure.

F. The Board shall act upon recommendations made to establish new academic programs. A reading will occur when a proposal is presented; action will be taken at the next regularly scheduled subsequent meeting.

G. The Board shall perform other duties as deemed appropriate and within its charter.

Article V

Advisors

A. The Deans of the Schools are advisors to the Board.

B. The Commanders of affiliated teaching hospitals are advisors to the Board.

C. A military advisor to the Board will provide guidance from an operational perspective.

D. The Board may invite other individuals to be advisors.

Article VI

Committees

A. Executive Committee of the Board of Regents

Designation

The Board shall designate a body as the Executive Committee. The Executive Committee shall report to the Board.

Purpose

The Committee shall be responsible for conducting Board business between Board meetings. Actions taken by the Committee shall be submitted for ratification at the next regularly scheduled meeting.

Membership

The Committee will be composed of:

a. Chair, Board of Regents
b. Vice Chair, Board of Regents
c. Chair, USU Executive Committee
d. Two members selected by the Board
e. President, USU

Meetings

The Executive Committee of the Board of Regents will meet either at the call of the Chair or at the request of any two members other than the Chair. Meetings may be held in person or via conference call.

B. Ad Hoc Committees

Designation

The Board, as a body, shall designate ad hoc committees as necessary.

Purpose

Each such ad hoc committee shall be responsible for in-depth consideration of assigned Board agenda items and/or special projects between scheduled meetings.

Membership

The Chair of the Board of Regents will appoint ad hoc committee members.

Meetings

Each ad hoc committee will meet either at the call of its Chair, or at the request of any two members other than the Chair of the committee. Meetings may be held in person or via conference call.

Article VII

General Procedures

A. Regular Meetings

(1) The Board will hold at least four (4) meetings in an annual period from October 1 to September 30, or as often as the Secretary of Defense or Chair of the Board shall deem necessary to conduct University business.

(2) Unless otherwise determined by the Board, meetings will be held in the Board of Regents conference room at the University, 4301 Jones Bridge Road, Bethesda, MD 20814.

B. Additional Meetings

(1) Additional meetings will be called by the Executive Secretary upon the direction of the Chair, the President of the University, or written request of three or more Regents.

(2) Additional meetings of the Board will be held at such times and places as will be specified in the notice of the meeting.

C. Notice of Meetings

(1) Notice of all meetings of the Board shall be sent by the Secretary to each Regent by mail, fax, electronic mail (e-mail), or telephone.

(2) The Secretary shall mail a notice not less than fifteen (15) days before any regular meeting. Faxing, e-mailing, or telephoning a notice shall be done not less than seven (7) days before a regular meeting.

(3) The recital by the Secretary in the minutes that notice was given shall be sufficient evidence of the fact.

(4) Public Announcement of the meetings of the full Board will appear in the Federal Register as provided in the Government in the Sunshine Act. (5 U.S.C. 552b(e)(3))

D. Quorum

A majority of all Members will constitute a quorum of the Board. As currently constituted, a quorum means at least eight (8) members must be present in person or via electronic means.

E. Voting

(1) During a meeting, if a quorum is called for by a member and found not to be present, no further business may be transacted.

(2) During a meeting, issues will be determined by voice balloting, unless an individual Member requires a written ballot.

(3) The Chair of the Board is a Member of the voting assembly and has the right to vote as any other Member when the vote is by ballot.

(4) Unless otherwise specified, a simple majority vote will determine matters of issue before the Board. In the event of a tie vote, the proposed resolution is lost.

(5) At the direction of the Chair, action may also be taken by a majority of the Members by notation voting (that is to say by voting on material circulated to the Members individually or serially, or by polling of Members individually or collectively by mail, telephone, fax, e-mail or similar procedure). Such action will be reported by the Secretary at the next Board Meeting.

(6) The Secretary of Defense, or the Secretary's designee, is authorized to vote.

(7) The Surgeons General of the Uniformed Services, or their duly appointed designees, are authorized to vote. The President/Dean of the University is precluded by DoD Directive 5105.45 from voting.

F. Order of Business

The order of business will be at the discretion of the Chair unless otherwise specified by the Board.

G. Rules of Order

In the determination of all questions of parliamentary usage, the decision of the Chair or presiding officer will be based upon the latest available revision of "Robert's Rules of Order."

Article VIII

Amendment of Bylaws

A. Amendments

These Bylaws may be amended at any meeting of the Board of Regents as long as each proposed amendment has been provided to Members at least 60 days before the next scheduled meeting. Amendments will take effect by the affirmative vote of two-thirds (2/3) of the Members present.

Effective Date:

These Bylaws are effective February 6, 2001.

Lonnie R. Bristow, M.D., Chair, Board of Regents

CHARTER

THE EXECUTIVE COMMITTEE OF THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

A. Official Designation: The committee shall be known as the Executive Committee of the Uniformed Services University of the Health Sciences. The committee shall be governed by the provisions of Department of Defense Directive 5105.18, "DoD Committee Management Program," February 8, 1999.

B. Objective and Scope of Activity: To provide for the management and supervision of the Uniformed Services University of the Health Sciences. To assure that the operation of the University is in compliance with appropriate Department of Defense Directives, Instructions and Regulations. To ensure the President of the University shall have execution authority direction and control of USUHS and report to the Executive Committee. To facilitate accomplishment of the function's of the ASD(HA), the Surgeons General, and the Executive Agent as described in DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."

C. Period of Time Required: This Committee is established pursuant to Program Budget Decision 711 of December 17, 1997 and will exist until rescinded by the Secretary of Defense.

D. Official of Sponsoring Proponent to Whom the Board Reports: Assistant Secretary of Defense (Health Affairs).

E. Duties and Responsibilities:

1. The business of the University shall be conducted under the management and supervision of the Executive Committee with Defense Health Program and other funds appropriated for and provided by the Department of Defense through the Department of the Navy as the Executive Agent.

2. The Executive Committee shall consist of the Surgeons General of the Military Services. The membership will determine the Chair.

3. The Executive Committee will be guided by the advice of the USUHS Board of Regents on academic affairs.

4. The Executive Committee will oversee matters involving programming, budgeting and funding execution. In this regard, budgets approved by the Executive Committee will be presented by the Executive Agent to the Defense Health Program as a part of its responsibility for the planning, programming and budgeting execution system of the USUHS.

F. Signature Authority: The Chair has authority to transmit decisions upon which the Executive Committee has reached unanimity. In the absence of a member of the Executive Committee, the representative of a Surgeon General is authorized to participate in the decision-making process.

G. Number of Meetings: The Executive Committee shall meet at the call of the Chair but not less than quarterly.

Charter Approved, December 18, 2000:

VADM Richard A. Nelson
Surgeon General of the Navy
Chair

LtGen Paul K. Carlton Jr.
Surgeon General of the Air Force
Member

LTG James B. Peake
Surgeon General of the Army
Member

Uniformed Services University

Strategic Plan

A Message from the President

The University Strategic Plan has become the core document with which the University is formulating its future. In accordance with good management practices, we have aligned our plan with the Department of Defense Medical Health System (MHS) Business Plan.

In April 2001, the University senior staff, teaching hospital representatives, Chair of the Board of Regents, and representatives of the Surgeons General held a very productive three-day retreat to review our strategic plan. We examined our strengths, weaknesses, opportunities, and threats. As a result, we identified seven new goals and over forty objectives, of which 28 were selected to be worked on in FY 2002. Since last year, over 200 people have been working on these objectives to meet our mission of "Learning to care for those in harm's way."

Listed below are the University's seven goals with their respective goal champions. I invite you to click on each goal to view the objectives and strategies that are being worked on in FY 2002.

***Goal 1:* We will enhance the reputation of USU as a premier health sciences academic institution with a unique global and military perspective.**

Goal Champions:
Mr. Peter Esker, pesker@usuhs.mil
Lt Col Carolyn Miller, cmiller@usuhs.mil

***Goal 2:* We will anticipate changes in society, medicine and the military to meet the academic and unique needs of health care delivery in the MHS.**

Goal Champions:
Dr. Emmanuel Cassimatis, ecassimatis@usuhs.mil
Col Martha Turner, mturner@usuhs.mil

***Goal 3:* We will optimize resources to efficiently and effectively implement USU core capabilities.**

Goal Champions:
Mr. Steve Rice, srice@usuhs.mil

***Goal 4:* We will build a sustaining financial base.**

Goal Champions:
Mr. Charlie Mannix, cmannix@usuhs.mil

***Goal 5:* We will optimize our role in military and federal medical education and research.**

Goal Champions:
Dr. Val Hemming, vhemming@usuhs.mil
Dr. Steve Kaminsky, skaminsky@usuhs.mil

***Goal 6:* We will create a powerful, committed and energized University family.**

Goal Champions:
Mrs. Mary Dix, mdix@usuhs.mil
Dr. Richard MacDonald, rmacdonald@usuhs.mil

***Goal 7:* We will effectively communicate the right information to the right people at the right time.**

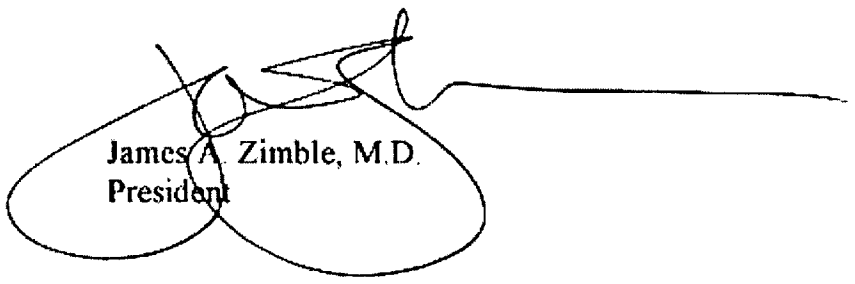
Goal Champions:
Dr. Vernon Schinski, vschinski@usuhs.mil
COL Charles Serio, cserio@usuhs.mil

I believe that a useful plan is always a work-in-progress. We will constantly refer to the strategic plan as our beacon, but will adjust a few points of the compass as the University deals with the changing environment.

I invite you to read this plan, coming back occasionally as new objectives and strategies are added. I also encourage you to engage in discussions with the Goal Champions--a link is located at the bottom of each goal that will connect you with their email address. Please feel free to share your thoughtful comments.

This is our strategic plan to guide the University in the 21st century. This strategic plan has no value if it is filed or posted and ignored; it becomes an effective and

dynamic plan directed towards the University's vision when we are all involved in its creation and maintenance. Your input is important, welcomed, and appreciated.



James A. Zimble, M.D.
President

Uniformed Services University

Strategic Plan

GOAL 1

We will enhance the reputation of USU as a premier health sciences academic institution with a unique global and military perspective.

Goal Champions:

Mr. Peter Esker, pesker@usuhs.mil, 301-295-1219
Lt Col Carolyn Miller, cmiller@usuhs.mil, 301-295-9560

*1.1: Public understands the unique roles and values of the Uniformed Services University.

1.1.1 Public relations and other announcements and press releases have USU and its success stories.

Integrated Action Team Leader: *Mr. John Frankenburg, jfrankenburg@usuhs.mil, 301-295-3665*

*1.2: Military and civilian leadership recognize the University's role in military medicine and preparation for operational missions.

1.2.1 Military and civilian leadership recognize the University's role in military medicine and preparation for operation missions.

Integrated Action Team Leader: *Dr. James Smirinotopolus, jsmirnio@usuhs.mil, 301-295-3145*

***1.3: The University is a prized and career-enhancing assignment for both military and civilian health care professionals.**

1.3.1 The University is a prized and career-enhancing assignment for both military and civilian health care professionals.

Integrated Action Team Leader: *CDR Barry Wayne, bwayne@usuhs.mil, 301-295-3019*

***1.4: The University actively recruits under-represented minorities in order to attain a diverse faculty and student body in proportion to the population of the MHS.**

1.4.1 Active recruiting efforts to raise the total applicant pool: target under-represented minorities, women, military personnel, and all prospective applicants.

Integrated Action Team Leader: *Mr. Peter Stavish, pstavish@usuhs.mil, 301-295-3198*

***1.5: Alumni are proud to serve as University ambassadors for recruitment and public relations.**

1.5.1 Contact alumni; donations increased by 10% per year for three years.

Integrated Action Team Leader: *Mrs. Helaine Ahern, hahern@usuhs.mil, 301-295-3094*

1.5.2 Contact alumni to attend recruitment fairs in their local area, and to coordinate presentations at local military installations.

Integrated Action Team Leader: *Dr. J Mauri Hamilton, hamilton@usuhs.mil, 301-295-9561* and *Mrs. Sharon Willis, swillis@usuhs.mil, 301-295-3578*

* *These objectives will be worked in FY 2002*

Uniformed Services University

Strategic Plan

GOAL 2

We will anticipate changes in society, medicine and the military to meet the academic and unique needs of health care delivery in the MHS.

Goal Champions:
Dr. Emmanuel Cassimatis, ecassimatis@usuhs.mil, 301-295-1917
Col Martha Turner, mturner@usuhs.mil, 301-295-1009

*2.1: The University is an active and valued participant in professional, academic and military organizations.

2.1.1 The USU is an active and valued participant in professional, academic and military organizations.

Integrated Action Team Leader: *Lt Col Paul Austin, paustin@usuhs.mil, 301-295-1206*

*2.2: The University strongly advocates for the direct care component of the MHS.

2.2.1 Education - and knowledge - of USU students and faculty about the direct care systems.

Integrated Action Team Leader: *Dr. Galen Barbour, gbarbour@usuhs.mil, 301-295-3832*

*2.3: The University serves as a think tank to address new issues as they emerge.

2.3.1 The University serves as a "think tank," or intellectual resource.

Integrated Action Team Leader: *Dr. Geoff Ling, gling@usuhs.mil,301-295-3683*

2.4: The University is fully integrated into the MHS.

* *These objectives will be worked in FY 2002*

Uniformed Services University

Strategic Plan

GOAL 3

We will optimize resources to efficiently and effectively implement USU core capabilities.

Goal Champion:
Mr. Steve Rice, srice@usuhs.mil, 301-295-3896

*3.1: Best business practices are implemented.

3.1.1 Consolidation of University Space Committee's.

Integrated Action Team Leader: *Dr. Richrd Andre, randre@usuhs.mil, 301-295-3024*

3.1.2 Implement the use of a business plan for all University projects.

Integrated Action Team Leader: *Dr. Vernon Schinski, vschinski@usuhs.mil, 301-295-3700*

3.1.3 Increase ordering ceiling on IMPAC card for certain departments, e.g. LRC, UIS.

Integrated Action Team Leader: *LTC James Swearengen, jswearengen@usuhs.mil, 301-295-1910*

3.1.4 Indirect Funds/Support Cost Recovery distribution.

Integrated Action Team Leader: *Mr. Norman Qualtrough, nqualtrough@usuhs.mil, 301-295-3443*

3.1.5 Improve civilian personnel hiring process within USU by improving/modifying the SF-52 tracking system.

Integrated Action Team Leader: *Mr. Joe Piemontese, jpiemontese@usuhs.mil, 301-295-3412*

3.1.6 Improve the USU Instruction Review process.

Integrated Action Team Leader: *Mrs. Patricia Burke, pburke@usuhs.mil, 301-295-3032*

3.1.7 Obtain the most up-to-date financial/purchasing/logistical software to replace or update the CUFS software.

Integrated Action Team Leader: *Mr. Robert Parker, rparker@usuhs.mil, 301-295-3287*

***3.2: Facilities and infrastructure are state-of-the-art.**

3.3: Salaries, benefits and compensation plans are competitive.

**** These objectives will be worked in FY 2002***

Uniformed Services University

Strategic Plan

GOAL 4

We will build a sustaining financial base.

Goal Champion:

Mr. Charlie Mannix, cmannix@usuhs.mil, 301-295-3981

***4.1: Research and resource funding is increased.**

***4.2: Endowments are developed in concert with strategic plan objectives.**

4.3: All cost centers are actively engaged in POM process.

4.4: Synergy between USUHS and HJF is increased.

4.5: Tech transfer/CRADA is used to fullest extent.

4.6: Directed entrepreneurial activity is fostered.

4.7: Flexible long term funding is secured.

4.8: The University receives significant external private financial support including alumni contributions.

4.1.1 - 4.4.1 Increase research and resource funding is predicated on the growth of its components.

Integrated Action Team Leader: *Mrs. Helaine Ahern, hahern@usuhs.mil, 301-295-3094*

* *These objectives will be worked in FY 2002*

Uniformed Services University

Strategic Plan

GOAL 5

We will optimize our role in military and federal medical education and research.

Goal Champions:

Dr. Val Hemming, vhemming@usuhs.mil, 301-295-3017
Dr. Steve Kaminsky, skaminsky@usuhs.mil, 301-295-9440

***5.1: Educational programs promote military medial readiness, public health, and force protection.**

5.1.1 Educational programs promote military medical readiness, public health, and force protection.

Integrated Action Team Leader: *CDR Barry Wayne, bwayne@usuhs.mil, 301-295-3019*

5.2: Educational programs meet accreditation standards.

5.3: Educational and research programs set new standards for knowledge and skills in contingency medicine.

5.4: Programs teach professional values and behavior including culture and heritage.

5.5: Educational processes develop leadership professional and administrative skills for medical professionals.

***5.6: Research and development focuses on military relevant outcomes.**

5.6.1 Research and development focuses on military relevant outcomes.

Integrated Action Team Leader: *CAPT Larry Laughlin, llaughlin@usuhs.mil, 301-295-3170*

5.7: Partnerships are established to enhance collaborative research, education and tech transfer.

***5.8: Compliance in research is assured.**

5.8.1 Define policy/process for University wide research compliance.

Integrated Action Team Leader: *Dr. Steve Kaminsky, skaminsky@usuhs.mil, 301-295-9440*

5.9: Education and research in patient safety are carried out.

5.10: University graduates exceed our customer's expectations.

5.11: Our graduates serve as a continuous source of career medical officers.

**** These objectives will be worked in FY 2002***

Uniformed Services University

Strategic Plan

GOAL 6

We will create a powerful, committed and energized University family.

Goal Champion:

Mrs. Mary Dix, mdix@usuhs.mil, 301-295-1958
Dr. Richard MacDonald, rmacdonald@usuhs.mil, 301-295-3185

*6.1: Staff and faculty are satisfied and productive.

6.1.1 Faculty, staff, and student welfare and satisfaction are continuously monitored within the University.

Integrated Action Team Leader: *CAPT Jane Mead, jmead@usuhs.mil, 301-295-0962*

*6.2: Strategic thinking is imbedded in the organizational culture of the University.

6.2.4 All of the USUHS community must share a vision that all employees, working as one team, can accomplish.

Integrated Action Team Leader: *Chaplain Evans, jevans@usuhs.mil, 301-295-9193*

*6.3: Alumni are active and engaged in the University.

6.3.1 Information will be provided to USUHS Alumni that will promote the development of academic, clinical, and management skills.

Integrated Action Team Leader: *COL George Fuller, gfuller@usuhs.mil, 301-295-3632*

*6.4: Communication will be enhanced throughout the University community both on-site and off-site.

6.4.2 USUHS faculty, staff, students, and alumni, both on-site and off-site, will be provided information relevant to their career enhancement, mission, and interests.

Integrated Action Team Leader: *Dr. Neil Grunberg, ngrunberg@usuhs.mil, 301-295-3270*

**** These objectives will be worked in FY 2002***

Uniformed Services University

Strategic Plan

GOAL 7

We will effectively communicate the right information to the right people at the right time.

Goal Champions:
Dr. Vernon Schinski, vschinski@usuhs.mil, 301-295-3700
COL Charles Serio, cserio@usuhs.mil, 301-295-2690

7.1: Every user is educated and trained in appropriate use of information media.

7.2: "Push technology" is provided for critical information.

7.3: Every user has a valid e-mail address.

***7.4: Tools are available and utilized for off-site communications.**

7.4.1 Improve off-site communication.

Integrated Action Team Leader: *Ms. Emma Ford, eford@usuhs.mil, 301-295-9800*

7.4.2 Revise mail codes for distribution of correspondence at the University and its associated activities, including AFRRI.

Integrated Action Team Leader: *Mrs. Jane Bradley, jbradley@usuhs.mil, 301-295-3701*

*7.5: A robust array of communication mechanisms is maintained.

7.5.1 Establish an electronic communication policy for all of the University and its subordinate activities.

Integrated Action Team Leader: *Mr. Pete Esker, pesker@usuhs.mil, 301-295-1219*

7.5.2 Establish policies/procedures for the use of voice mail as a communication mechanism at the University and its activities.

Integrated Action Team Leader: *Mr. Dennis Stutz, dstutz@usuhs.mil, 301-295-3301*

7.5.3 Provide a flexible means for electronic distribution of official communication at the University.

Integrated Action Team Leader: *Mrs. Royce Lewis, rlewis@usuhs.mil, 301-295-9800*

*** These objectives will be worked in FY 2002***

APPENDIX C

Selected Examples of Billeted and Off-Campus Members of the USU Departments and Programs and Department Activities Receiving Special Recognition During 2001.

Anatomy, Physiology and Genetics - School of Medicine.

Background. The Department of Anatomy, Physiology and Genetics (APG) makes substantial contributions to the educational and research missions of the University. In the past year, the Department made significant progress toward achieving a total integration of the Anatomy and Physiology curricula for the USU medical students. First-year medical students spend over half of their instructional time with APG faculty (493 of 929 contact hours); the medical students' experiences in the first year are viewed as laying an important groundwork for their clinical practice. The goal is to provide a comprehensive, systematic, yet easier-to-learn body of information in the basic sciences. The anatomical and physiological curriculum is presented in a series of three courses. The first Course, Introduction to Structure and Function, provides an introduction to cell biology and physiology, and an understanding of physiological function by the dissection of the human body; clinical correlation demonstrates the relationships of organ systems and congenital abnormalities. The second Course, Clinical Head, Neck and Functional Neuroscience, integrates the basic and clinical anatomy of the head and neck with microstructure, physiology of the special senses, and functional neuroscience; case studies are employed to enhance core basic science information and to facilitate the development of clinical reasoning skills. The third Course, Organ System Function and Microstructure, examines the normal physiological and anatomical functions of the six major organ systems; a multi-disciplinary approach is again used to emphasize the clinical implications of interactions between organ systems. **In the current year, faculty of the Department manage research funding which exceeds $9.7 million.** A wide range of research programs are supported by funds from the National Institutes of Health, the Cystic Fibrosis Foundation, the Food and Drug Administration, as well as components of the Department of Defense, including intramural USU research funds, the Veterans Head Injury Program, and the TriService Nursing Program. Research programs address such areas as cystic fibrosis, and other genetic diseases, diabetes, cancer, developmental central nervous system disorders, traumatic brain injury, multiple sclerosis, nerve damage from trauma, visual ocular disease, aminated molecules for sleep, fluid and electrolyte balance, stress adaptation, Alzheimers Disease, tissue reconstruction using laser light sources, Trisomy 21-Down Syndrome, Canavan Disease, neuronal dysfunctions following Gulf War Syndrome, Space Medicine, biorhythms, myocardial ischemic injury, and renal functions in hypertension and diabetes. Finally, the Department has been a forerunner in the application of new teaching and research technologies. The Department continues to support the Patient Simulation Center, which is used by medical students and many groups as a training tool. The Department supports genomic and proteomic initiatives, including microarray technologies, mass spectrometry, and sophisticated cell imaging methods.

Nelson J. Arispe, Ph.D., Research Professor, USU SOM Department of Anatomy, Physiology, and Genetics, and his research team discussed their findings from research on Alzheimer's Disease, a chronic dementia affecting the aging population, during the 2001 Meeting of the Society for Neurosciences. Advances of some of the results from this USU research are summarized in the abstracts that were presented at the meeting.

Ruth E. Bulger, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics, spoke at two national meetings during May of 2001. Her first address, "Ethics of Teaching and Learning," was presented on May 3-4, 2001, at the American Speech-Language-Hearing Association's Conference on Promoting Research Integrity in Communication Sciences and Disorders and Related Disciplines. Doctor Bulger also spoke at the 13th Annual TriService Clinical Investigation Post-Graduate Short Course in San Antonio, Texas, on May 7-9, 2001. Her topic was "The Scientists' Role in Society."

Meera Srivastava, Ph.D., Research Associate Professor, and Harvey B. Pollard, M.D., Ph.D, Professor and Chair, USU SOM Department of Anatomy, Physiology, and Genetics, co-authored an article entitled, "ANX7, a Candidate Tumor Suppressor Gene for Prostate Cancer," which was published in the Proceedings of the National Academy of Sciences, Volume 98, Number 8, April 10, 2001.

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Anesthesiology - School of Medicine.

Lieutenant Colonel Paul Mongan, MC, USA, USU SOM Class of 1987, was selected for the position of Chair, in the USU SOM Department of Anesthesiology during 2001. Doctor Mongan is the medical school's first graduate to become a chair of a clinical department at USU. Doctor Mongan had been assigned to the USU SOM Department of Anesthesiology faculty since 1997, serving as Director of Research and as an Associate Professor; and, he served as the Department's Vice Chair since 1999. Doctor Mongan succeeds Sheila Muldoon, M.D., who will remain on the faculty of USU as a Professor of Anesthesiology. A co-author of nearly 30 medical publications and more than 30 abstracts, Lieutenant Colonel Mongan also helped to write three chapters for a new book, A Handbook of Cardiovascular Anesthesia. He was elected to the Alpha Omega Alpha Medical Honor Society while a student at USU; and, he is a member of the Association of University Anesthesiologists, the American Society of Anesthesiologists and the International Society of Anesthesiologists. Doctor Mongan received his Bachelor of Science Degree from the United States Military Academy in 1983; and, he was also named to the Phi Kappa Phi Honor Society. After graduating from USU, he completed his internship at the Brooke Army Medical Center in Texas in 1988; and, he completed his residency in anesthesiology at the Brooke Army Medical Center in 1991.

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Dermatology - School of Medicine.

Thomas N. Darling, M.D., Assistant Professor and Director of the Sulzberger Laboratory for Dermatologic Research, USU SOM Department of Dermatology, was a 2001 recipient of the Doris Duke Clinical Scientist Development Award for his research, "Tumorigenesis in Multiple Endocrine Neoplasia Type I." He was one of nine faculty-level awardees to receive research funding for up to five years. The New York based Doris Duke Charitable Foundation seeks to improve the quality of people's lives by nurturing the arts, protecting and restoring the environment, seeking cures for diseases, and helping to protect children from abuse and neglect.

Colonel Leonard Sperling, MC, USA, Professor and Chair, USU SOM Department of Dermatology, is one of several USU faculty members who play a significant role in a publishing breakthrough which is re-defining the way today's health care professional obtains timely and critical medical information. Colonel Sperling is an editor and author for the upcoming Dermatology Textbook on *eMedicine.com*, the medical education network which has developed the first and largest on-line, peer-reviewed medical reference library. To date, ten other USU faculty members have contributed to the web site. Colonel Sperling has pointed out that *eMedicine* is available to the entire world, free of charge, assuming Internet access. There is significant supervision of content, with several layers of medical and copy editors. This helps to ensure accuracy and quality. Unlike traditional textbooks, the *eMedicine* chapters can be updated and revised on a daily basis. Unlike traditional medical texts which are as much as six years out of date at the time of publication, information on *eMedicine.com* is updated 24 hours a day, 365 days a year.

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Family Medicine - School of Medicine.

Simon L. Auster, M.D., Associate Professor, USU SOM Department of Family Medicine, was selected as the recipient of the Twelfth Annual Nancy C.A. Roeske, M.D., Certificate of Recognition for Excellence in Medical Student Education. This award was granted by the American Psychiatric Association in recognition of Doctor Auster's "outstanding and sustaining contributions as a faculty member at the University."

Lieutenant Colonel Debbie J. Bostock, USAF, MC, Assistant Professor, USU SOM Department of Family Medicine, was the invited author of a chapter on "Older Adult Preventive Health Care" in the Manual for Women's Health, published in October of 2001 by Cambridge University Press. She was also appointed to the DoD Women's Health Advisory Panel and continues to serve in that capacity.

Colonel George Fuller, MC, USA, Assistant Professor, USU SOM Department of Family Medicine, Colonel Fuller was the co-author of a two-part series of military unique articles for the journal, Military Medicine, published during June and July of 2001, on "Enhancing Soldier and Family Well-Being Across the Life-Course: A Developmental Model of Successful Aging, Spirituality, and Health Promotion for the 21st Century."

Lieutenant Colonel Wayne Jonas, MC, USA, Associate Professor, USU SOM Department of Family Medicine, was appointed, during 2001, to the White House Commission on Complementary and Alternative Medicine Policy. The 15-member commission will report to the President through the Secretary of Health and Human Services on legislative and administrative recommendations to ensure that public policy maximizes the benefits of complementary and alternative medicine to Americans. Education, training of health care practitioners, and research are some of the areas that the commission will be responsible for during its two-year term. Doctor Jonas has held academic appointments at USU since 1986.

Colonel Carl O. Moe, USAF, MC, Clinical Psychologist, USU SOM Department of Family Medicine, continued to work with and analyze the data from the on-going USAF Suicide Risk Reduction Program. In addition, he was selected to coordinate the Psychology Board Examinations for the Middle Atlantic States. Colonel Moe was also an invited speaker on "Children, Adolescents and Disasters" at the annual American Academy of Family Practice Child and Adolescent Medicine Course in October of 2001.

Lieutenant Colonel Francis G. O'Connor, MC, USA, Associate Professor, USU SOM Department of Family Medicine, served as the co-editor for the first Textbook of Running Medicine, published during 2001 by McGraw-Hill. This publication is rapidly becoming the definitive source of information for the health care of runners. Lieutenant Colonel O'Connor and the members of the Sports Medicine Fellowship Training Program, which he directs, also continued to expand the voluntary health care they provide to teams throughout the Washington D.C. area. Medical support is provided for: the Northern Marymount University; Montgomery College; the United States Naval Academy; American University; and, several local high schools.

Charles Privitera, M.D., Senior Faculty, USU SOM Department of Family Medicine, serves as the senior faculty for the Couples and Family Therapy Training Program at the Washington School of Psychiatry. He also directs training in Couples and Family Therapy for the National Capital Consortium Psychiatry Residency Programs.

Lieutenant Colonel Brian V. Reamy, USAF, MC, Assistant Professor and Chair, USU SOM Department of Family Medicine, was the invited author of the chapter on "Disturbances Due to Cold" for the 53rd Edition of one of medicine's most consulted texts, Conn's Current Therapy. In addition, Lieutenant Colonel Reamy was the co-author of an article on "Adolescent Idiopathic Scoliosis" for the journal, American Family Physician. Doctor Reamy was appointed to the position of Chair, Department of Family Medicine, effective September 4, 2001. He received his Medical Doctorate from Georgetown University and completed both a residency in Family Medicine at the David Grant Medical Center and a Fellowship in Faculty Development and Academic Medicine at the University of California, San Francisco. He is a recent graduate of the United States Air Force Air War College and was assigned as the Residency Program Director, Department of Family Practice, Malcolm Grow Medical Center, before his selection as Chair of the USU SOM Department of Family Medicine.

Colonel William Sykora, USAF, MC, Assistant Professor, USU SOM Department of Family Medicine, was the invited presenter of his research on the scope of care and its relationship to job satisfaction and retention of military family physicians at the national American Academy of Family Physicians's Meeting in Atlanta, Georgia.

Lieutenant Commander Mark B. Stephens, MC, USN, Assistant Professor, USU SOM Department of Family Medicine, took second place in the National Family Practice Research Competition at the Annual Assembly of the American Academy of Family Physicians. Doctor Stephens' study focused on the role of ultrasound in managing low-risk pregnancies specifically from the patient's perspective. The presentation was entitled, "Prenatal Ultrasound: The Maternal Perspective." In addition, the Department of Family Medicine Interest Group, headed by Doctor Stephens, was honored with its

recognition by the American Academy of Family Physicians as a 2001 National Program of Excellence. Lieutenant Commander Stephens was also the co-author of the article, "Ergogenic Supplement Use: A Marker for High Risk Behaviors," published in the Journal of Family Practice. This article examined the association between high-risk behaviors and the use of body-building supplements among Marine Corps recruits. In addition, Doctor Stephens was the invited presenter to one national and four regional meetings on a variety of topics ranging from: "Protecting Yourself, Your Family, and Your Patients from Bioterrorism" at the Virginia Academy of Family Physician's Meeting; to "Substance Abuse" at the American Academy of Family Physicians Annual Meeting on Infant, Child and Adolescent Medicine Conference.

Captain Cynthia Williams, DO, USN, Assistant Professor, USU SOM Department of Family Medicine, was selected to be the Geriatric Medicine Representative to the Primary Care Advisory Board of the Bureau of Medicine and Surgery of the United States Navy. She is also appointed to the TRICARE Plus Working Group of the United States Navy.

Cindy C. Wilson, Ph.D., C.H.E.S., Professor, USU SOM Department of Family Medicine, was the invited presenter of several projects to the 9th International Conference on Human-Animal Interactions. She has continued to perform ground-breaking research on the health effects of companion animals on patients with chronic illnesses. In addition, throughout 2001, Doctor Wilson played a significant role in the continuing education efforts for the USU faculty in coordination with the USU SOM Office of Faculty Affairs.

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Laboratory Animal Medicine - Uniformed Services University.

Lieutenant Colonel (P) James R. Swearengen, DVM, VC, USA, Director, Laboratory Animal Medicine, was an invited speaker at the USA-Russia Workshop on International Research Ethics, Institutional Review Boards and Laboratory Animal Welfare held at the Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry in Pushchino, Russia. The workshop was held from January 20-24, 2002, and was sponsored by the Biotechnology Engagement Program of the Department of Health and Human Services (HHS). Lieutenant Colonel Swearengen was invited by HHS to present three lectures which included: 1) *The International Animal Research Community, Resources and Considerations*; 2) *Ending the Confusion of Animal Research Requirements; DoD Policy, PHS Animal Welfare Assurances, AAALAC Accreditation, and Good Laboratory Practices*; and, 3) a *Panel Discussion on Physical Plant Requirements for DoD-Sponsored Animal Research.* Lectures were presented by both United States and Russian experts in the areas of human and animal use in research to help establish a common ground for collaborative research efforts. The workshop was attended by 80 Russian participants from over 30 different institutes.

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Medical History - School of Medicine.

Robert T. Joy, M.D., Professor Emeritus and Former Chair, USU SOM Department of Medical History, was quoted in a feature article discussing the topic of the Army's research on yellow fever. As the former Director of the Walter Reed Army Institute of Research (WRAIR), Doctor Joy helped to explain the history of the Yellow Fever Epidemic in the recent edition of The Lancet, Volume 357, June 2, 2001. In addition, Doctor Joy will receive the 2002 Nicholas E. Davies Memorial Award from the American College of Physicians, American Society of Internal Medicine. The Davies Award is presented to an individual for outstanding contributions to humanism in medicine and recognizes the person's scholarly activities in history, literature, philosophy, and ethics. Doctor Joy was one of the University's first faculty members and helped to establish the curriculum. He was Professor and Chair of the Department of Medical History from 1976 until his retirement in 1996. As Professor Emeritus, he still lectures the USU medical students on the history of military medicine. Doctor Joy, who retired from the Army in 1981 at the rank of Colonel, was the SOM's first Commandant from 1976 to 1981.

Dale C. Smith, Ph.D., Professor and Chair, USU SOM Department of Medical History, was interviewed by the Fox News Channel. As part of its production of eight documentary hours, *War Stories with Oliver North*, the Fox News Channel interviewed Doctor Dale Smith, the Chair of the USU SOM Department of Medical History, and **Brigadier General John Hutton, MC, USA (retired), Former White House Physician.** The interview took place on October 8, 2001, at the National Museum of Health and Medicine at the Armed Forces Institute of Pathology located at the Walter Reed Army Medical Center. The program was aired in 2001.

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Medical and Clinical Psychology - School of Medicine.

Collaborative Agreement with the National Rehabilitation Hospital. The University has established a formal collaborative agreement with the National Rehabilitation Hospital in Washington, D.C. to conduct research and training of medical students, graduate students in psychology, and nursing students in rehabilitation medicine. **Neil Grunberg, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology,** and **Doctor Edward Healton, National Rehabilitation Hospital,** spearheaded this important, collaborative agreement and serve as the official points of contact for all programs.

Baltimore-Washington Consortium on Public Health and Disease Prevention. The University joined with the National Institutes of Health, Johns Hopkins University, Georgetown University, George Washington University, Howard University, and the University of Maryland to create the Baltimore-Washington Consortium on Public Health and Disease Prevention. **Neil Grunberg, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology,** and **Captain Larry W. Laughlin, M.D., MC, USN (retired), Professor and current Dean, USU School of Medicine,** serve as the USU representatives to the Steering Committee for this Consortium.

The Occupational Ergonomic Program. A new Occupational Ergonomics Program was initiated in the Fall of 2001. This program is a joint effort between the USU SOM Department of Medical and Clinical Psychology, the USU SOM Department of Preventive Medicine and Biometrics, and the United States Army Center for Health Promotion and Prevention (CHPPM). Classes in Occupational Ergonomics, Human Factors Engineering, Work Analysis Methods, and Safety Engineering are offered to provide specialty training for students in the Medical and Clinical Psychology Programs and for officers in all of the Services who are focusing in the critical areas of injury prevention and occupational ergonomics. **Grant D. Huang, MPH, Ph.D., Research Assistant Professor, USU SOM Department of Medical and Clinical Psychology and the Department of Preventive Medicine and Biometrics** serves as the Program Coordinator.

Michael Feuerstein, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology, was appointed by the Institute of Medicine to serve as a consultant to the Committee on the Consequences of Un-Insurance. He is assisting in the development of the Report on Health Outcomes for Uninsured Adults focusing on the impact of lack of insurance on mental health outcomes.

Neil E. Grunberg, Ph.D., Professor and Director of Research, USU SOM Department of Medical and Clinical Psychology, was interviewed on the topic of cigarette smoking for a story in the July 2001 edition of Reader's Digest. Doctor Grunberg has researched the complications related to gender differences in smoking since the early 1980s. In the article, Doctor Grunberg explained that those who smoke cigarettes labeled "lower in tar" think that they are smoking a "safer cigarette." He further explained that this is **not** the case as the substances inhaled are often held in the lungs for a longer period of time, thereby canceling out any purported benefits.

Willem J. Kop, Ph.D., Assistant Professor, USU SOM Department of Medical and Clinical Psychology, received continued funding from the Dana Foundation for his project on the role of the autonomic nervous system in coronary artery disease and depression. He also received continued funding from the NHLBI/National Institutes of Health for grants examining the effects of acute and chronic stress on blood coagulation and immune system measures in patients undergoing coronary angioplasty.

Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology, received continued funding from the National Institutes of Health for grant R01 DK 55469, Behavior Choice Treatment Promotes Weight Maintenance.

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Medicine - School of Medicine.

Barbara Alving, M.D., Professor, USU SOM Department of Medicine, was selected to serve as the Deputy Director of the Heart, Lung, and Blood Institute, at the National Institutes of Health.

Colonel Naomi E. Aronson, MC, USA, Associate Professor, USU SOM Department of Medicine, was the Section Leader for "Emerging Technologies" at the 15th Annual Conference on Military Medicine, during June of 2001; she presented two plenary sessions at the conference. She was also the invited presenter (on the topic of tuberculosis) for a video conference to physicians in Tbilisi, Georgia, the Former Soviet Union; and, an invited grand rounds speaker at the William Beaumont Army Medical Center in El Paso, Texas. Colonel Aronson successfully competed for the Pfizer Visiting Professorship in Infectious Disease to bring Dr. Anthony Bryceson from the London School for Tropical Medicine and Hygiene to USU during April of 2002. Colonel Aronson was also selected to serve as the Chair of the Institutional Review Board for the Sequelae Global Tuberculosis Foundation. Her scientific works were published in a variety of journals: Journal of Clinical Gastroenterology, Military Medicine, Nature Medicine, and the American Journal of Tropical Medicine and Hygiene; also, she served as the Infectious Disease Section Coordinator for the *Special Operations Forces Medical Handbook and CDS-ROM 2001.*

Major Steven Durning, USAF, MC, Assistant Professor, USU SOM Department of Medicine, was promoted to Fellow, American College of Physicians; he received the Meritorious Service Medal from the Wright-Patterson Air Force Base; and, he was selected to be a member of the Evaluation and Research Committee of the Clerkship Directors of Internal Medicine. Major Durning is a well known and often requested speaker at state and national meetings of medical educators as well as clinicians. He recently published articles on medical resident performance on ABIM certifying exams in Military Medicine and in Academic Medicine. Additionally, Major Durning published articles on thyroid cancer in Thyroid and Clinical Infectious Diseases; and, he was invited to submit manuscripts for Medical Education on the educational value of humanitarian assistance missions in internal medicine training.

Major Stephen Hanlon, USAF, MC, Assistant Professor, USU SOM Department of Medicine, was selected as a Finalist in the Junior Faculty Division of the AstraZeneca Young Investigator's Competition. His winning paper was submitted to the Journal of the American College of Cardiology.

Lieutenant Colonel Paul A. Hemmer, USAF, MC, Assistant Professor, USU SOM Department of Medicine, received two significant awards in 2001: the USU Department of Medicine's Fourth Annual John F. Maher Award for Research Excellence and the Clerkship Directors in Internal Medicine Outstanding Educational Research Award. Doctor Hemmer's research in the field of medical education, specifically student evaluation, assessment, and professionalism has been well received in numerous poster presentations, lectures, and publications such as Teaching and Learning in Medicine, Medical Teacher, the Southern Journal of Medicine, Academic Medicine, and the Journal of General Internal Medicine. For example, Doctor Hemmer's paper entitled "Assessing How Well Three Evaluation Methods Detect Deficiencies in Medical Students' Professionalism in Two Settings of an Internal Medicine Clerkship" was published in Academic Medicine, 2000, Volume 75, pages 167-71.

Przemyslaw Hirszel, M.D., Professor and Director, Division of Nephrology, USU SOM Department of Medicine, continued to serve as a valued member of the Department of Medicine's Executive Committee and as a mentor to junior faculty members, guiding them in their research endeavors. He also served on several University and SOM Committees, including the Search Committee for the Dean, SOM.

Lieutenant Colonel Jeffrey L. Jackson, MC, USA, Associate Professor and Director, Division of General Internal Medicine, USU SOM Department of Medicine, received recognition for his extensive contributions through his promotion to Associate Professor of Medicine; he was also awarded the Joint Services Achievement Medal; and, he was named the Program Chair for the Society of General Internal Medicine's 2002 National Meeting. He successfully mentored several Fellows in the General Internal Medicine Fellowship Program; and, he presented papers and posters at several scientific programs. His work in the fields of medical outcomes, patient satisfaction, faculty development, and alternative health practices appeared in the American Journal of Medicine, the Annals of Internal Medicine, and the Archives of Internal Medicine. Lieutenant Colonel Jackson was interviewed by Reuter's News Magazine and Prevention Magazine. Two of his articles on fibromyalgia were selected by the American College of Physicians Journal Club in 2001 (the American College of Physicians selects and reviews approximately 30 articles published in the last quarter which are deemed to be most interesting to the ACP membership). His article, "Anti-depressants in the Management of Patients with Functional Gastrointestinal Disorders," appeared in the American Journal of Medicine during 2001.

Louis Pangaro, M.D., Professor and Vice Chair, Educational Programs, USU SOM Department of Medicine, was the inaugural recipient of the USU Carol Johns Medal as the Outstanding USU Faculty Member for 2001. Dr. Pangaro serves on the Research Advisory Committee of Academic Medicine; on the Internal Research Review Committee, National Board of Medical Examiners; as the Co-Director, Course for Residency and Fellowships Program Directors, National Capital Consortium; and, on the Research in Education Committee of the GEA/AAMC. He is highly sought for his expertise on the evaluation of students, having presented at the Georgetown University, Johns Hopkins University, Boston University, and the Memorial University of Newfoundland. In addition, he has lectured to clerkship directors at the annual CDIM (Clerkship Directors/Internal Medicine) meeting, as well as to staff at affiliated hospitals. Dr. Pangaro wrote over a dozen publications during 2001 which were published in Academic Medicine, CDIM News, Teach and Learn Medicine, Thyroid, and JAMA, the Journal of the American Medical Association.

Matthew Pollack, M.D., Division of Infectious Diseases, USU SOM Department of Medicine, published extensively in the fields of bacterial diseases, P. aeruginosa, endotoxin, sepsis, hemorrhagic shock, and cytokines. His articles appeared in Infection and Immunology, Cytokine, and Microbiology and Immunology. His research in cytokines and hemorrhagic shock has significant implications for military medicine since shock continues to be one of the most common and serious consequences of battlefield injury and one of the most frequent causes of death.

Lieutenant Colonel Michael Roy, MC, USA, USU SOM Department of Medicine, was awarded the Joint Service Achievement Medal and the Joint Service Commendation Medal. His work in the areas of operational medicine and humanitarian assistance has been published in the *Special Operations Forces Medical Handbook* and Military Medicine. He has presented poster sessions and lectured extensively on these subjects at conferences and grand rounds. Additionally, he presented on his study of "DEET and Permethrin Under Stress Conditions" at the Annual Meeting of the Army American College of Physicians, American Society of Internal Medicine Meeting. And, he presented on the subject of "Bioterrorism - What Every Internist Should Know" at the D.C. Chapter, Scientific Meeting, American College of Physicians, American Society of Internal Medicine.

Major Steve Salerno, MC, USA, Assistant Professor, USU SOM Department of Medicine, presented, "Effect of a Faculty Development Workshop on the Amount and Quality of Feedback," at the meeting of the Society of General Internal Medicine. The presentation won the Milton Hamolsky Award for Outstanding Research by a Junior Faculty Member. Contributing to the presentation were **Major Patrick O'Malley, MC, USA, Assistant Professor; Colonel Louis Pangaro, MC, USA, Professor;** and **Lieutenant Colonel Jeffrey L. Jackson, MC, USA, Associate Professor.** All are members of the USU SOM Department of Medicine.

Colonel George Tsokos, MC, USA, Professor, USU SOM Department of Medicine, was named **Vice Chair for Research Programs, Department of Medicine,** in October of 2001; in addition, he retained his position as **Director of the Division of Immunology and Rheumatology**. In recognition of his expertise in the area of immunology, Colonel Tsokos was appointed as a member of the National Institutes of Health (NIH) Immunological Sciences Study Section; and, he was elected Councilor/President for 2001-2006 of the Clinical Immunology Society. In addition, during 2001, he was elected as a member of: the Board of Directors of the Lupus Foundation of America; the Arthritis Foundation Immunology Study Section; and, the Abstract Selection Committee of the National American College of Rheumatology. Colonel Tsokos serves as editor, or guest editor, of numerous publications such as the International Reviews in Immunology, Trends in Molecular Medicine, Journal of Immunology, Clinical and Diagnostic Laboratory Immunology, Lupus, Journal of Investigative Medicine, Clinical Immunology, and as Chair of the Editorial Board of Lupus News. He is the Editor-in-Chief of Modern Therapeutics in Rheumatic Diseases, and has contributed chapters in several books. He is a much sought after speaker on the topic of Lupus and other immunological diseases. He currently holds three NIH RO1 grants and one grant from the Medical Research Materiel Command.

Colonel Roy K.H. Wong, MC, USA, Director, Division of Gastroenterology, USU SOM Department of Medicine, was elected to the Organisation mondiale d'Etudes Specialisees sur les Maladies de l'Oesophage (OESO). He is also a recipient of the James Leonard Award for Excellence in Teaching Internal Medicine (presented on January 19, 2001), as well as the Outstanding Lecturer in Clinical Concepts. He was awarded several research grants from professional societies and the National Institutes of Health. Colonel Wong is an active leader in many professional societies and serves as the: Chair of the Board of Governors of the American College of Gastroenterology; Chairman of the Abstracts Selection Committee, ASGE/DDW; Chairman of the Credentials Committee for the ACG; and, a member, Permanent Scientific, OESO. Colonel Wong has presented numerous scientific papers and published articles on the topics of colonic Neoplasia, achalasia, Barrett's Esophagus, and other diseases of the gastrointestinal tract. These articles appeared in well known peer-reviewed journals such as Gastroenterology, Gastrointestinal Endoscopy, and Gastrointestinal Endoscopy Clinics of North America. In November of 2001, Colonel Wong was an invited guest lecturer at the 18th MEDCOM Health Education Conference held in Seoul, Korea.

Joyce Hoopengardner, Clerkship Administrator, USU SOM Department of Medicine, served on a panel of administrative staff at the Annual Meeting of Clerkship Directors of Internal Medicine (CDIM), in Tucson, Arizona, in October of 2001.

Solomon Levy, MPH, Research Assistant Professor and Deputy Chair, Administration, USU SOM Department of Medicine, made a presentation entitled, "USUHS: Your Federal Medical School," at the Annual Meeting of the Administrators of Internal Medicine, in Tucson, Arizona, in October of 2001.

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Microbiology and Immunology - School of Medicine.

Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, has, as his major research focus, the structural and functional analyses on the interactions between enveloped viruses and their cellular receptors. Human immunodeficiency virus (HIV) and new emerging paramyxovirus agents are the two main areas of Doctor Broder's present research work. HIV Focus. The goals of Doctor Broder's work are to identify the steps and requirements of viral envelope glycoprotein (Env)-mediated membrane fusion, the determinants of viral tropism, the discovery of new viral receptors, and the mechanism of Env-mediated fusion. A detailed understanding of these processes should lead to the discovery of new methods of intervention. Doctor Broder's laboratory, in collaboration with other USU laboratories, is pursuing novel prime-boost HIV-1 vaccination strategies, with particular HIV-1 isolate Env proteins, using Venezuelan Equine Encephalitis (VEE) replicons and soluble oligomeric gp140 immunogen preparations in small animals and non-human primates. Hendra Virus and Nipah Viruses. the second area of work is the investigation of the Hendra virus and the Nipah virus, which are newly emerging and highly lethal zoonotic agents. These studies are in collaboration with several scientists located at the Australian Animal Health Laboratory located in Geelong, Australia. Both viruses are classified as zoonotic BSL-4 agents. Hendra virus emerged in 1994 and was isolated from fatal cases of respiratory disease in horses and humans. Later in 1998-1999, an outbreak of severe encephalitis in people with close contact exposure to pigs in Malaysia and Singapore occurred. In all, more than 276 cases of encephalitis, including 106 deaths, were reported, with nearly a 40 percent fatality rate upon infection. Pigs appeared to be an amplifier of the Nipah virus and these viruses can also be economically devastating; for example, over 1.2 million pigs were slaughtered to stem the Nipah virus outbreak. They appear to infect through the respiratory system initially and are capable of causing viremia. The potential for these viruses to be weaponized and used as biological warfare agents is clearly possible. They may be amplified in cell culture or embryonated chicken eggs and could be used as a terror weapon targeting humans as well as livestock, the later which would serve as virus amplifiers. Doctor Broder's group has developed recombinant systems to study the attachment and membrane fusion-entry mechanisms of these viruses; and they have developed novel reagents which may serve as potential vaccines as well as those which can specifically block virus infection and its spread. Doctor Broder co-authored and published three articles during 2001, in major, peer-reviewed publications.

William C. Gause, Ph.D., Professor, Department of Microbiology and Immunology, conducts research which involves the study of T- cell differentiation during infectious disease. His work focuses on the T-cell immune response triggered by infection with parasites, particularly intestinal nematode parasites. Chronic malnutrition induced by infection with gastrointestinal parasites causes great morbidity and increased susceptibility to infectious agents. **With over one billion individuals currently infected with intestinal nematode parasites, this is a major world health problem.** Immunological intervention may promote control in situations where gastrointestinal parasitism is endemic and intractable. The T-cell response which develops following intestinal nematode infection (the T helper 2 response) is qualitatively

different than T-cell responses which occur to many bacteria and viruses (the T helper 1 response). Understanding these mechanisms should provide information required to manipulate the development of the immune response so that a protective response is favored against particular infectious agents. Such knowledge can be used to develop novel immunotherapies and for the creation of the next generation of vaccines. Doctor Gause authored or co-authored, five articles and manuscripts during 2001 which appeared in peer-reviewed journals or publications.

Chou-Zen Giam, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, conducts research focused on the molecular biology of human retroviruses: HTLV-I and HIV, and the Kaposi's sarcoma-associated herpesvirus (KSHV/HHV8), with a special focus on viral regulatory proteins and their interaction with cellular transcription factors or signaling molecules. The diseases caused by the human T-lymphotropic virus type I (HTLV-I): adult T-cell leukemia (ATL) and tropical spastic paraparesis/HTLV-I associated myelopathy (HAM/TSP), have their etiologies in the dysregulated proliferation of T-cells. HTLV-I encodes a critical trans-activator, Tax, which augments HTLV-I viral mRNA transcription greatly and usurps regulatory mechanisms critical for cell activation and division to facilitate viral replication. Research results from Doctor Giam's laboratory indicate that Tax, in essence, functions as a virus-specific adaptor protein which connects the transcriptional co-activators to cellular transcription factors. Current efforts in Doctor Giam's laboratory are directed towards elucidating the role of Tax-PP2A interaction/inhibition in the activation of cellular signal transduction pathways, cell cycle perturbations, and T-cell leukemogenesis. And, the association of a newly discovered human herpesvirus, KSHV/HHV8, with Kaposi's sarcoma is also being investigated by analyzing a series of AIDS-related and endemic Kaposi's sarcoma samples including tumor biopsies and patient sera recruited from Uganda. The major emphasis for this project is on genes important for KSHV/HHV8 transcription, viral re-activation from latency, and Kaposi's sarcoma tumorigenesis. During 2001, Doctor Giam co-authored four publications and manuscripts which appeared in (or, are in preparation for) peer-reviewed journals or publications.

Ann E. Jerse, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, conducts research focused on the mechanisms by which *Neisseria gonorrhoeae* adapts to the female genital tract. The primary research tool used by Doctor Jerse and her staff to address this question is a female mouse model of gonococcal genital tract infection which was developed in Doctor Jerse's laboratory. Doctor Jerse also utilizes this model to study interactions between *N. gonorrhoeae* and certain commensal flora which have been proposed to protect against gonorrhea. A second research area in her laboratory is the development of vaccines and topical microbicides to prevent gonorrhea. Over 400,000 cases of gonorrhea are reported in the United States and an estimated 67 million cases occur world-wide annually. Public health efforts to reduce the incidence of gonorrhea are challenged by the high rate of asymptomatic infection and the emergence of upper reproductive tract infection in females. Over two million cases of pelvic inflammatory disease (PID) occur in the United States each year, approximately 50 percent of which is due to *N. gonorrhoeae.* **Gonorrhea ranks high among infections important to the military, second only to chlamydia among reportable infections.** Over 1,500 cases of gonorrhea were reported in the United States Army in 1997. Upper reproductive tract infection is a serious form of gonorrhea in both men and women. In one study of a military population, 16 percent of acute epididymitis was due to *N. gonorrhoeae.* Pathogenesis studies performed in Doctor Jerse's laboratory will enhance the understanding of how *N. gonorrhoeae* persists in the genital tract to create a reservoir of infection in the community and will potentially lead to the identification of virulence factors

which could be used in a vaccine. **Doctor Jerse's work towards developing a vaccine and topical microbicides against gonorrhea is directly relevant to reducing the incidence and costs associated with gonorrhea in military personnel and their dependents.** During 2001, Doctor Jerse co-authored three publications and manuscripts which appeared in peer-reviewed journals or publications.

Guangyong Ji, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, conducts research which is focused on defining the molecular mechanism of staphylococcal pathogenesis. Currently, the research focuses on the study of peptide-determined auto-induction of virulence gene expression in *Staphylococcus aureus* and the elucidation of the role of this regulation in the pathogenesis of *S. aureus* diseases. *S. aureus* is among the most prominent of nosocomial bacterial pathogens, causing a variety of human diseases ranging from superficial abscesses to life-threatening deep infections, such as endocarditis and pneumonia. The problem has become alarming within the last few years due to the increasing resistance of *S. aureus* to all currently available antibiotics, including vancomycin, an antibiotic which is the last effective drug for treating multi-drug-resistant *S. aureus* infections. *S. aureus* pathogenicity is mult-factorial and involves the production of secreted toxins, enzymes, and cell wall-associated proteins. The expression of most of these virulence factors is regulated by a global regulator which consists of a two-component signal transduction system, a modified auto-inducing peptide, and an RNA molecule which is the actual effector of the virulence response. The studies in Doctor Ji's laboratory on the understanding of staphylococcal virulence regulation may lead to the development of new antibacterial drugs which target this regulatory system.

Susan G. Langreth, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, conducts research with a major focus on Unicellular Parasite Pathogenesis. The long-term objectives are to understand the mechanisms of pathogenesis and immunity in *Plasmodium* and *Pneumocystis* parasites and to identify critical host parasite interactions which may contribute to the development of vaccines or more effective chemotherapy. The emphasis of the approach is to locate and characterize, by immuno-cytochemistry and electron microscopy, particular antigens/peptides/expressed gene products in the human malaria parasite *Plasmodium falciparum* and its host erythrocyte. Of particular interest are antigens on the infected erythrocyte surface which may be mediators of cyto-adherence and sequestration. Parasite isolates or clones with altered expression of surface components (knob structures, in vitro cyto-adherence) are being compared with wild type parasites. Malarial antigens associated with infected erythrocyte cytoplasmic structures (Maurer's clefts, parasitophorous vacuoles, etc.) are also being characterized. *Pneumoncystis carinii* (Pc) is an opportunistic unicellular pathogen and a major cause of morbidity and mortality in AIDS patients. Doctor Langreth is studying Pc pathogenesis in an immuno-suppressed rat model and is engaged in collaborative projects to develop axenic long-term culture methods for *Pneumocystis*, using organisms harvested from infected immuno-suppressed rats as a source. She is generating methods to harvest and purify the pathogen from rat lung, for cultivation and for biochemical and immuno-cytochemical analysis. Establishment of a culture for Pc will provide basic information about the parasite's life cycle and nutritional requirements, as well as provide a reliable source of the organisms for chemotherapy and molecular studies.

Anthony T. Maurelli, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, conducts his research with a focus on understanding the genetics of bacterial pathogenesis, that is, determining which genes are important for making a bacteria a pathogen and how expression of

these genes enables the bacteria to cause disease. Doctor Maurelli's research focuses on two groups of bacteria: *Shigella* spp. and *Chlamydia* spp. Bacteria of the genus *Shigella* are the causative agents of bacillary dysentery (shigellosis). Dysentery is an acute diarrheal disease which has a major impact on public health in developing countries, particularly among young children. Even in developed countries, dysentery due to *Shigella* causes significant morbidity each year. For military planners, **diarrheal diseases such as dysentery have historically been of particular concern during large-scale deployments.** Experiences during World War II, the Vietnam War, and the Gulf War demonstrated that outbreaks of diarrhea and dysentery among troops seriously degrade combat readiness. The development of vaccines to protect against dysentery, as well as better methods of treatment, depends on a better understanding of the bacteria responsible for the disease. Bacteria of the genus *Chlamydia* are responsible for a wide range of diseases in man. *Chlamydia trachomatis* is the number one bacterial cause of sexually transmitted disease in the United States. It is also the major cause of preventable blindness in developing countries. Other bacteria of the genus *Chlamydia* are responsible for diseases including pneumonia and ocular disease in neonates and adults. *Chlamydia pneumoniae* is suspected to be a co-factor in a variety of chronic diseases including atherosclerosis. A major barrier to understanding how *Chlamydia* can cause such a broad range of diseases is the absence of genetic tools for studying the organism. A major focus of Doctor Maurelli's research is to develop these tools so that the power of molecular genetics can be applied to understanding *Chlamydia* pathogenesis. The potential impact of such research is through better diagnostic tools, improved prevention, and treatment methods.

Eleanor S. Metcalf, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, conducts research with three major focuses. The first focus is on Typhoid Fever. The long-range goal of this component is to understand the virulence mechanisms of *S. typhi* in the context of the host environment, with the overall objective of reducing the morbidity and mortality from enteric fevers such as typhoid. Recent studies show that more than 16.6 million people currently have typhoid fever world-wide, and at least 600,000 of these individuals will die. The majority of typhoid fever cases occur in children from the ages of 3 to 19; and, mortality rates range from 5 to 12 percent, depending on the country. Moreover, many isolates of *Salmonella enterica* serovar Typhi (*S. typhi*), the etiologic agent of typhoid fever, have become resistant to multiple antibiotics, and resistance to first-line antibiotics is wide-spread in countries where typhoid fever is endemic. These factors underline the importance of, and the necessity to develop, inexpensive and readily administered vaccines as one important control strategy for combating this disease. *S. typhi*, as well as other enteric bacterial infections, are, and have been responsible for, morbidity and mortality of troops stationed in countries with underdeveloped health and hygiene practices. The results of these studies will provide new information on the infectious processes of *S. typhi* and increase the knowledge about typhoid fever. In addition, these studies will increase the knowledge of *S. typhi* which could be important in the development of new *S. typhi* vaccines. The second focus in the laboratory is on Food Poisoning, the long range goal of these studies is to understand the role of T-cells in *Salmonella typhimurium* pathogenesis. The objective of these studies is to analyze the contribution of CD8+ CTLs in the host response to *Salmonella*. In the United States, *Salmonella spp.* causes an estimated two to four million cases of salmonellosis every year which results in approximately 500 deaths. These organisms are the principal etiologic agents of gastroenteritis and enteric fever. It has been estimated that salmonellosis costs up to $50 million per year in the United States as a result of medical costs and work absences. One resolution to this problem is vaccination. While one strategy for the generation of efficacious vaccines is to identify virulence factors on the bacterium, another approach to treatment is to understand the host response to this pathogen. If the role of cytotoxic T lymphocytes in the host response can be identified and the antigens that these T-cells recognize can be characterized,

we may be able to manipulate the outcome of exposure to these pathogens. Current studies address the role of cytotoxic T-cells in *Salmonella* infections. *Salmonella typhimurium*, as well as other enteric bacterial infections, are, and have been responsible for, morbidity and mortality of troops stationed in countries with underdeveloped health and hygiene practices. The results of this proposal will provide new information on the infectious processes of *S. typhimurium* and increase the knowledge about the generation of protective immune responses and the pathogenesis of this organism. The third focus is Alcoholic Liver Disease (ALD), the long range goal of this research endeavor is to understand mechanisms of the host response which contribute to the pathophysiology of ALD and the inflammatory syndrome associated with alcohol-induced liver damage. ALD is a significant problem in the United States. Over 50 percent of adults consume alcoholic beverages on a regular basis. Of these individuals, at least 14 million people either depend on, or abuse, alcohol. Studies show that alcoholism accounts for greater than 120,000 deaths annually, and in 1998, the economic burden of alcohol-related issues was greater than 184.6 billion dollars. This cost is approximately 12 percent of the Gross National Product (GNP) and represents an expenditure of approximately $638 dollars for every man, woman, and child in the United States. ALD is a significant problem in the United States and in the Uniformed Services. Recent evidence indicates that military and civilian populations have similar incidences of alcohol abuse. Since studies also show that the rate of alcohol abuse for both men and women within the military is similar, **alcohol-related health problems are clearly a significant problem for the Uniformed Services**. To date, treatment regimens have been generally ineffective, in part, due to a lack of understanding of the mechanisms which underlie ALD. Since interventions which focus on early steps in the development of ALD would be the most desirable, Doctor Metcalf's studies of the effects of alcohol on the initial cell types involved in this complex set of reactions should provide crucial data applicable to the development of successful interventions. Doctor Metcalf published two articles during 2001 in peer-reviewed publications.

Alison D. O'Brien, Professor and Chair, USU SOM Department of Microbiology and Immunology, continued her major research focus on the pathogenesis of bacterial infections. Specifically, her laboratory investigates the virulence mechanisms of *E. coli* 0157:H7 and other Shiga toxin-producing *E. coli* and the contribution of the Rho-modifying Cytotoxic Necrotizing Factor (CNF) to urinary tract infections and prostatitis caused by uropathogenic *E. coli*. Shiga toxin-producing *E. Coli* (STEC) cause food- and water-borne outbreaks and sporadic cases of intestinal disease which manifest as diarrhea, and/or bloody diarrhea (hemorrhagic colitis, HC). About five to ten percent of children infected with STEC can subsequently develop a life-threatening kidney dysfunction called hemolytic uremic syndrome (HUS). Two important virulence factors associated with many STEC strains are the Shiga toxins (Stxs) and the adhesin, intimin. The long-term objectives of this project are to define the pathogenic mechanisms by which STEC cause disease and to develop strategies for the prevention and treatment of STEC-mediated hemolytic uremic syndrome. Military Relevance: *E. coli* 0157:H7 has the potential to simultaneously infect large numbers of people who ingest as few as 100 organisms in common source food- or water-borne outbreaks (for example, a July 1996 outbreak in Japan affected more than 10,000 people). In addition, the rate of secondary transmission of *E. coli* 0157:H7 is high. **Therefore, large-scale infection of soldiers with *E. Coli* 0157:H7 or another Shiga-toxin producing *E. coli* isolate would likely result in an incapacitating illness among troops.** Furthermore, Shiga toxin and other Stx family members are considered potential biological warfare/terrorist threats as indicated by the Centers for Disease Control-mandated restrictions on the shipment of Stxs and Stx-expressing clones. Another area of focus for Doctor O'Brien's research is Cytotoxic necrotizing factor type 1 (CNF1) which is a member of a family of bacterial toxins which target the Rho family of small GTP-binding proteins in mammalian cells. CNF1

is frequently produced by *Escherichia coli* strains which cause urinary tract infections. Military Relevance: Urinary tract infections (UTIs), of which more than 80 percent are caused by *E. coli*, are among the common types of bacterial disease in adults. Women are much more likely to have UTIs than are men, a gender disparity that is believed to result from the shorter female urethra. Indeed, as many as 20 percent of all women have at least one episode of UTI in their lifetime, and recurrent UTIs affect approximately one in ten women in the United States. Thus, UTIs which include infections of the bladder (cystitis) and kidney (pyelonephritis), are a significant source of morbidity among women in the military. During 2001, Doctor O'Brien co-authored and published ten articles and manuscripts in peer-reviewed primary journals and textbooks.

Paul D. Rick, Ph.D., Professor and Vice Chair, USU SOM Department of Microbiology and Immunology, conducts research with long term goals to gain a more complete understanding of the function of the outer membrane (OM) of Gram-negative enteric bacteria and the mechanisms involved in its biogenesis. Gram-negative bacteria belong to the family *Enterobacteriaceae*, and members of this family are found as normal flora in the gastrointestinal tract of man and animals. In contrast, many other members of this family are pathogens capable of causing serious debilitating disease in human and animal hosts. Indeed, many of these (e.g., diarrheal diseases, Gram-negative septic shock, etc.) are of significant military relevance. The cell-envelope of Gram-negative enteric bacteria consists of a cytoplasmic membrane, the rigid cell wall or peptidoglycan layer, and the OM. The OM of all Gram-negative bacteria constitutes a permeability barrier to a wide variety of deleterious agents. Indeed, the ability of these organisms to grow in the presence of bile salts in the gastrointestinal tract and the relative resistance of these organisms to many hydrophobic antibiotics is attributable to the barrier function of the OM. As an approach to understanding the function of the OM in Gram-negative enteric bacteria, Doctor Rick has investigated the biochemistry and genetics of enterobacterial common antigen (ECA) synthesis and assembly in *Escherichia coli* and closely-related bacteria. ECA is an OM glycolipid which is unique to Gram-negative enteric bacteria, and it is present in all members of this important family. Studies, to date, have identified almost all of the genes involved in ECA assembly; and, biochemical studies have unraveled the functions of many of these genes. In contrast, the function of ECA has remained enigmatic in spite of its ubiquitous occurrence in all members of the *Enterobacteriaceae*. Accordingly, Doctor Rick's research is also concerned with elucidating the function of ECA. In this regard, recent studies have revealed that ECA is required for the resistance of Gram-negative bacteria to bile salts. It is anticipated that Doctor Rick's research will provide valuable insights into the assembly of other outer membrane glycolipids and polysaccharides. Indeed, such information will also provide a rationale for the development of new antimicrobial agents. Doctor Rick co-authored one article during 2001 which was published in a peer-reviewed publication.

Stefanie N. Vogel, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, conducts research directed at the regulation of inflammatory responses by the induction of pro- and anti-inflammatory cytokines and other bioactive agents. Specifically, her work focuses on the molecular regulation of cytokine gene expression induced by bacterial agents, such as Gram negative lipopolysaccharide and Gram positive mycobacterial products on macrophages, major producers of the bioactive substances required for sustained inflammatory responses. The role of the Toll-like receptors (TLRs) in this process is a major focus of her work and the interaction of TLRs with other co-receptors expressed on macrophages (e.g., CD14 and CD11b/CD18) is an area which is currently being actively investigated. In addition to examining the induction of pro-inflammatory gene products, Doctor Vogel's

work has focused on a phenomenon called "endotoxin tolerance" in which cells and mice exposed to Gram negative LPS exhibit subsequent refractoriness to a secondary inflammatory stimulus to produce certain inflammatory cytokines. If we could unravel the underlying mechanisms for the induction and maintenance of endotoxin tolerance, it might lead to the identification of novel targets for anti-inflammatory therapy. Lastly, Doctor Vogel's work has more recently been extended to the role of the inflammatory response in stroke. Briefly, this laboratory has identified several inflammatory genes and nuclear transacting factors which regulated the inflammation which contributes to increased stroke volume. Although antibiotic therapy and mechanical support for patients with sepsis have improved in intensive care wards over the past 50 years, the mortality associated with bacterial sepsis has not diminished significantly. By understanding the fundamental inflammatory response associated with this syndrome, we may be able to impact public health significantly by developing new approaches for intervention. Sepsis is often a sequelae of battle wounds; both civilian and military populations suffer from sepsis, stroke, and other diseases with pro-inflammatory components. During 2001, Doctor Vogel authored, or co-authored, 13 articles and manuscripts which were published in peer-reviewed publications.

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Military and Emergency Medicine - School of Medicine.

Patricia A. Deuster, Ph.D., Professor, USU SOM Department of Military and Emergency Medicine, was appointed as the Director of a new Division in the Department of Military and Emergency Medicine. The former Research Division in the Department has been changed to the Applied Human Biology Division and now includes the Human Performance Laboratory (HPL), the Casualty Care Research Center (CCRC), and the Center for Disaster and Humanitarian Assistance Medicine (CDHAM). The new division title better describes the research, education, and service activities of the three subordinate elements of the Division; and, it identifies the Applied Human Biology Division as a significant interface between USU, the Uniformed Services, the DoD Medical Departments, as well as other Federal entities which conduct studies, research, and educational programs in applied human biology. Doctor Deuster also received notification in February of 2001 that the Department's work on the *Navy Health Promotion Manuals* has been very well received: 1) the Coast Guard has obtained the manuals and is changing the word "Navy" to Coast Guard so that they can distribute the Manual to their personnel; the Coast Guard Health Promotion Specialist coordinated with Doctor Deuster to make this possible; 2) the Marine Corps Institute has also obtained copies and will change the word "Navy" to Marines; they were pleased to be able to easily adapt and utilize the Manuals for their personnel. As pointed out by **Colonel Clifford C. Cloonan, MC, USA, Interim Department Chair,** the Special Operations Forces (SOF) consider Dr. Deuster and the HPL as extremely valuable assets not only to the University, but also to the Department of Defense; her research is timely and complete and meets the special requirements of the Uniformed Services.

Joseph J. Heck, M.D., Visiting Scientist and Medical Director of the USU Casualty Care Research Center, USU SOM Department of Military and Emergency Medicine, presented "Weapons of Mass Destruction: Emergency Department Preparation," at the 105th Annual Convention and Scientific Seminar of the American Osteopathic Association. *The American Osteopathic Association Conventioneer* also featured Doctor Heck's article focusing on the plans of national hospitals to deal with possible domestic terrorism events such as bombings and chemical and biological warfare attacks.

Lieutenant Colonel John Wightman, USAF, MC, Associate Professor, USU SOM Department of Military and Emergency Medicine, began 2001 having just completed a three-day pilot curriculum to prepare military emergency medicine residents for humanitarian missions. He and his co-investigator, **Dr. Michael VanRooyen, from the Johns Hopkins University Center for International Emergency, Disaster, and Refugee Studies,** will evaluate and complete the curriculum for nation-wide dissemination during 2002. In the Spring of 2001, he took five students to Fort Rucker, Alabama, where they were awarded Army Flight Surgeon Wings and opened up new educational ties between USU and the United States Army School of Aviation Medicine. At the graduation ceremonies in May, **the Class of 2001 honored Doctor Wightman with the William P. Clements Award as the Outstanding Military Educator.** Lieutenant Colonel Wightman is an internationally recognized expert in the emergency management of blast injuries, and has published a review article in the Annals of Emergency Medicine and chapters in the *Special Operations Forces Medical Handbook*, the *Operation Medicine CD-ROM*, and Rosen's Emergency Medicine Textbook. He is now the Director of the Education Division in the Department of Military and Emergency Medicine. His secondary duties include serving as the Exercise Director of Operation Bushmaster, the Course Director of Military Emergency Medicine, and the Deputy Medical Director of the tactical program of one of the Casualty Care Research Center's supported agencies. He is actively involved as an advisor and mentor to USU students and others from around the Nation through the Society for Academic Emergency Medicine's Virtual Advisor Program. He is also an Associate Editor for Critical Decisions in Emergency Medicine and the Journal of Special Operations Medicine.

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Neurology - School of Medicine.

Lieutenant Colonel Geoffrey Ling, MC, USA, Associate Professor, USU SOM Department of Neurology, was appointed as Vice Chair of the Neurology Department on February 1, 2001. Doctor Ling completed his under-graduate studies at Washington University, St. Louis; his Ph.D. at Cornell University in 1982; and, his M.D. Degree at Georgetown University, Washington, D.C., in 1989. He completed a neurology residency at the Walter Reed Army Medical Center from 1990 through 1993; and, a Fellowship in Neuroscience Clinical Care at Johns Hopkins University from 1993 through 1995. Doctor Ling's expertise is focused in the area of Critical Care Medicine and Neuro-Trauma, for which he is nationally recognized. Doctor Ling was elected as a member of the National Institutes of Health (NIH) Post-Resuscitation Utility of Life Saving Efforts (PULSE) Committee and, he has chaired the Trauma Section of the PULSE Committee. In addition, he has been appointed as a member of the Critical Care Executive Committee of the American Neurological Association; and, he provided briefings on the subject of brain injury to a congressional subcommittee during August of 2001. Doctor Ling was elected to Membership of the American Neurological Association, the induction into which requires recognition of significant scientific achievements by the American Academy of Neurology. Doctor Ling also published three papers on the subjects of leukemia and cerebral bleeding in the *Journals of Critical Care Medicine, Clinical Oncology, and Neurosurgery.*

Ann M. Marini, Ph.D., M.D., Associate Professor, USU SOM Department of Neurology, published three papers on the subjects of: hypoxic-ischemic neuronal damage; NMDA receptor-mediated

neuroprotection; and, neuroprotection in acute stroke in the Annals of the New York Academy of Science, the Journal of Neurochemistry, and the Journal of the American Medical Association. In addition, a paper on the subject of neuroprotection for traumatic brain injury was published in the Journal of Cancer Research and the Journal of Head Trauma Rehabilitation.

Deborah Warden, M.D., Associate Professor, USU SOM Department of Neurology, was the Moderator of Sessions during the International Brain Injury Association Meeting held in Turin, Italy, in May of 2001. During July of 2001, Doctor Warden was appointed by the President of USU as the Interim Director of the Defense and Veterans Head Injury Program. In this capacity, she oversees the function of seven DoD and Veterans Administration centers which provide patient care and conduct research on brain injury. Doctor Warden published two papers entitled "Persistent Prolongation of Simple Reaction Time in Sports Concussion," and "A Case Series Demonstrating a Relationship Between Somatic Symptoms and Impaired Recognition Memory Performance for Traumatic Brain Injured Individuals" in Neurology and Brain Injury.

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Obstetrics and Gynecology - School of Medicine.

The USU SOM Department of Obstetrics and Gynecology Successfully Utilizes Standardized Patients to Assure Mastery of Required Knowledge. (See Section II, page 126 for complete description)

The USU SOM Department of Obstetrics and Gynecology Has Initiated the Development and Implementation of an Innovative Clinical Clerkship Management Tool Utilizing Palm-Type, Hand-Held Computer Devices. (See Section II, page 126-127 for complete description)

Lieutenant Colonel Andrew Satin, USAF, MC, Professor and Vice-Chair, USU SOM Department of Obstetrics and Gynecology, USU Class of 1986, is the first graduate of the SOM to be promoted to the academic rank of Professor. In addition to his USU duties and his clinical care contributions as sub-specialist Maternal Fetal Medicine Consultant Faculty at the National Naval Medical Center, he is the Program Director for the Uniformed Services Residency in Obstetrics and Gynecology based at the National Naval Medical Center and the Walter Reed Army Medical Center under the institutional sponsorship of the USU-based National Capital Consortium. The site visit of the residency program conducted during 2001, resulted in the awarding of the maximum of five years of accreditation. This places the program among only nine Obstetrics and Gynecology Residency Programs to carry the maximum five-year accreditation among the more than 250 residencies in the United States. Of note, the average length of accreditation awarded by the OBG Residency Review Committee of the Accreditation Council for Graduate Medical Education is approximately 2.6 years.

James H. Segars, Jr., M.D., Associate Professor and Director of the Reproductive Endocrinology and Infertility Fellowship Program, USU SOM Department of Obstetrics and Gynecology, received the National Institutes of Health's Director's Award for Mentoring. This award was presented to Doctor Segars on July 11, 2001, during a ceremony at the National Institutes of Health.

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Pathology - School of Medicine.

Colonel Richard M. Conran, MC, USA, Professor and Course Director for the second-year Pathology Course and the Fundamentals of Infectious Disease Course, USU SOM Department of Pathology, generated significant savings for the University through the development and revision of the CD for the Pathology Courses which is provided to second-year students. Colonel Conran served as the President of the USU Faculty Senate from mid-2000 through 2001; and, he currently serves as the Post-President of the Faculty Senate. Colonel Conran also serves on numerous University Committees and as a member of the Walter Reed Army Medical Center Human Use Committee. He presents lectures in Pathology, Infectious Diseases, Biochemistry, and Pediatric Pathology at the University and at the Walter Reed Army Medical Center. He also provides a lecture on the Legal Aspects of Biowarfare and Bioterrorism.

Mary Lou Cutler, Ph.D., Associate Director for Basic Science, United States Military Cancer Institute, Associate Professor of Pathology, Assistant Professor of Molecular and Cellular Biology, Co-Director, Pathology Graduate Program, USU SOM Department of Pathology, is also the co-author of the Department of Pathology Graduate Program Self-Study Report. Doctor Cutler lectures on *Genetics of Human Cancer: Oncogenes*. She also serves on the following committees and boards: Graduate Student Advisory Committee; Ph.D. Comprehensive Exams Committee; Ph.D. Advisory for Graduate Student and Post-Doctoral Training Committee; the Biohazards, Controlled Substances, and Dangerous Materials Committee; the Sub-committee on Graduate Student Recruitment; and, the Merit Review Committee. Doctor Cutler mentors students for the following: Ph.D. thesis research; three-month rotations in the laboratory; Post-Doctoral Fellows on two- or three-year research projects; and, summer students. Doctor Cutler also organizes the Pathology Seminar Series. Her community service comprises: Member of the Board of Trustees, Washington Episcopal School, Bethesda, Maryland; Chair of the Trustees Academic Program Committee, Washington Episcopal School, Bethesda, Maryland; and, the Board of Advisors, of the Washington Episcopal School in Bethesda, Maryland. She serves as an editor for the following professional journals: *Proceedings of the National Academy of Science, Molecular and Cellular Biology, Cell Growth and Differentation, Breast Cancer Research and Treatment*, the *Journal of the National Cancer Institute*, the *Journal of Cell Physiology*, and *Oncogene*. She has served on the Review Boards of the Biomedical A Study Section, the State of California Cancer Research Program, and as an *ad hoc* member of the National Institutes of Health, BCDN 3 Study Section, the Molecular Biology Advisory Committee, and the American Type Culture Collection. Her professional affiliations include membership in the: Molecular Biology Advisory Committee; American Type Culture Collection; American Association for the Advancement of Science; American Association for Cancer Research; Women in Cancer Research; American Society for Microbiology; Breast Cancer Think Tank; and, the National Institutes of Health's Special Interest Group.

Robert M. Friedman, M.D., Professor and Chair, USU SOM Department of Pathology, is currently engaged in the investigation of cellular growth factors which are involved in the malignant transformation of normal cells into cancers. One such factor is IRF-1, which had been considered to be a negative regulator of cell growth (a tumor suppressor gene). Doctor Friedman's group (**Sara Contente, Ph.D., Research Assistant Professor; Frank Attard; Annie Yeh; and, Dorothy Buchhagen**) have found that a truncated form of IRF-1, termed spliced IRF-1 or SIRF-1, is made in both cancer and normal cells; however, in the latter, its production is closely regulated so that it is produced when cells replicate. In cancer cells, on the other hand, it is constantly produced, presumably because such cells do not cease multiplying. SIRF-1, therefore, appears to be a growth factor associated with cell replication, an oncogene. Its regulation may play a significant role in the process of the transformation of cells from a benign to a malignant state.

Philip M. Grimley, M.D., Professor, USU SOM Department of Pathology, is currently engaged in two lines of research: 1) Tests of a novel method for enhancing the cytotoxic effect of certain non-genotoxic kinase inhibitors on lymphoma cells and epithelial cancer cells. This method involves a dynamic retardation of the cell cycle by DNA metabolic inhibitors and was patented in 2001, under the auspices of the Henry M. Jackson Foundation; and, 2) Investigations of a phenolic compound which can enable the survival of cells deprived of growth factors or exposed to certain cytotoxic agents or cytokines. Work, thus far, indicates that this pro-survival compound may simultaneously activate several pathways engaged in stimulating cell growth or preventing apoptosis. Elucidation of its effects may suggest new approaches to the prevention or treatment of hypovolemic or septic shock. As a member of the College of American Pathologists (CAP), Doctor Grimley continues to serve as the Maryland State Commissioner for the CAP Laboratory Accreditation Program.

Elliott Kagan, M.D., F.R.C. Pathology, Professor of Pathology, Preventive Medicine and Biometrics, and Emerging Infectious Diseases, USU SOM Department of Pathology, was appointed as an *ad hoc* member of the Chemical Pathology Study Section, Oncological Sciences Integrated Review Group of the National Institutes of Health in January and October of 2001. He is also a permanent member and Chairman-Elect of the Technical Review Panel, Nebraska Cancer and Smoking Disease Research Program. Doctor Kagan was also appointed as an *ad hoc* member of the Cooperative Grants Program of the United States Civilian Research and Development Foundation in July of 2001. His current research, which is funded by the Department of Defense, concerns the pathogenesis of filovirus infections and makes use of a novel, air-liquid interface bronchial epithelial cell culture system for studying the effects of aerosol challenge by threat agents such as the Ebola virus. In January of 2001, Doctor Kagen was an invited seminar speaker at the United States Naval War College in Newport, Rhode Island, where he spoke on "Bioregulators as Instruments of Terror." He was also an invited platform speaker in April of 2001, in Chicago, Illinois, at the First International Conference on Malignant Mesothelioma - Therapeutic Options and Role of SV40. The title of his presentation was "Asbestos-induced Malignant Mesothelioma." During 2001, Doctor Kagen also authored the publication, "Bioregulators as Instruments of Terror," in Clinics in Laboratory Medicine, Volume 21, pages 607-618. In August of 2001, Doctor Kagen was appointed as a Professor of Nursing Research in the USU Graduate School of Nursing.

Colonel Morton F. Levitt, USAF, MC, Associate Professor, Co-Course Director for the second-year Pathology Course, Co-Course Director for the Fundamentals of Infectious Disease Course, and Course Director for the Histology for Pathologists Course, performs surgical pathology, cytopathology, and Quality Assurance for the Walter Reed Army Medical Center Department of Pathology and Laboratory Services and teaches Pathology Residents from the National Capital Area Joint Residency Program in Pathology. He was appointed by the College of American Pathologists (CAP) to the American National Standards Institute, Healthcare Informatics Standards Board, the international body which sets the standards for medical computer applications. Colonel Levitt is a member and Vice-Chair, of the CAP Informatics Committee which develops: medical informatics courses; distance learning materials; and, the College of American Pathologists WWW Home Page which sets national policy standards for laboratory accreditation. He also teaches, coordinates, directs, recruits faculty, and develops multi-media and "hands-on" educational presentations for the CAP Kiosk's yearly national meetings. In addition, he annually develops Computer Roundtable Courses for national meetings; he attends three committee meetings and one national meeting each year and participates in conference calls as required. Colonel Levitt is an appointed Consultant of the CAP House of Delegates, representing the State of Maryland (concurrent with the CAP and United States CAP national meetings), and attends local briefings and legislative updates/training, as required. Colonel Levitt conducts on-site laboratory accreditation inspections at the request of the Regional CAP Commissioner or other CAP Commissioners, serving as the Team Leader or as a member of the team. He is an expert consultant for the Laboratory General Checklist and Computers sub-section of the Laboratory General Checklist; as a Team Leader, he is responsible for the recruitment of inspectors, all administrative matters, and the conduct of the inspection as well as leading in-briefs and out-briefs at the facilities being inspected. Colonel Levitt is a member of the Duke University Medical Alumni Council. He attends meetings twice yearly and develops policy for medical alumni continuing medical education (CME) and other activities. He also plans and coordinates regional CME activities.

Radha K. Maheshwari, Ph.D., Professor, USU SOM Department of Pathology, organized a workshop on the Application of DNA Recombinant Technology in Pharmaceutical Drug Discovery at The Birla Institute of Technology and Science in Pilani, India, and at the National Institute of Pharmaceutical Education and Research in Chandigarh, India. Several USU faculty members also participated in this workshop. Doctor Maheshwari has also served on the International Advisory and Planning Committee for the International Conference on Population, Development and Environment at the Birla Institute of Technology and Science in Pilani, India, held on March 15-16, 2002. In addition, Doctor Maheshwari has been invited to several leading institutions in India and he has delivered seminars on the 20 Years of Collaborative Efforts of the Indo-USUHS Program. Doctor Maheshwari publishes papers and presents at various national and international meetings. He also reviews papers for scientific journals and has served on the NCCAM, National Institutes of Health (NIH) Study Section Panel. He is the recipient of two extramural grants from NIH and from the Samueli Institute of Information Biology, a not-for-profit foundation. Doctor Maheshwari was a team member, along with Doctors Friedman and Cutler, for the preparation of a Self-Study Report for the Pathology Graduate Program Review; and, he served as a Program Director for the Pathology Graduate Program. He also served as the Coordinator of the Indo-USUHS Activities, with several leading institutions in India. He serves as the Pathology faculty member in the Interdisciplinary Graduate Program on Molecular and Cell Biology and Emerging Infectious Diseases; and, he has also mentored high school and college students. Doctor Maheshwari participated and gave lectures in a USU Graduate Course on the Emerging Threat of Biological Weapons and Bioterrorism. He is a principal investigator on an Army grant to study and to delineate the mechanisms

for neuro-degeneration and neuro-pathogenesis with a neuro-virulent virus, Venezuelan equine encepahalitis virus (VEE). A possible weaponized biological agent, VEE has great significance for the United States military as a future threat, due to its potential use as an endemic pathogen, or its use for a biological attack.

Commander Aileen Marty, MC, USN, Associate Professor, USU SOM Department of Pathology, participates yearly in the following Courses: Fundamentals of Infectious Disease; and, the second-year Courses of Pathology and Histology. She also developed and executes a significantly relevant Course, The Scientific, Domestic, and International Policy Challenges of Weapons of Mass Destruction and Terror Part I: The Emerging Threat of Biological Weapons and Bioterrorism. In addition, as part of a team which includes members of the Armed Forces Radiobiology Research Institute (AFRRI), she developed the Scientific, Domestic, and International Policy Challenges of Weapons of Mass Destruction, and Terror, Part II: Nuclear, Radiological, High Explosives and Toxic Chemical Agents. Commander Marty lectures at numerous institutions and departments such as The Pentagon, The Congress, Presidential Committees, Yale, Johns Hopkins, and SAIS. Commander Marty developed and/or assisted in the broadcast and presentation of teleconferences and Veterans Administration training videos on the following topics: *Laboratory Aspects of Biowarfare: Focus on Anthrax and Plague*, the *NBC Broadcast on Weapons of Mass Destruction* for the Food and Drug Administration, and the *United States Army MRIID Satellite Broadcast on BW*. In addition, Commander Marty provided information to organizations on the *Hazards of Biological, Nuclear, Radiological, High Explosives, Chemical, Kinetic Energy, & Other Unusual Weapons*. A few of the organizations that Commander Marty has assisted include: Neighborhood Data, Neighborhood NBC Preparedness, Prince House, and Pettit Way. She has also been an invited lecturer to several National and International Centers following the terrorist and anthrax attacks of September 11, 2001, and later. She is currently becoming recognized as one of the foremost experts on the subject of *Domestic and International Policy Challenges of Weapons of Mass Destruction.*

Hallgeir Rui, M.D., Ph.D., Associate Professor, USU SOM Department of Pathology, is a Charter Member of the USU United States Military Cancer Institute; he serves on the Breast Cancer Grant Review Panel, Microbiology; and, he is a Panel Member of the Congressionally-mandated DoD, Army Breast Cancer Initiative. Doctor Rui supports the University Medical School Courses as a Laboratory Instructor, a Substitute Small Group Instructor, a USUHS Ph.D. Program Instructor, and a Mentor. He supports the Graduate Programs in Molecular and Cell Biology by giving lectures and laboratory instruction. He is the Chairman of the Graduate Student Qualifying Exam Committee; and, he has published in the following professional journals: Molecular and Cellular Endocrinology, Molecular Endocrinology, and Endocrinology.

J. Thomas Stocker, M.D, Professor of Pathology, Pediatrics and Emerging Infectious Diseases, USU (off-campus) Professor of Pathology, Georgetown University Medical School, is the co-editor and one of the authors of Pediatric Pathology, 2nd Edition (Lippincott/Williams and Wilkins), the major textbook of Pediatric Pathology which was published during 2001. Doctor Stocker is also the co-editor of another pediatric pathology textbook entitled, Pathology of Solid Tumors in Children, (Chapman and Hall, 1998). Doctor Stocker's areas of research include pediatric pulmonary pathology, pediatric hepatic neoplasia, and pediatric gastrointestinal disease. His classification of congenital cystic adenomatoid malformation of the lung is widely used and his studies of bronchopulmonary dysplasia have

followed the disease from its evolution in 1967 to the present day. Dr. Stocker, with colleagues in the Ukraine,, is involved in the study of the long-term effects of low dose radiation on the workers involved in the Chernobyl nuclear plant explosion in 1986. Dr. Stocker lectures extensively throughout the military medical system as well as in Mexico, Latin America, and Europe. He has organized and run pediatric educational programs throughout the United States for 25 years.

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Pediatrics - School of Medicine.

The Pediatric Thyroid Cancer Study Group of the USU SOM Department of Pediatrics, one of the Nation's premier groups performing molecular research into the pathogenesis and clinical outcomes of pediatric and young adult thyroid cancer, under the leadership of **Colonel Gary L. Francis, MC, USA, Professor of Pediatrics, Program Director of the Pediatric Endocrinology Fellowship,** and **Aneeta Patel, M.Sc., Research Assistant Professor of Pediatrics, Director, Pediatric Molecular Research Laboratories,** has published and presented over 30 research papers and abstracts in the last year. **Captain Ann Straight, MC, USA; Lieutenant Commander William Scouten, MC, USN;** and **Captain Craig Dobson, MC, USA,** were awarded travel grants to support the presentation of their research at the Lawson Wilkins Pediatric Endocrine Society Meeting.

The Pediatric Hematology/Oncology Fellowship Training Program for the National Capital Region under the direction of **Lieutenant Colonel Gary Crouch, USAF, MC, Associate Professor of Pediatrics,** supports the Pediatric Oncology Program which is clinically-based at the Walter Reed Army Medical Center, and provides consultative and educational support for the entire region, as well as consultative support for overseas DoD clinical facilities. The Pediatric Oncology Program has provided state-of-the-art care for over 450 oncology patients over its fourteen years of operation. Currently, there are over 30 new oncology patients diagnosed each year over the past five years, making this one of the busiest sites in the DoD for the treatment of pediatric cancer. The goal of the department is to treat patients on National Cancer Institute-sponsored cooperative group studies through the Children's Oncology Group.

The Neonatology Section of the Department of Pediatrics under the leadership of **Lieutenant Colonel Mark Thompson, MC, USA, Assistant Professor of Pediatrics**, and **J. Timothy O'Neill, Ph.D., Research Assistant Professor of Pediatrics,** developed a novel program to improve the education of resident physicians in the care of ill newborns. Graduating pediatric resident physicians in the National Capital Consortium (NCC) are given an intensive two-week course on issues such as stabilization and transport which are critical for the successful management of sick neonates at the smaller military hospitals; the course is also offered to fourth-year USU medical students during the Neonatology elective. A model for DoD teaching of Newborn Medicine, the course has been enthusiastically received by the graduating pediatric residents. Recently, the program was made available to graduating family practice residents in the NCC.

Major Andrew J. Bauer, MC, USA, Teaching Fellow, USU SOM Department of Pediatrics, was chosen as a 2001 recipient of The Endocrine Society's Abbott Thyroid Research Clinical Fellowship and Mentor Award. The award goes to authors of selected abstracts who conduct research as a major

investigator in clinically relevant aspects of thyroid disease; specifically, the award recognized Major Bauer's work on the inhibition of thyroid cancer xenografts by use of vascular endothelial growth factor monoclonal antibodies. Major Bauer made an oral presentation at the Society's 83rd Annual Meeting in June of 2001. Founded in 1916, and based in Bethesda, Maryland, The Endocrine Society is the world's oldest and largest organization devoted to research on hormones and the clinical practice of endocrinology. The Society consists of more than 9,000 scientists and physicians in more than 80 countries.

Commander Jerri Curtis, MC, USN, Assistant Professor, and Program Director, Neonatal-Perinatal Medicine Fellowship, National Capital Area Educational Consortium, USU SOM Department of Pediatrics, achieved the distinction of receiving the United States Navy Medical Corps 16th Annual Navy-Wide Academic Research Competition Award in June of 2001 for work on the purification of the pulmonary hypertensive compound of group B *Streptococcus*. This prestigious annual award recognizes the most outstanding research achievement by a faculty member attached to a major teaching hospital of the United States Navy.

Colonel Gary Francis, MC, USA, Professor, Associate Chair for Research Operations, and Program Director of the Pediatric Endocrinology Fellowship Program, USU SOM Department of Pediatrics, was invited to present his research at the International Conference on Radiation Injury Protection in Munich, Germany. Colonel Francis and **Aneeta Patel, M.Sc., Research Assistant Professor of Pediatrics**, published several articles on childhood thyroid carcinoma. One of these articles written by several authors, to include doctors Francis and Patel, was entitled "Infiltration of Differentiated Thyroid Carcinoma by Proliferating Lymphocytes." The article is associated with improved disease-free survival for children and young adults and was published during 2001, in the Journal of Clinical Endocrinology and Metabolism, Volume 86, pages 1072-1077. This work has received wide acclaim and stands as a model for the immune response against many different forms of cancer.

Janice L. Hanson, Ph.D., Research Assistant Professor of Pediatrics and **Colonel Virginia F. Randall, MC, USA, Associate Professor of Pediatrics, USU SOM Department of Pediatrics,** worked in collaboration with **Elizabeth S. Jeppson, Ph.D., Adjunct Assistant Professor of Pediatrics, Colonel William S. Sykora, MC, USAF, Assistant Professor of Family Medicine,** and the USU National Capital Area Simulation Center to develop a teaching sequence on advocating for patients and families in health care settings. Doctor Hanson presented a workshop describing this project at the Undergraduate Medical Education-21 (UME-21) Third Annual Meeting in Washington, D.C. This work also formed the basis for a poster presentation at the meeting of the Association for Medical Education in Europe in Berlin, Germany, during September of 2001.

Lieutenant Colonel (select) Woodson Scott Jones, USAF, MC, Assistant Professor of Pediatrics and Associate Director of the Third Year Pediatric Clerkship, received first place in the Leo J. Geppert Award Competition for Research at the American Academy of Pediatrics (AAP) 35th Uniformed Services Pediatric Seminar in March of 2001, for his research project, "How Helpful Is Pneumatic Otoscopy in Improving Diagnostic Accuracy?" Doctor Jones is the only researcher who has received this award for two consecutive years.

Lieutenant Commander Christine Johnson, MC, USN, Assistant Professor of Pediatrics and NCA Site Director and Liaison with the Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, has initiated a proposal to establish a Pediatric Environmental Health Specialty Unit (PEHSU) at USU. Children and fetuses are at extremely high risk from certain toxic exposures because of their unique physiological and developmental vulnerability. A DoD PEHSU at USU would provide critical education and consultation services to uniformed health care providers world-wide. This unit would augment the existing units across the United States, Canada, and Mexico utilizing its unique role to address issues specific to military populations. A military PEHSU would add specialized knowledge of the many complex defense-related exposures not found in the civilian sector. The USU PEHSU would become an essential component of the military unique curriculum of military residency training programs providing education in the area of environmental health.

Captain Ildy M. Katona, MC, USN, Professor of Pediatrics and Medicine, and Chair, USU SOM Department of Pediatrics, was invited to serve as the American Medical Association Federal Representative to the Pediatric Residency Review Committee of the Accreditation Council on Graduate Medical Education. In this capacity, she will participate in the oversight of all of the Nation's general pediatric and pediatric sub-specialty post-graduate education programs. Captain Katona finished a seven-year term as a member of the Pediatric Rheumatology Sub-Board of the American Board of Pediatrics. During this term, Doctor Katona chaired the Sub-Board for two years. In addition, Captain Katona was an invited speaker at the 12th Iowa Rheumatology Symposium and a Visiting Professor at the University of Iowa, Iowa City, Iowa.

Lieutenant Colonel Jeffrey Lee Longacre, MC, USA, Assistant Professor and Associate Chair for Administration, Pediatric Education Section, USU SOM Department of Pediatrics, organized and provided leadership for the Pediatric Education Section which includes **Lieutenant Commander Christine Johnson, MC, USN; Lieutenant Colonel (select) Woodson Scott Jones, USAF, MC; Janice Hanson, Ph.D.**; and, **Colonel Virginia Randall, MC, USA.** The Pediatric Education Section is an exciting and informative activity for pediatric educators who participate in the teaching of third-year medical students. The Pediatric Education Section conducted its biannual retreat in September of 2001, bringing clerkship site directors from all ten of the pediatric teaching hospitals across the United States to USU. Over the two-day retreat, the clerkship was reviewed in-depth, analyzing the current clerkship experience, as well as charting future medical education and clinical research directions. After participating in round-table discussions, a faculty development seminar, and strategy sessions, the site directors returned to their teaching hospitals with new skills, additional knowledge, and renewed enthusiasm in contributing to the outstanding medical education of USU students. The Pediatric Education Section also has established a Faculty Development Course, involving USU faculty experts in medical education to provide seminars, workshops, and consultation on a broad range of medical education topics. Following the inaugural course at the Uniformed Services Pediatric Seminar in 2001, the course was conducted at the Tripler Army Medical Center in Hawaii. It is scheduled for several military teaching sites during the coming year. In addition, the members of the Pediatric Education Section presented two posters at the Council on Medical Student Education in Pediatrics (COMSEP) National Meeting in San Diego, California, during March of 2001. The first presentation, "Utilizing a matrix to review whether clerkship activities and evaluation tools optimally implement the COMSEP curriculum," detailed a way to evaluate the implementation of curriculum competencies through clerkship educational and evaluation activities. The second presentation, "Utilizing a case-based interactive learning module incorporating CD-ROM-based technology to optimize the teaching of cardiac auscultation skills in the pediatric clerkship,"

was also co-authored by **Felipe Vizcarrondo, M.D., Assistant Professor of Pediatrics**, and described an interactive cardiology teaching module. Lieutenant Colonel Longacre and **Lieutenant Colonel (select) Woodson Scott Jones, USAF, MC, Assistant Professor, USU SOM Department of Pediatrics,** also contributed cases for a program of Internet-based, self-directed learning materials in general pediatrics. The program is a cooperative effort by the Council on Medical Student Education in Pediatrics (COMSEP) and the Dartmouth Medical School; it is funded by the Bureau of Health Professions.

Kathleen B. Madden, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics, is a co-investigator on a five-year, $1.25 million National Institutes of Health grant recently awarded to **Terez Shea-Donohue, Ph.D., Research Professor of Medicine, USU, and Research Physiologist, USDA,** entitled "GI Nematodes and Gut Functional Responses to Inflammation." Doctor Madden's primary research interests are in the field of immuno-parasitology, with special emphasis on cytokine regulation of the host's response to infection with gastrointestinal nematodes. Doctor Madden works in collaboration with **Captain Ildy M. Katona, MC, USN, Professor of Pediatrics and Medicine, and Chair, USU SOM Department of Pediatrics,** delineating cytokine regulation of mucosal mast cell hyperplasia, and with Doctor Shea-Donohue investigating neuroimmune regulation of gut epithelial cell function. Doctor Madden presented this research at the annual meeting of the American Gastroenterological Association in Atlanta, Georgia, during May of 2001.

Major Margret Merino, MC, USA, Assistant Professor, USU Department of Pediatrics, was one of the recent graduates of the Pediatric Hematology/Oncology Fellowship Training Program; she received the 2001 Ogden Bruton Award for Best Basic Science Research among DoD pediatricians for her paper entitled, "Immunomagnetic purging of Ewing's sarcoma from peripheral blood and bone marrow by quantitative real time PCR."

Captain Laura Mirkinson, MC, USNR, Assistant Professor, and **Captain Ildy M. Katona, MC, USN, Professor of Pediatrics and Medicine, and Chair, USU SOM Department of Pediatrics**, co-authored a chapter on the "Treatment of Juvenile Rheumatoid Arthritis" for the textbook, Modern Therapeutics in Rheumatic Diseases, published by Humana Press during 2001.

Colonel Russell R. Moores, Jr., MC, USA, Assistant Professor of Pediatrics, Assistant Program Director, Neonatal-Perinatal Medicine Fellowship, and **Captain Stephen Morrow, MC, USN, Assistant Professor of Surgery and Pediatrics,** co-hosted the ***15th Annual Pediatric/Pediatric Surgery Symposium*** on March 31, 2001. The topic was "Current Issues in Disorders of the Upper GI Tract." The ***2nd Annual C. Everett Koop Distinguished Lecture*** was delivered by **Dale Johnson, M.D., Professor of Surgery and Pediatrics, University of Utah School of Medicine**. Doctor Johnson's presentation was entitled, "Esophageal Atresia and Gastroesophageal Reflux: An Overview of Surgical Approaches." Other speakers were **Carlo DiLorenzo, M.D. Professor of Pediatrics, University of Pittsburgh; Christian Macedonia, M.D., Assistant Professor of Obstetrics and Gynecology, USU SOM;** and, **William Carter, M.D., Fellow in Pediatric Radiology, Children's National Medical Center**. Colonel Moores also directs the pediatric portion of the ICM-III Course and leads the NCA pediatric faculty in a novel coordinated effort to introduce second-year medical students to the pediatric

history and physical examination. Children from several day-care centers and teenagers from a local high school participate as the simulated patients. Colonel Moores' leadership and organizational skills result in a unique experience for the students.

J. Timothy O'Neill, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics, Member of the Neonatology Section, performs outstanding community outreach volunteer work with the local American Heart Association (AHA). He presents lectures to high school students for the AHA and sponsors research internships for high school students at USU; Doctor O'Neill coordinates the placement of these students into USU laboratories and mentors many of them in his own lab. Many of the students have progressed to careers in science and medicine; one student is currently enrolled at USU. Doctor O'Neill has received numerous gifts and plaques over the years for his efforts and was recognized at the annual AHA banquet for students and volunteers. Doctor O'Neill directs the Cardiovascular Section of the Structure and Function of Organ Systems Course for first-year medical students at USU. For this course, Doctor O'Neill organizes and coordinates 22 lectures (presenting ten himself) and three large laboratory exercises.

Colonel (select) Martin G. Ottolini, USAF, MC, Associate Professor of Pediatrics and Emerging Infectious Diseases USU SOM, Program Director, Pediatric Infectious Diseases Fellowship, National Capital Consortium, was invited by the National Institute of Child Health and Human Development to co-chair the development of a five-year strategic plan for Sudden Infant Death Research. His work led to the June 2001 publication of *Targeting Sudden Infant Death Syndrome (SIDS): A Strategic Plan.* Colonel Ottolini also presented Research Grand Rounds at the Virologic Institute of the University of Wuerzburg, Germany, on September 24, 2001. His talk was entitled, "Development and Use of a New Animal Model to Study Influenza." Doctor Ottolini was the invited guest of Dr. Stefan Niewiesk, a noted paramyxoviral researcher at the Institute. He spent the following week with Dr. Niewiesk's research group working on the laboratory development of cellular immunologic assays to study the pathogenesis and immune response to measles and influenza in animal models.

Colonel Victor M. Pineiro-Carrero, USAF, MC (retired), Associate Professor, USU SOM Department of Pediatrics, Program Director, Pediatric Gastroenterology Fellowship, National Capital Consortium, received the 2001 Mentor of the Year Award at USU for his tireless efforts in community outreach, the recruitment of student candidates, and his support to minority students during medical school.

Merrily Poth, M.D., Professor of Pediatrics and Neuroscience, USU SOM Department of Pediatrics, was an invited speaker at the meeting of the Endocrine Society of Argentina in Buenos Aires in August of 2001. She presented talks entitled, "Graves Disease in Children and Adolescents" and "Thyroid Cancer in Children." Doctor Poth also participated in a multi-disciplinary session on the spectrum of auto-immune thyroid disease and was the Invited Professor of Pediatric Endocrinology to multiple universities throughout Brazil. Doctor Poth authored three chapters on thyroid cancer in children and adolescents in the textbook, The Clinical Approach to Thyroid Cancer, edited by **Dr. Leonard Wartofsky** and published by Humana Press in 2001. Additionally, Doctor Poth co-authored with **Major**

Andrew J. Bauer, MC, USA, Teaching Fellow, USU SOM Department of Pediatrics, the last of a three-part series of papers on precocious puberty, "Premature Thelarche and Premature Adrenarche: Variations of Normal," published in The Endocrinologist.

Major Jon B. Woods, USAF, MC, Assistant Professor, USU SOM Department of Pediatrics, completed his Pediatric Infectious Disease Fellowship in August of 2001. The Department of Pediatrics continues to be one of the key participants in the interdisciplinary Emerging Infectious Disease Program at USU. This year, three of the Military Pediatric Infectious Disease Fellows worked in the USU Department of Microbiology and Immunology Laboratories to help fulfill their training requirements. Following his graduation from the Pediatric Infectious Disease Fellowship Program, Major Woods was assigned to the Operational Medicine Division of USAMRIID, and now serves as a biological warfare expert and instructor for the Department of Pediatrics. He recently gave a Pediatric Grand Rounds, an urgent anthrax update, and provided critical information on pediatric exposure and therapy guidelines. In addition, Major Woods attended the 4th International Symposium and Workshop on Shiga-Toxin (Verotoxin) Producing *Escherechia coli* Infections in Kyoto, Japan; he presented research he performed under the direction of **Alison O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology,** entitled "Ferrets as a model for infection with shiga-toxin producing *Escherechia coli*."

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Pharmacology - School of Medicine.

Courses Presented. The USU SOM Department of Pharmacology presents four courses: Pharmacology PHO 2001 (Medical School-II Medical Student Course); Pharmacology PHO 2001 (Graduate School of Nursing, Nurse Anesthesia Master Degree Program Student Course); Pharmacology PHO 510 (Graduate Student Course); and, Neuropharmacology MPO 803 (Graduate Student Course). Pharmacology PHO 2001 includes a computer-based Pharmacokinetic Simulation Exercise and a network-based Drug Information Exercise; all students enrolled in the course must complete these exercises for credit. These USU faculty-designed exercises have been integral parts of the course for the last ten and five years, respectively.

Significance of the Research Programs in the Department of Pharmacology. The USU SOM Department of Pharmacology's research strengths are in the two major areas of molecular and cellular neuropharmacology and signal transduction mechanisms. These general areas of research are of considerable importance to the development of the discipline of Pharmacology and for biomedical education. Studies in these areas are expected to be productive topics for continued research concentration.

Developments in these areas also have implications for the advancement of military medicine. Extreme and rapid changes in the environment are a frequent feature of battlefield exposure. The Pharmacology faculty, through their research efforts, explore the molecular, cellular and systems implications of changes in the chemical or physical environment of an organism. Their basic studies on

the mechanisms underlying cellular adaptations may lead to ways of reducing the negative consequences of such adaptations while retaining the valuable features of those adaptations which enhance survival.

Molecular and Cellular Neuropharmacology. Research programs of the Pharmacology faculty address issues relating to adaptations of the nervous system following changes in activity associated with an altered cellular environment or with the application of external stimuli, injury, or other stresses. **Suzanne B. Bausch, Ph.D., Assistant Professor,** and **John M. Sarvey, Ph.D., Professor,** conduct research in their electrophysiology laboratories to examine various aspects of synaptic adaptation following seizures (Bausch) or after high-frequency electrical stimulation inducing long-term potentiation (Sarvey). Doctor Bausch's laboratory is examining structural adaptations in GABA and glutamate synapses in the hippocampus following repeated episodes of seizure activity. Doctor Sarvey's work on long-term potentiation has led him to study the role of endogenous zinc in synaptic function, both as a facilitator of long-term potentiation and as a neurotoxic factor liberated during ischemic injury to the brain.

The molecular mechanisms underlying neural injury are also studied in the laboratories of **Aviva J. Symes, Ph.D., Assistant Professor; Brian M. Cox, Ph.D., Professor and Department Chair;** and **Cinda J. Helke, Ph.D, Professor and SOM Associate Dean for Graduate Education.** The Symes and Cox laboratories examine the release of cytokines in response to neural injury and their roles in the regulation of the expression of neuropeptides. Doctor Symes' laboratory is exploring factors regulating the expression of vasoactive intestinal polypeptide (VIP) in the brain following neural injury. Doctor Cox's laboratory studies the expression of endogenous opioids and their relevance to the control of pain and inflammation following injury to the nervous system. The laboratories of Doctor Cox and **Thomas E. Cote, Ph.D., Associate Professor,** are also studying adaptations in opioid peptide and receptor function related to chronic drug exposure. Doctor Helke's laboratory studies the mechanisms underlying the disruption of autonomic nervous system function in diabetes. Her studies have demonstrated metabolic, oxidative, neurochemical, and functional deficits in the vagus nerve and other autonomic nerves following sustained hyperglycemia. The impaired function of neurotrophins and oxidative injury associated with hyperglycemia has been demonstrated. **Jeffrey M. Harmon, Ph.D., Professor,** is studying the function of glucocorticoid receptors in the central nervous system. **Captain Christopher B. Reid, MC, USA, Ph.D., Assistant Professor,** examines factors controlling the differentiation of the neural precursor cells during neural development. Diseases which affect nerve cells often result in permanent, life-altering disabilities. More than five million Americans are currently afflicted by a neurodegenerative disorder.

Research is Critical to Health Care in the Military Environment. In peacetime, over 8,000 Americans with traumatic brain injury (TBI) are admitted to military and veterans hospitals. In times of combat, traumatic brain injury accounts for at least fourteen percent of surviving casualties and a disproportionate amount of acute and long-term combat casualty care resources. Understanding the genes which control neuronal generation and specification in the central nervous system would likely figure prominently in treatments aimed at replacing damaged nerve cells. These research programs relate to issues of critical importance to health care in a military environment. **Seizure generation, impairment of learning and/or memory, and neurodegeneration, are frequent consequences of accidental and battlefield neural injuries.** Improved understanding of these events might lead to more effective therapies. These studies can be of great benefit to military personnel who are at increased risk of sustaining a brain injury during the performance of their duties. Defining the mechanisms which control brain development and brain formation is critical to the understanding of normal developmental processes and may be a key to treating Alzheimer's and Parkinson's diseases. Collectively, these studies of the

adaptations of the nervous system following changes in the neuronal environment indicate the wide range of adaptive processes which can occur in the nervous system and direct the way to potential and novel therapies.

Signal Transduction Mechanisms. Doctors Harmon, Symes, and Cote are actively involved in addressing aspects of the function of critical cellular transduction systems. Doctor Harmon's laboratory is exploring the role of abnormalities in glucocoticoid receptor expression and/or function in the impaired function of the hypothalamic-pituitary adrenal axis and in resistance to steroid therapy in the treatment of cancer. Doctor Symes is exploring the control of gene transcription in the nervous system by cytokines. These studies are beginning to elucidate the fundamental changes in the neural function which are induced by enhanced cytokine expression in neural injury. Doctor Cote studies the role of GTP-binding proteins (G proteins) which mediate the actions of a very large number of neurotransmitters and hormones utilizing G protein coupled receptors (GPCR). Understanding the role of a novel family of G protein regulator molecules may lead to a new understanding of the regulation of cell function by GPCR in general. These studies also have a specific application to studies of tolerance and dependence to opiate drugs carried out in a collaboration between the laboratories of Doctors Cote and Cox. The research programs of Doctors Helke and Sarvey also involve the analysis of signal transduction systems activated by transmitters, neurotrophins, or oxidative stress and their adaptations in response to a changing cellular environment.

Individual Projects Have Important Implications. These studies have important implications for the understanding of regulators of biologic functions at the molecular, cellular, and biological systems levels. Individual projects provide insight into the adaptive responses of the nervous system, the roles of glucocorticoids in post-traumatic stress disorders, and on cell communication and cell death in relation to the treatment of some cancers.

External Research Support Received During 2001.

Extramural Research Support Received in 2001. Six investigators in the SOM Department of Pharmacology received new grant funding during 2001:

Suzanne B. Bausch, Ph.D., Assistant Professor, received funding from the DoD Brain and Spinal Cord Injury Program for her grant entitled, "Glutamate Receptors in Epileptogenesis."

Beata Buzas, Ph.D., Research Assistant Professor, received funding through 2002 from the DoD Veteran's Head Injury Program for a grant entitled, "Opioid Peptides and Oxidative Stress."

Robert J. Lechleider, M.D., Assistant Professor, USU SOM Department of Pharmacology, received the John F. Maher and Joseph M. Krainin Awards from the National Capital Area Branch of the National Kidney Foundation. The awards were given for attaining the highest ranked grant application in the Spring 2000 cycle for the National Kidney Foundation of the National Capital Area. The application was entitled, "Smad5 Regulation of Vascular Smooth Muscle Cell Development and Function." During 2001, Doctor Lechleider also received grant funding from the National Kidney Foundation of the National Capital Area for his grant entitled, "TGF-*B* Control of Smooth Muscle Cells."

John M. Sarvey, Ph.D., Professor, received funding from the American Heart Association for his grant entitled, "Zinc and Neuronal Death in Ischemia."

Aviva J. Symes, Ph.D., Assistant Professor, received funding from the Christopher Reeves Paralysis Foundation for his grant entitled, "The Role of Smad3 in Glial Scar Formation After Spinal Cord Injury." Doctor Symes also received recognition through the American Society for Pharmacology and Experimental Therapeutics Summer 2001 Undergraduate Research Training Program.

Continuing Extramural Research Support in 2001. The following researchers from the Department of Pharmacology continued to receive funding from the following sources during 2001 from previously approved grants:

Beata Buzas, Ph.D., Research Assistant Professor, continued to receive funding from the DoD/Veterans Head Injury Program for his grant entitled, "Opioid Peptides and Oxidative Stress."

Brian M. Cox, Ph.D., Professor and Department Chair, continued to receive funding from the National Institutes of Health (NIDA/NIH) for his grant on the "Regulation of Opioid Systems."

Jeffrey M. Harmon, Ph.D., Professor, continued to receive funding from the National Institutes of Health (NCI/NIH) for his research on "Steroid Resistance in Human Leukemic Cells."

Cinda J. Helke, Ph.D., Professor and SOM Associate Dean for Graduate Education, continued to receive funding from the National Institutes of Health (NINDS/NIH) for her research on "Neurotransmitters and Visceral Afferent Neurons."

Aviva J. Symes, Ph.D., Assistant Professor, continued to receive funding from the National Institutes of Health (NINDS/NIH) for research on "Cytokine Regulation of VIP Gene Expression: Molecular Cloning and Characterization of a Unique Interferon-Gamma- and Lipopolysaccharide Inducible Nuclear Protein."

In addition, eight faculty members have approved intramural research protocols; and, eleven research protocols from the Department are currently under review by extramural funding agencies. During 2001, the members of the Department of Pharmacology authored, or co-authored, more than 20 papers, articles, and manuscripts which were published, or accepted for publication, in peer-reviewed publications.

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Preventive Medicine and Biometrics - School of Medicine.

Leonelo E. Bautista, M.D., MPH, Dr.PH., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, received the 2001 Aventis Award, Best Research Proposal, from the Colombian National Academy of Medicine for his protocol, "Inflammatory, Autonomic, and Endothelial Markers of Survival Among Patients with a First Acute Myocardial Infarction." Dr. Bautista, a graduate of the Universidad Autonona de Santo Domingo, Dominican Republic, and the Johns Hopkins

School of Hygiene and Public Health, joined the USU faculty in the Spring of 2001. Prior to his arrival, Dr. Bautista was the Director of the Cardiovascular Research Center, Eastern Colombia Cardiovascular Foundation, in Bucaramanga, Colombia. A former Fulbright Scholar and author of more than 20 articles, Dr. Bautista now teaches Advanced Epidemiologic Methods at USU while continuing his research into the epidemiology of cardiovascular disease.

David F. Cruess, Ph.D., Professor, Deputy Chair and Part-Time Director of the Biostatistics Consulting Center, and **Cara H. Olsen, M.S., AB, Research Assistant Professor and Full-Time Biostatistics Consultant, Biostatistics Consulting Center, USU SOM Department of Preventive Medicine and Biometrics,** are the two faculty members who serve in the Biostatistics Consulting Center of the Department of Preventive Medicine and Biometrics. The Department established a University-wide Biostatistics Consulting Center (BCC) in the Summer of 2000. The BCC provides statistical consulting to USU scientific investigators who are engaged in the design of studies and experiments; statistical and graphical analysis of data; choice, application, interpretation, and reporting of statistical methods; preparation of presentations and publications; and, revision of papers based on referee's comments. Since its establishment, the BCC has provided statistical consulting to faculty, students, and staff in at least 20 departments at the University and at affiliated institutions such as the Walter Reed Army Medical Center and the National Naval Medical Center. The purposes of the BCC are twofold: 1) to improve the quality of USU research by providing statistical advice regarding study design, analysis, and reporting; and, 2) to encourage collaborative research between statisticians and investigators from other disciplines.

John H. Cross, Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, received the November 28, 2001 - Anniversary Award from the Helminthological Society of Washington. Given once a year, this award recognizes significant contributions to the study of parasitology and to the Society.

Deborah C. Girasek, MPH, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, was awarded a $47,000 intramural grant to study childhood drowning prevention. She has also submitted A $177,600 grant proposal focusing on airline passenger use of alcohol to the National Institute for Alcohol Abuse & Alcoholism. Dr. Girasek was named as affiliated faculty on a $965,000 grant submitted to the National Heart, Lung, and Blood Institute. She also served as a reviewer of abstracts for the Injury Control and Emergency Services Section of the American Public Health Association. In addition, she presented her research at the Johns Hopkins Graduate Seminar on Injury Research and Policy. She was also invited to serve as a guest reviewer for a special issue of Patient Education & Counseling which was devoted to injury and violence prevention. Her manuscript, "Public Beliefs About the Preventability of Unintentional Injury Deaths," was published in Accident Analysis & Prevention. Her previous work was cited in an editorial which appeared in the British Medical Journal.

Captain Robert Allan Matthews, MSC, USN, Assistant Professor, Department of Preventive Medicine and Biometrics, was awarded the "Special" award from the Naval Aerospace Physiology Program and the Fred Hitchcock Award from the Aerospace Physiology Society for sustained professional excellence in Aerospace Physiology during 2001.

Gerald V. Quinnan, Jr., M.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, Division of Tropical Public Health, conducts research related to the development of a vaccine to prevent human immunodeficiency virus (HIV) infections. Basic aspects of this research are targeted toward understanding how the coat, or envelope, protein of HIV resists the effects of the immune system. The results of these studies have established concepts regarding envelope protein structure which may indicate how the immune system could be stimulated to overcome the resistance of the virus. Methods have been established for the induction of immune responses which are active in the laboratory against resistant viruses, and may be able to protect against infection. A project has been initiated to determine in a non-human primate model whether these responses are protective. Success in the primate studies would indicate that human clinical trials would be appropriate. Dr. Quinnan received a competitive renewal of an investigator-initiated grant award and a program project grant award from the National Institutes of Health (NIH) during the past year. These awards fund the research described above. Dr. Quinnan's research has been published in the Journal of Virology. He serves on the NIH Vaccine Study Section, as a Consultant to the Food and Drug Administration, and on the Scientific Advisory Board of a biotechnology company. He also served on a panel convened by the Deputy Secretary of Defense on Biological Warfare Defense Vaccine Research and Development Programs.

Captain David H. Trump, MC, USN, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, received funding for two research protocols. He was the principal investigator for "Does Self-Assessment of Post Deployment Health Predict Health Outcomes?" and, the co-investigator on a study funded by the United States Army Medical Research Materiel Command, "Assessment of Toxicological Assays Methods and Chemical Exposures Among a Cohort of United States Marines Deployed in the Gulf War." Captain Trump, who joined the USU faculty in the Summer of 2000, has authored eight articles and textbook chapters during the past two years. In his previous assignment at the Office of the Secretary of Defense for Health Affairs, Dr. Trump represented DoD as an ex-officio member of the United States CDC's Advisory Committee on Immunization Practices; and, he was also the DoD Liaison on the Editorial Board for the 17th Edition of the *Control of Communicable Diseases Manual.*

Thomas A. Eggleston; Lieutenant Colonel William Patrick Roach, USAF, BSC, Associate Professor; David Oler; and **Thomas Johnson, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics,** co-authored an article with **Hospital Corpsman, Second Class, Michael A. Mitchell, formerly of the USU Department of Laboratory Animal Medicine,** which was published in the journal Comparative Medicine, Volume 50, Number 4, August 2000. The article was entitled "Comparison of Two Porcine Skin Models for In Vivo Near-Infrared Laser Exposure."

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Psychiatry - School of Medicine.

Department of Psychiatry Responses to the Attacks of September 11, 2001. Immediately following the terrorist attacks in New York City and at the Pentagon in Washington, D.C., members of the USU Center for the Study of Traumatic Stress, USU SOM Department of Psychiatry, provided: on-going consultation to the Arlington Hospital (42 casualties from the Pentagon were taken there) on staff stress/interventions; manning support for the Stress Support Office at the White House/Executive Office Building; resources and information for the Hospital Ship COMFORT deployment teams for stress related to body handling, concern over families, and terrorist activities; and, a Disaster Care Resources site on the USU web page. **Captain Thomas Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry, USU SOM Class of 1987,** was in charge of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team which provided assistance at the Pentagon and the Navy Annex following the attacks on September 11th; the team provided supportive services to 2,000 active duty and civilian employees on the Navy staff. **Lieutenant Commander John Lyszczarz, MC, USN, USU SOM Class of 1993,** and **Lieutenant Commander John Kennedy, MC, USN, USU SOM Class of 1994,** were also part of the SPRINT team. **Lieutenant Commander Lisa McCurry, MC, USNR, Assistant Professor of Psychiatry,** assisted at the Pentagon Family Assistance Center. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry and Director of the Center for the Study of Traumatic Stress; Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry, Scientific Director of the Stress Center; James E. McCarroll, Ph.D., Stress Center Scientist; John Newby, D.S.W., Stress Center Scientist;** and, **Elizabeth Osuch, M.D., Stress Center Scientist,** distilled key points for fact sheets targeted to many topics relating to the attacks; those fact sheets were widely distributed. **Lieutenant Colonel Charles Engel, Jr., MC, USA, Assistant Professor, USU SOM Department of Psychiatry,** in consultation with other Stress Center members, played a key role in devising the mental health questions for the United States Army Center for Health Promotion and Preventive Medicine/Pentagon Post-Disaster Health Assessment Survey. **Colonel Ann Norwood, MC, USA, USU SOM Class of 1981, Chair, American Psychiatric Association (APA) Committee on Psychiatric Dimension of Disaster,** and **Doctor Ursano, Past Chair of the APA Committee,** were active in working with the APA to assist the affected areas.

Emmanuel G. Cassimatis, MC, USA (Ret.), Professor, USU SOM Department of Psychiatry and Associate Dean for Clinical Affairs, USU SOM, retired from active duty on January 19, 2001, following 26 years in the United States Army. Colonel Cassimatis began his medical career after graduating from the Harvard Medical School and completing a pediatric internship at the Yale-New Haven Hospital. He was subsequently commissioned as a Second Lieutenant and continued to complete tours of duty at the Walter Reed Army Medical Center; Berlin, Germany; the Frankfurt Army Regional Medical Center; and, the Office of the Army Surgeon General before his assignment to USU. While at USU, Colonel Cassimatis has served as the Association of Military Surgeons of the United States (AMSUS) Delegate to the American Medical Association (AMA) and was elected to the AMA Council on Medical Education. Doctor Cassimatis serves on the Accreditation Council for Graduate Medical Education (ACGME) and its Monitoring and Institutional Review Committees; on the AMSUS Board of Managers; and, as Chair of the AMA's Governing Council, Specialty and Service Society (a Caucus of over 200 delegates, representing all specialties and services in the House of Delegates). In addition, he serves on additional AMA Committees: the Executive Committee, Council on Medical Education (CME); Chair, Nominating Committee, CME; Chair, Graduate Medical Education Subcommittee, CME; and, he was

appointed to the Liaison Committee on Specialty Boards. Following a national search, Doctor Cassimatis was selected and appointed as the USU SOM Associate Dean for Clinical Affairs; he continues to serve in that position.

Carol Fullerton, Ph.D., Research Associate Professor and Director of Science in the Center for the Study of Traumatic Stress, USU SOM Department of Psychiatry, attended the American Psychological Association's Advanced Training Institute in Functional Neuroimaging, a program sponsored by the National Institutes of Health. As one of hundreds of applicants for the program, Doctor Fullerton was selected based upon her past work and the promise of future significant research. An article by Doctor Fullerton and other members of the Department of Psychiatry was published during 2001 in the American Journal of Psychiatry, Volume 158 (9), pages 1486-1491. The publication was entitled, "Gender Differences in Posttraumatic Stress Disorder After Motor Vehicle Accidents." Contributing authors were: **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry; Richard S. Epstein, M.D., (off-campus) Professor, USU SOM Department of Psychiatry; Brian Crowley, (off-campus) Associate Professor, USU SOM Department of Psychiatry; Tzu-Cheng Kao, Ph.D., Associate Professor, Department of Preventive Medicine and Biometrics; Kelley Vance, Research Associate, USU SOM Department of Psychiatry; and, Andrew Baum, Ph.D., (off-campus) Professor, USU SOM Department of Psychiatry.**

Edmund G. Howe, III, M.D., J.D., Professor, USU SOM Department of Psychiatry, received the Nancy C.A. Roeske Certificate for Outstanding Contributions to Medical Student Education from the American Psychiatric Association. In addition, Doctor Howe gave the Dr. Alice H. Kiessling Memorial Lecture to the American Society of Psychoanalytic Physicians in Washington, D.C. His lecture focused on current ethical and psychiatric controversies regarding infants born with intersexual conditions and the surgeries performed to correct such abnormalities. Doctor Howe is also the Director of Programs in Medical Ethics at USU and he is the Co-Chair of the International Health Committee of the Section on International Law and Practice of the American Bar Association.

He Li, M.D., Ph.D., Assistant Professor, USU SOM Department of Psychiatry, had his manuscript, "Kainate Receptor Mediated Heterosynaptic Facilitation in the Amygdala," accepted for publication by Nature Neuroscience during 2001.

Colonel Ann E. Norwood, MC, USA, USU SOM Class of 1981, Associate Professor and Associate Chair, USU SOM Department of Psychiatry, gave a presentation on "Psychological Reactions to Bioterrorism" at the Conference on Medical and Public Health Aspects of Bioterrorism on June 27, 2001, at the Johns Hopkins University School of Public Health. The conference was co-sponsored by the Memorial Institute for the Prevention of Terrorism in Oklahoma City, Oklahoma. Colonel Norwood also participated in "The Psychological and Social Impacts of Biological Attacks on the American Homeland," sponsored by ANSER, the National War College, and the Johns Hopkins Center for Civilian Biodefense Studies on October 12, 2001. Colonel Norwood, **Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry,** and **Captain Thomas A. Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry,** participated as subject matter experts in an international consensus conference on acute interventions following mass violence and trauma.

E. Fuller Torrey, M.D., Director of the Stanley Laboratory of Brain Research and Professor, USU SOM Department of Psychiatry, received the William C. Porter Award from the Association of Military Surgeons (AMSUS). Dr. Torrey was also featured in the December issue of the Washingtonian Magazine of the Washington Post in an article on "The Best and the Brightest" individuals in Washington, D.C. The article discusses Doctor Torrey's career as a psychiatrist and his research on schizophrenia and other mental illnesses.

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Radiology and Nuclear Medicine - School of Medicine.

Vincent B. Ho, M.D., Associate Professor, USU SOM Department of Radiology and Nuclear Medicine, co-authored three articles published in peer-reviewed Journals during 2001: "Hepatic Magnetic Resonance Angiography: A Multiobserver Comparison of Visualization Methods," in the American Journal of Roentgenology, Volume 176, pages 465-470; "Preferential Arterial Imaging Using Gated Thick-Slice Gadolinium-Enhanced Phase Contrast Acquisition in Peripheral MR Angiography," in the Journal of Magnetic Resonance Imaging, Volume 13, pages 714-721; and, "Gadolinium-Enhanced, Vessel-Tracking, Two-Dimensional Coronary MR Angiography: Single-Dose Arterial-Phase Versus Delayed-Phase Imaging," in the Journal of Magnetic Resonance Imaging, Volume 13, pages 682-689.

Lorraine G. Shapeero, M.D., Associate Professor, USU SOM Department of Radiology and Nuclear Medicine, was appointed Leader of the Bone and Soft Tissue Sarcoma Program of the United States Military Cancer Institute. During the past year, Doctor Shapeero also served on the Board of Directors of the Association of University Radiologists and of the Association of International Academic Radiologists and on the Executive Committee of the Alliance of Medical Student Educators in Radiology. In addition, Doctor Shapeero was reappointed as Consultant to the Editor of Radiology by the Board of Directors of the Radiological Society of North America; and, she also serves on the Editorial Boards of Radiology, Seminars in Musculoskeletal Radiology, and Academic Radiology.

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Surgery - School of Medicine.

During 2001, the Department of Surgery updated its Strategic Plan and continued robust programs in teaching, research, international relations, and other contributions to military and academic medicine. During this time, various honors and recognition were accorded to faculty members of the Department. Description of those accomplishments are described in detail. In addition, the Department ensured the continued growth of the Diploma in the Medical Care of Catastrophes Program; and, 24 Distinguished Visiting Professors provided presentations as part of the Department of Surgery's Distinguished Professor's Lecture Series. A few of these nationally and internationally recognized individuals included: **P. William Curreri, M.D., Daphne (Strategem, Inc.); Robert W. Anderson, M.D., Duke University Medical Center in Durham, North Carolina; Dale G. Johnson, M.D., University of Utah, Salt Lake City;**

Basil A. Pruitt, M.D., University of Texas in San Antonio, Texas; Norman McSwain, Jr., M.D., Tulane University in New Orleans, Louisiana; Robert A. Chase, M.D., Stanford University; John A. Jane, M.D., University of Virginia in Charlottesville, Virginia; and, James O. Menzoian, M.D., of the Boston Medical Center.

The 21st Annual USU Surgical Associates Day. The 21st Annual USU Surgical Associates Day was held on March 19, 2001. **F. William Blaisdell, M.D., University of California, Davis,** presented the Presidential Address for 2001, *Michael E. DeBakey: The Academic Surgeon.* **Doctor Thomas Russell, Director of the American College of Surgeons,** presented the *American College of Surgeons Update*; and, **Lieutenant General Paul K. Carlton, Surgeon General of the Air Force,** received the Baron Dominique Larrey Award for Excellence in Military Surgery.

Trauma Day, Pediatric Surgery Day, and the 19th International Surgery Day, were additional special meetings conducted for the benefit of third-year medical students on Surgical Rotations. These programs have traditionally been quite well received by both the students and the faculty. Participation by nationally and internationally known surgeons brings great credit to USU and spreads the reputation of USU as an academic center for military surgery on a world-wide basis.

Lieutenant Colonel Mark W. Bowyer, USAF, MC, Assistant Professor, USU SOM Department of Surgery, wrote three chapters for the book, Critical Care Secrets 3rd Edition, dealing with acute pancreatitis, fungal infections, and hemodynamic monitoring. Doctor Bowyer is the Immediate Past President of the Society of Air Force Clinical Surgeons. During 2001, he conducted nine ATLS Provider Courses and four Instructor Courses for Advanced Trauma Life Support. Additionally, Doctor Bowyer received the Diploma in the Medial Care of Catastrophes in 2001.

Colonel David G. Burris, MC, USA, Associate Professor, USU SOM Class of 1984, Director of the Division of Surgical Research, continued to lead the Department's efforts in the provision productive research during 2001. The work in the Division of Surgical Research, continued by **Hassan Alam, M.D., Assistant Professor, USU SOM Department of Surgery,** and **Elena V. Koustova, Ph.D., Research Assistant Professor, USU SOM Department of Surgery,** had primary focus on hemorrhagic shock and resuscitation with various solutions. The research of the Division was recognized through numerous articles and manuscripts published in peer-reviewed publications, awards, honors, and requested presentations at prestigious conferences and seminars.

Captain Dana Covey, MC, USN, Assistant Professor, USU SOM Department of Surgery, co-authored an article which was published in the Journal of Orthopaedic Trauma, Volume 14, Number 4, Pages 278-286. The study, "Field Hospital Treatment of Blast Wounds of the Musculoskeletal System During the Yugoslav Civil War," was supported by a grant from the Zachary Fisher Foundation as part of the Chairman of the Joint Chiefs of Staff Award for Excellence in Military Medicine. The paper analyzes the largest series of musculoskeletal blast injuries reported by United States military orthopaedic surgeons since the Vietnam War and demonstrates the extent to which modern surgical techniques, including major limb reconstruction, can be used in an austere tent hospital.

Lieutenant Colonel David L. Gillespie, MC, USA, Associate Professor, USU SOM Department of Surgery, received the Sigvaris Traveling Fellowship Award from the American Venous Forum/Foundation. He will use the $12,000 fellowship to visit medical centers throughout the world which have been established as centers of excellence in the management of venous disease. The grant is intended to initiate personal and professional development, promote an exchange of important clinical information, and stimulate the development of centers in the management of venous disease.

Colonel Christoph R. Kaufmann, MC, USA, Associate Professor, USU SOM Department of Surgery, continued his work as Director of the National Capital Area Medical Simulation Center. Interest in this rapidly growing field of medical education has led to his being invited to present his experiences to medical groups around the world. Doctor Kaufmann has been a Visiting Professor in New Zealand, Sweden, Norway, and France, in addition to multiple sites across the United States.

Elena V. Koustova, Ph.D., Research Assistant Professor, Senior Scientist, Trauma Readiness Research Institute, USU SOM Department of Surgery, concentrates on hemorrhagic shock and its treatment as her main area of research. Hemorrhagic shock is the leading cause of traumatic death in combat casualties. Fluid resuscitation after severe hemorrhagic shock is linked to the high incidence of fatal reperfusion injury (ARDS and MODS) and the high rate of late deaths. Research conducted by Dr. Koustova's research team is aimed at reducing the secondary tissue injury following fluid resuscitation, thus minimizing post-shock complications in both military and civilian settings. Comprehensive analysis of gene expression performed with state-of-the-art molecular/cellular biology techniques and realistic animal models of severe hemorrhage developed in Doctor Koustova's laboratory provide help in identifying the initial and crucial events in the pathophysiology of hemorrhagic shock and reperfusion injury. Doctor Koustova's team collects very specific information as to how different genes in various organs respond to resuscitation with different currently used resuscitation fluids. Since the researchers are able to separate effects of hemorrhagic shock from the effects of resuscitation/reperfusion, the strategy of prevention, especially valuable for the military, and targets for intervention will be identified. Doctor Koustova hopes to uncover the mechanisms behind known complications and adverse effects of fluid resuscitation, and ultimately, create an "ideal" resuscitation fluid. As indicated, the primary focus of Doctor Koustova's research is to identify and develop new strategies for volume resuscitation following hemorrhagic shock. Knowing that secondary reperfusion injury is an important source of the fatal complications and late deaths following resuscitation from massive hemorrhagic shock, Doctor Koustova investigates the cause of this injury using state-of-the-art molecular and cellular biology techniques. Currently, she employs a "gene chip" technique to simultaneously analyze the post-resuscitation changes in the expression of thousands of genes, the ultimate governors of all cell and tissue functions. This allows the researcher to create "genomic fingerprints" of various resuscitation protocols and to determine the optimal method of resuscitation. To integrate studies of resuscitation-induced effects at the tissue, cellular, and molecular levels, the researchers use mathematical clustering techniques to combine gene expression data with known physiological and biochemical markers of reperfusion injury. Once the patterns are identified, the ways for their manipulations can be established. Discovery of the mechanisms behind known complications and adverse effects of fluid resuscitation ultimately will aid in the establishment of an ideal resuscitation approach to improve combat and civilian casualty survival. Doctor Koustova's laboratory also conducts pioneer work performing a complete testing of the concept of energy source addition to resuscitation fluids. This includes the examination of metabolic markers, tissue energy accumulation and storage, functional activity of enzymes, and end-organ functions.

Brigadier General Frederick W. Plugge IV, USAF, MC (Ret.), Professor of Surgery, Volunteer Faculty, USU SOM Department of Surgery, announced his bequest intention to the USU SOM Department of Surgery during 2001. The endowed fund will provide continual support for the Department Chair and will be named the "Brigadier General Frederick W. Plugge, IV, Endowed Discretionary Fund in Surgery." As with other permanent endowments managed by the Henry M. Jackson Foundation on behalf of the University, only the interest from the fund will be utilized. Returns from the fund will be permanently restricted for use by the Chair for such activities as lectureships, fellowships, travel, and other program needs. Doctor Plugge was appointed to the USU SOM Admissions Committee from 1975 through 1977; since the mid-1980s, Doctor Plugge has maintained his relationship with USU as an Associate Professor and then as a Professor of Surgery with his appointment to the University's Voluntary Faculty. Over the years, Doctor Plugge has expressed his sincere belief in the mission of USU and the TriService approach of the medical school. It has been his belief that the USU SOM students have opportunities that are unmet at any other medical school in the country; they receive hands-on experience that would not be gained elsewhere.

Commander Peter M. Rhee, MC, USN, Associate Professor, USU SOM Department of Surgery, USU SOM Class of 1987, was selected by the Eastern Association for the Surgery of Trauma to serve on its Program Committee. This committee plays a vital role in assuring that the EAST Scientific Assemblies contain quality material. EAST affords a forum for the exchange of knowledge pertaining to the care and rehabilitation of the injured patient; the organization stimulates investigation and teaching in methods of treating and preventing injury from all causes. In addition, an abstract written by Commander Rhee was a poster presentation at the 60th Annual Meeting of the American Association for the Surgery of Trauma, held on October 12-14, 2001, in San Antonio, Texas. The abstract was titled, "Screening for Lumbar Fractures: Abdominal and Pelvic CT Versus Portable Plain Films."

Norman M. Rich, M.D., Professor, Leonard Heaton and David Packard Professor, and Chairman, USU SOM Department of Surgery, received two honors of significance during 2001. Doctor Rich received the prestigious University Medal in recognition of his more than 20 years of service in the SOM and USU (see Section IV, pages 293-295 of this Journal edition). In addition, in November of 2001, Doctor Rich received a standing ovation after his many accomplishments were documented in slides and video segments presented at the 28th International Vascular Symposium in New York City. Doctor Rich was also the founder of the Walter Reed Army Medical Center Vascular Fellowship.

Donald Sturtz, M.D., FACS, Professor, USU SOM Department of Surgery, published an article entitled "Commitment" in the September 2001 issue of Military Medicine. Doctor Sturtz also presented, "Trauma in the Ukraine," during the 21st Annual USU Surgical Associates Day; and, he led discussions on the *Debakey USU Brigade* and *Sea Duty 2000-2001*, during the 19th International Surgical Day held by the USU SOM Department of Surgery.

J. Leonel Villavicencio, M.D., FACS, JLV International Professor, USU SOM Department of Surgery, had another productive year. He presented the paper, "Controlled Ischemic for Complex Venous Surgery," at the American Venous Forum in Florida during February of 2001. He was also the co-author of the paper, "The Nutcracker Syndrome," and was a Visiting Professor at the William

Beaumont Medical Center in El Paso, Texas, from February 26-28, 2001. In addition, Doctor Villavicencio spoke on various topics at the Sixth International Venous Symposium in Lisbon, Portugal, in April of 2001. Doctor Villavicencio continued to travel extensively; his travel included his attendance at the International Union of Phlebology Meeting in Rome, Italy, on September 11, 2001. He also continues to write prolifically on his clinical research and contributed a chapter, "Non-Invasive Diagnosis of Deep Venous Thrombosis," in the book, Thromboembolism.

Charles Robb, M.D., Professor, USU SOM Department of Surgery - A Memorial. Doctor Charles Robb, 88, Professor of Surgery since 1983, died on July 26, 2001, in Montpelier, Vermont. A memorial service was held at the University on August 7, 2001. Doctor Robb joined the University as its third full-time professor. A long-time consultant and senior advisor in the Department of Surgery, he represented the medical school at national and international conferences. He was named Distinguished Professor of Surgery in 1995. Born in England, Doctor Robb was well-known for editing a highly regarded text on operative surgery and for popularizing a surgical procedure to unclog arteries of the neck called carotid endarterectomy. He first became known in medicine in 1956, when he co-edited the eight-volume book, Operative Surgery, now in its fourth edition and still a standard reference book. One of his patients in the 1950s was Sir Winston Churchill. A past president of the International Society of Cardiovascular Surgery and the North American Chapter of the International Cardiovascular Society, Doctor Robb is survived by his wife, Mary, four children, and eight grandchildren. He will be greatly missed by his USU family.

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The Graduate School of Nursing.

Department of Nurse Practitioners.

The USU GSN Department of Nurse Practitioners (DNP) focused its research and publications on nurse practitioner education and primary care issues. In both the civilian and military health care sectors, there has been a strong movement away from hospitalization toward out-patient treatment and primary care; consequently, over the past year, the DNP faculty members have directed their research and publication efforts to address this trend. Members of the DNP faculty were invited to author articles for both the September and December 2000 issues of Nurse Practitioner Forum. Women's health concerns were the focus of both issues. Articles included research on the exploration of facilitators and barriers to prenatal care among military women; a comparison of the military women assigned in the continental United States (CONUS) with those assigned overseas (OCONUS); needs for prenatal care availability, the use of prenatal care and how it is evaluated among military women; hormone replacement therapy considerations; the evaluation and management of mastalgia; cardiovascular issues in women's health; the assessment of major depressive illness in women; and, the evaluation of urinary complaints by women.

Susanne Gibbons, M.S., CRNP; Lieutenant Colonel Richard Ricciardi, NC, USA; and, Diane Padden, MS, CRNP, Assistant Professors, USU GSN Department of Nurse Practitioners, continued

to enhance the collaboration between their GSN Department and the National Capital Area Simulation Center. Their cutting-edge incorporation of simulated clinical experiences into nurse practitioner education was presented and featured at The American Association of Colleges of Nursing's Annual National Conference in Denver, Colorado; and, their presentation was selected for publication in the Journal of Nursing Education.

Cynthia Grandjean, M.S., CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners, focused her research on the health issues of particular relevance to geriatric patients. This is of particular importance following the institution of TRICARE for Life by the Military Health Care System. More than 50 million people suffer from one of 80 sleep disorders and two-thirds of all Americans complain of sleep deprivation. Sleep disturbances afflict more than 50 percent of adults over the age of 65 who live at home and approximately two-thirds of those who live in institutions. The consequences of sleep disorders can result in poor daytime functioning which translates into an enormous loss of productivity. Individuals suffering from sleep disorders may even develop more serious outcomes such as cardiac dysrhythmias and death. The topic of assessment and management of sleep disorders in geriatrics was recently addressed in an article by Ms. Grandjean and **Susanne Gibbons, M.S., CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners.** They collaborated on the article, "Assessing Ambulatory Geriatric Sleep Complaints." The article, which was published in Nurse Practitioner Forum, Volume 25, Number 9, pages 25-39; featured the assessment of geriatric patients for sleep apnea and periodic limb movement in sleep. In addition, there is now a focus on the importance of spirituality with regard to health promotion. The Army has developed a conceptual model for soldier and family wellness which includes spirituality as a key element. Research indicates that religion and faith can help promote good health and fight disease. This year, Ms. Grandjean was a co-investigator on a research project conducted at The Catholic University of America, investigating spiritual well-being and the quality of life in persons with chronic illnesses. She is currently conducting a research project at the University of Maryland (in conjunction with her doctoral studies) investigating the impact of religious coping on the psychological well-being of older individuals.

Patricia C. McMullen, J.D., CNS, CRNP, Associate Professor and Chair, USU GSN Department of Nurse Practitioners, has directed her research and publication efforts on six major areas for the improvement of women's health care as recommended by a United States Public Health Service Task Force in 1985. Menopausal Management: Women in the United States are living longer than their mothers or grandmothers, as a consequence, many women are confronted with menopausal symptoms and with making decisions over the use of hormonal replacement or complementary medical therapy. This year, Dr. McMullen co-authored an article with **Diane C. Seibert, M.S., CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners,** entitled, "Clinical Challenges in Menopausal Management: A Case Study Approach," for Nurse Practitioner Forum, Volume 11, Number 4, pages 238-243. Telephone Triage in Women's Health: Research indicates that approximately 20-28 percent of all primary health care is handled over the telephone (Studdiford, Panitch, Snyderman & Phass, 1996). Dr. McMullen and others have collaborated on one of the first symptom-based telephone triage protocol books for women's health care providers. The book contains both obstetric and gynecologic topics and a number of faculty in the Department of Nurse Practitioners have served as contributors on this book which will be published by J.B. Lippincott Publishers in 2002. Adolescent Violence: Homicide is the second leading cause of death among 15-24 year-olds in the United States, and the leading cause of death among African-American adolescents. Dr. McMullen is currently the co-investigator on a multi-disciplinary research project at MIEMSS (Shock-Trauma) in Baltimore, Maryland. She is studying the process of conflict in

older adolescents hospitalized as a consequence of violent incidents. Prenatal Care: It is important that health care providers explore ways to encourage women to seek care before, during, and following a pregnancy. This year, Dr. McMullen and **Barbara M. Sylvia, Ph.D., RN, Associate Professor and Chair, USU GSN Department of Nursing Research,** in collaboration with **Eugene Levine, Ph.D., Professor, USU GSN Department of Nursing Research,** and members of the United States Army, Navy, and Air Force, completed a $200,000 TriService Nursing Research Project which evaluated prenatal care needs, availability, accessibility, and the use and satisfaction with prenatal care among military women within and outside of the continental United States. Research results from two portions of this study were published in Military Medicine, Volume 166, Number 5, pages 443-448, and in Nurse Practitioner Forum, Volume 11, Number 3, pages 1-8. Excellence in Nursing Education: Both Dr. McMullen and **Christine Engstrom, MS, CRNP, ACON, Assistant Professor, USU GSN VA/DoD Distance Learning Program,** were selected to serve as On-Site Evaluators for the Commission on Collegiate Nursing Education (CCNE). The CCNE, an independent arm of the American Association of Colleges of Nursing, has been granted authority by the United States Department of Education to certify under-graduate and advanced level nursing programs throughout the United States.

Diane Padden, MSN, CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners, has focused her studies on the critical requirement for regular participation in moderate physical activity for a healthy life-style. Few Americans engage in regular exercise; as primary health care providers, nurse practitioners can take an active role in meeting the Nation's goals as reflected in the Surgeon General of the United States Public Health Services Report, *Healthy People 2010.* A recent article by Ms. Padden entitled, "The Role of the Advanced Practice Nurse in the Promotion of Exercise and Physical Activity Across the Life-Span," was accepted for publication in *Topics in Advanced Practice Nursing* on Medscape, a peer-reviewed electronic journal. Evaluation of Clinical Skills of Advanced Practice Nurses: Standardization of clinical experiences provides academic faculty with an objective approach for the evaluation of essential skills. Ms. Padden co-investigated on a research project entitled, "Comparative Methods for Evaluating APN Student Encounters with Standardized Patients." This project is a collaborative partnership between the National Capital Area Simulation Center and the GSN Department of Nurse Practitioners. A portion of this on-going research has been reported in the article, "Clinical Evaluation in Advanced Practice Education," co-authored by Ms. Padden; **Susanne Gibbons, MS, CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners; Grace Anne Adamo, MEd.; Lieutenant Colonel Marjorie Graziano, MSN, CRNP, USAF, NC, Assistant Professor, USU GSN Department of Nurse Practitioners; Lieutenant Colonel Richard Ricciardi, MSN, CRNP, AN, USA, Assistant Professor, USU GSN Department of Nurse Practitioners; Captain Richard Hawkins, MC, USN, USU SOM Department of Medicine;** and, **Eugene Levine, Ph.D., Professor, USU GSN Department of Nursing Research.** The article was accepted for publication in the Journal of Nursing Education.

Diane Seibert, MS, CRNP, Assistant Professor, USU GSN Department of Nurse Practitioners, employed the use of an engagement model to enhance the physical assessment skills of students enrolled in the VA/DoD Distance Learning Program. Medical outreach programs are increasing the use of multi-media formats to teach the widest possible audience. Ms. Seibert's research involves creating media products which are deliberately designed to capture the audience's attention, enhance the engagement of the audience, and ultimately improve the audience's understanding of complex health topics and generate cost-avoidance for the Uniformed Services. A portion of Ms. Seibert's research can be found

in the publication, "An Analysis of Video Teleconferencing Learning Environments Using an Engagement Model," Artificial Intelligence in Education, J.D. Moore etal. (Eds.), Amsterdam, IOS. During 2001, Ms. Seibert also published "Sexual Health: Counseling in Primary Care," "Management of Common Illnesses in Pregnancy," and, "Making Decisions in Women's Health," all of which were published in Medscape, the electronic journal.

Department of Nurse Anesthesia.

Captain Cynthia Cappello, MS, CRNA, NC, USN, Assistant Professor, USU GSN Department of Nurse Anesthesia, and **Captain Cynthia Feller, CRNA, MPH, NC, USN,** authored the first questionnaire sent to active duty and recently retired or separated nurse anesthetists from all of the TriServices. The purpose of the questionnaire was to identify why nurse anesthetists continue on active duty or retire/separate, as well as to quantify the wages of nurse anesthetists who had recently left the Services. Data analysis is being accomplished by Captain Feller and **Eugene Levine, Ph.D., Professor, USU GSN Department of Research.** Results will be used to assist in the formulation of DoD policy pertaining to nurse anesthetists. In addition, Captain Feller was an invited analyst for the United States Navy reference two critical incidents and the author of the revised specialty codes for the United States Navy Nurse Anesthetists.

Captain Cappello was also awarded the Navy Meritorious Service Medal (second award) in the Spring of 2001, for her efforts in Nurse Anesthesia Education. Captain Cappello published "Informatics in Nurse Anesthesia" in the Professional Practice Manual for the Certified Registered Nurse Anesthetist. This is an official publication of the American Association of Nurse Anesthetists. She received the USU Outstanding Service Medal for her outstanding work in team building and successful accomplishments for the Department of Nurse Anesthesia while serving as the Acting Director for the Department; and, she was also recognized with the Joint Service Achievement Medal for her heroic efforts in evacuating and managing the residents of a local nursing home during a fire (described further in Section III, pages 238-242, of the Journal).

Lieutenant Colonel Paul Austin, CRNA, Ph.D., Assistant Professor and Chair, USU GSN Department of Nurse Anesthesia, published three articles and presented three posters during 2001. The articles were: "Transport Ventilators in 2001," published in Respiratory Care Clinics of North America; "Imposed Work of Breathing During Ventilator Failure," published in Respiratory Care; and, "Surface Temperature of Two Portable Ventilators During Simulated Use Under Clinical Conditions," published in Military Medicine. His poster presentations were: "Imposed Inspiratory Work of Breathing and Breathing Comfort of Non-Intubated Volunteers During Spontaneous Breathing with Three Portable Ventilators and a Critical Care Ventilator," at the 68th Annual Meeting of the American Association of Nurse Anesthetists; and, "Assessment of the Battery Life of Portable Ventilators," and "A Laboratory Evaluation of an Ultra-Thin Wall Neonatal Endotracheal Tube," were both presented at the 47th International Respiratory Congress in San Antonio, Texas. He was also the invited guest editor for an issue of Respiratory Care Clinics of North America scheduled for publication in the Spring of 2002. Lieutenant Colonel Austin graduated from the Air War College, the senior service school of the United States Air Force.

Major Lisa Petty, CRNA, AN, USN, Assistant Professor, USU GSN Department of Nurse Anesthesia, was named as an invited reviewer of the United States Army's Long Term Health Education and Training Guidelines. Major Petty was also recognized with the Joint Service Achievement Medal for her heroic efforts in evacuating and managing the residents of a local nursing home during a fire (see Section III, pages 238-242, of the Journal for further details).

Mr. John Connelly, CRNA, Training Administrator, USU GSN Department of Nurse Anesthesia, established a secondary simulator training unit with the National Capital Area Simulation Center to provide enhanced simulator training which is recognized as military unique curriculum. He was also instrumental in the donation by Drager of a Narkomed M Field Anesthesia Machine to the National Capital Area Simulation Center. This machine is key to presenting a realistic military anesthetic experience. Mr. Connelly also assisted with the integration of a nurse anesthesia component in the GSN Health Assessment Course, resulting in positive comments from the National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE) reviewers during 2001. Mr. Connelly is a member of the Maryland Board of Nursing CRNA Advisory and Peer Review Committee; and, he represented the GSN as the Anesthesia Consultant for the Third World Medical Mission to the Philippines.

Lieutenant Commander Amanda Sierra, CRNA, NC, USN, Nurse Anesthesia Clinical Site Director, National Naval Medical Center, GSN Clinical Site, was recently deployed to the *USS Theodore Roosevelt* as part of a continuing education team, teaching both Basic and Advanced Cardiac Life Support. Lieutenant Commander Sierra attended the United States Navy Management Development Course and is a guest lecturer and leader of a learning session using the anesthesia simulator at Georgetown University.

Captain John Craig, CRNA, MSN, USAF, NC, Associate Clinical Site Director, Wright-Patterson Air Force Base, Ohio, GSN Clinical Site, was named the Company Grade Officer of the Year for the United States Air Force Element, located at Bolling Air Force Base, Washington, D.C.

Department of Nursing Research.

(Included in Section III, pages 238-242 of the Journal)

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Armed Forces Radiobiology Research Institute

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