

NAVAL HEALTH RESEARCH CENTER

1998 COMMAND HISTORY
FOR
NAVAL HEALTH RESEARCH CENTER
SAN DIEGO, CALIFORNIA

MARCH 1999

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***1998 Command History
for
Naval Health Research Center
San Diego, California***



March 1999

A handwritten signature in black ink, appearing to read "L H Frank".

**Lawrence H. Frank
Captain, MSC, USN
Commanding Officer**

1998 Command History-NHRC

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A. OPNAV NOTICE 5450 Ser 09B22/8U509407 dtd 7 Jan 98; Subj: Disestablishment of Naval Medical Research and Development Command (NAVMEDRSCHDEVCOM), Bethesda, MD and Change in Delegation of Authority for NAVMEDRSCHDEVCOM Subordinate Activities and Detachments	
B. Thank you letter from RADM J. M. Engel, NC, USN dtd 22 May 98	
C. Thank you letter from Anna Johnson-Winegar, Ph.D., dtd 3 Nov 98	
D. Dr. Sue Bailey, The Assistance Secretary of Defense (Health Affairs) ltr dtd 17 Nov 98, re designating NHRC as DoD's Center for Surveillance of Birth Defects	
E. NHRC Updates: January, No. 8; April, No. 9; and July, No. 10	

**1998 Command History
for
Naval Health Research Center, San Diego, California**
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## **1. BASIC HISTORICAL NARRATIVE**

### **Historical**

June 1959. The Naval Health Research Center, one of eight laboratories supported by the Naval Medical Command (previously the Bureau of Medicine and Surgery), and administered through the Naval Medical Research and Development Command, was established effective 1 June 1959 (SECNAVNOTICE 5450 Op-09B23 Serial 360P09B2 dated 8 May 59). Originally designated the U.S. Navy Medical Neuropsychiatric Research Unit, its assigned mission was "To conduct research in the area of neuropsychiatry as it applies to the naval service." (BUMEDINST 5450.64B)

September 1974. In recognition of the broader research programs which developed over the years, effective 1 September 1974, by authority of the Chief of Naval Operations, the activity was redesignated as the Naval Health Research Center (OPNAVNOTE 5450 Ser 09B33/4248 dated 5 Aug 74). The revised mission statement read: "To conduct research and development on the medical and psychological aspects of health and performance of naval service personnel; and to perform such other functions or tasks as may be directed by the Chief, Bureau of Medicine and Surgery." The Center for Prisoner of War Studies (CPWS), established in 1973, was disestablished in 1978. The Center's infectious disease program was terminated in 1983 due to transfer of this responsibility to the Army.

**a. Command's Mission:** To support fleet operational readiness through research, development, test, and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance, and to perform such other functions or tasks as may be directed by higher authority.

**b. Description of Command's Organization:**

**1 January - 12 June 1998:**

|                        |            |                             |
|------------------------|------------|-----------------------------|
| Commanding Officer     | (Code 00): | Larry M. Dean, CAPT MSC USN |
| Executive Officer      | (Code 01): | John T. Coyne, CAPT MSC USN |
| Scientific Director    | (Code 02): | D. Stephen Nice, Ph.D.      |
| Administrative Officer | (Code 03): | Eddie A. Lee, CDR MSC USN   |
| Command Chief          | (00A) :    | HMC Eduardo Ortiz, USN      |

**12 June - 31 December 1998:**

|                        |            |                                  |
|------------------------|------------|----------------------------------|
| Commanding Officer     | (Code 00): | Lawrence H. Frank CAPT MSC USN   |
| Executive Officer      | (Code 01): | James T. Luz, CDR MSC USN        |
| Scientific Director    | (Code 02): | D. Stephen Nice, Ph.D.           |
| Administrative Officer | (Code 03): | Luisito J. Arevalo, LCDR MSC USN |
| Command Chief          | (00A) :    | HMC Eduardo Ortiz, USN           |

**b. Description of Command's Organization (cont).**

Scientific Departments:

- \* Code 21, Human Performance

Head: William Keith Prusaczyk, PhD

- \* Code 22, Medical Information Systems & Operations Research

Head: William M. Pugh

- \* Code 23, Health Sciences and Epidemiology

Head: Frank Garland, PhD

**1 October – 31 December 1998:** Under the new organizational structure the following two Echelon 4 laboratories and two detachments report to NHRC:

- Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, FL
- Commanding Officer, Naval Submarine Medical Research Laboratory, Groton, CT
- Officer in Charge, NHRC Detachment, Brooks Air Force Base, Brooks AFB, TX
- Officer in Charge, NHRC Detachment (Toxicology), Wright-Patterson Air Force Base, OH

**Immediate Superior in Command:**

Assistant Chief, Operational Medicine and Fleet Support (MED-02), Bureau of Medicine and Surgery, Washington, DC

**c. Description of 1998 Mission Accomplishments**

**(1) Human Performance Department.**

See **Attachment A** for Department review.

**(2) Medical Information Systems & Operations Research Department.**

See **Attachment B** for Department review.

**(3) Health Sciences & Epidemiology Department**

See **Attachment C** for Department review.

## **Attachment A**

### **c. Description of 1998 Mission Accomplishments**

#### **(1) Human Performance Department (Code 21)**

**W. Keith Prusaczyk, Head**

### **c. Description of 1998 Mission Accomplishments**

#### **(1) Human Performance Department (Code 21)**

Keith Prusaczyk, Head

**(a) Department Mission:** This department conducts research related to the measurement restoration, enhancement, and modeling of human performance in military operational environments. Emphasis is on the measurement and understanding of the processes that lead to physical and mental performance degradation, development of countermeasures to maintain or enhance performance and the development of standards which allow safe and effective performance of Navy and Marine Corps personnel. Functions with four divisions

1. Performance Modeling and Standards Division (211). Conducts research to develop mathematical models of the relationships between human physical and mental abilities and performance in Navy and Marine Corps tasks. Models incorporate effects of exposure to factors such as thermal extremes, sleep loss, and related aspects of military operations and training. Products include computer models constructed to permit decision makers to evaluate the potential effects of tactical choices on performance effectiveness. Performance predictions from the models are applied to evaluate and demonstrate the potential impact of alternative selection standards on unit readiness and performance.

2. Cognitive Performance Division (212). Performs research on factors which impact performance of Navy and Marine Corps personnel, and the development of interventions to maintain or enhance that performance. Emphasis is on effects of biological rhythms, sleep, sleep deprivation, and fatigue on performance, the development of methods for evaluating the alertness of personnel engaged in operational tasks, and development of appropriate work/rest cycles and shift-work guidelines to optimize health and safety of Navy and Marine Corps personnel.

3. Applied Physiology Division (213). Directs research in the areas of occupational and environmental physiology. Focus is on quantification of performance, understanding of the processes which effect the physiology of performance, and the development of countermeasures to maintain or enhance performance in military environments.

4. Special Operations Division (214). Conducts applied research as it relates to enhanced performance of Special Operations Forces (SOF). Develops medical standards for SOF personnel and conducts research in stress physiology related to mission performance.

See page A-3, paragraph "(d) Changes in departmental functions."

#### **(b) Research program descriptions (Work Units)**

##### New:

DN234881 Acculaser Reimb SCRADA)-6817

Application of Low Power Laser in Patients with Soft Tissue Injuries of the Musculoskeletal System Causing Cervical Pain (Loomis)

Start: 3-3-98

DN245883 NAVSEA Reimbursable- 6819

Wet Bulb Global Temperature (Heaney)

Start: 4-9-98

**(b) Research program descriptions cont.**

DN245885 NAVSEA Reimbursable- 6820  
Development of Gender-neutral Physiological Heat Exposure Limits (PHEL Curves) with and without use of an Ice Vest (Heaney) Start: 7-15-98

DN234887 63706N M0096- 6903  
New Strategies for Reducing Oxidative Stress Associated with Marine Corps Operations in Harsh Environments (Ahlers) Start: 11-3-98

Continuations

DN249525 (62233N MM33P30.002) 63706N M0096.002- 6801  
Environmental and Mission Stressors during Navy and Marine Corps Special Operations (Ahlers) Start: 10-1-97

DN249524 62233N MM33P30.002- 6807  
Countermeasures to Physical Performance Decrements during Navy and Marine Corps Special Operations (Goforth) Start: 1 Oct 97

DN249526 63706N M0096.002- 6811  
Heat Strain Monitoring and Energy Cost of Damage Control Operations (Ahlers) Start: 10-1-97

DN249528 63706N M0096.004- 6813  
Neck and Back Strain in Airborne Early Warning Aviators (Loomis) Start: 10-1-97

DN240624 63706N M0096.002- 6716  
Occupational Fitness for Sustained Operations (Vickers) Start: 10-1-97

DN241232 62233N MM33P30.002- 6603  
Cold Induced Perturbations in Peripheral Blood Flow: Implications for Performance and Injury Risk (Ahlers) Start: 10-1-95

DN244583 BUPERS Reimb- 6430  
Studies of Body Composition in U.S. Navy Personnel (Kujawa) Start: 10-1-93

Terminations/Completions:

DN241232 62233N MM33P30.002- 6603  
Cold Induced Perturbations in Peripheral Blood Flow: Implications for Performance and Injury Risk (Ahlers) Start: 10-1-95 Term: 9-30-98

DN249526 63706N M0096.002- 6811  
Heat Strain Monitoring and Energy Cost of Damage Control Operations (Ahlers) Start: 10-1-97 Term: 9-30-98

DN244582 60407(4)N 407BB.001- 6419  
Glare Disability after Photorefractive Keratectomy (Schallhorn/ Goforth)  
[NHRC has Rifle Study only] Start: 10-1-93 Comp: 9-30-98  
Work unit transferred to Naval Medical Center, San Diego

**(c) Significant accomplishments for January-December 1998**

(Jan-Jul) NHRC Code 21 (Mr. J. Heaney) developed an Automated Heat Stress Monitoring System (AHSMS) to automate the process of monitoring the thermal environment in high heat and humidity areas throughout the ship (i.e., engineering, laundry, galley, and scullery workspaces). The on-line system displays temperature readings, stores the data in an accessible format for inspection by future review boards, and prints the heat stress log form on command. The AHSMS is available as a SMART SHIP version interfaces with the ICAS computer system and a version that can be operated with a desktop PC. The AHSMS will reduce the number of man-hours required to manually perform the various heat stress surveys and hanging dry bulb temperature readings by 2,400 hrs to 3,700 hrs (DDG class vs Carrier) per ship per year. The AHSMS is currently operational and in a collaborative effort with NAVSEA, this system is being evaluated on USS Rushmore and USS Mahan (ICAS version), and USS Bataan (PC version).

(Jul-Aug) In response to a request for assistance in combating severe heat stress conditions, Code 21 conducted a heat stress evaluation aboard USS Abraham Lincoln while deploying to the Persian Gulf. A collaborative research team from NHRC (Mr. J. Heaney), NAVSEA and COMNAVAIRPAC evaluated the use of an ice vest to reduce thermal strain using 42 flight deck and hangar deck personnel. This was the first time heat stress data was collected on personnel during actual flight operations. Results from this evaluation were instrumental in COMNAVAIRPAC purchasing 350 ice vests and 1,400 ice packs for future deployments in the Persian Gulf.

(Nov-Dec) Dr. J. A. Hodgdon and LCDR K. I. Kujawa developed of tables for inclusion in the DoD Instruction on physical fitness and body fat.

(Dec) Dr. J. A. Hodgdon and LCDR K. I. Kujawa developed the final form of DoD body composition prediction equations.

**(d) Changes in departmental mission, functions, and resources.**

In 1998, the Human Performance Department was reorganized, changing from a division structure to a thrust area structure. Work within the department is now focused on three major thrust areas: Occupational Demands, Physical Readiness, and Environmental Effects.

The Occupational Demands thrust encompasses determination of Navy and Marine Corps task physical demands. Physical demands are evaluated in terms of requirements for successful completion and the relationship to occupational injuries.

The Physical Readiness research thrust focuses on methods for maintaining physical fitness, enhancing physical performance during military operations, and developing countermeasures to performance degradation under stressful conditions. This thrust also develops fitness standards and programs for meeting those standards.

Environmental Effects research examines the effect of environmental stressors (e.g., thermal, altitude, immersion, g-force) on alterations in occupational demands and the physiology of the warfighter. Countermeasures to performance degradation in extreme environments are developed, tested, and implemented.

**(e) Major accomplishments**

- (Jan-Apr) LCDR K. I. Kujawa provided a technical review of body composition assessment methodology to be incorporated into the new Air Force physical readiness instruction. Provided visual aids package of proper circumference measurement technique.
- (Apr) Mr. J. Heaney was selected to serve as a US representative on The Technical Cooperation Panel for thermal physiology.
- (May) Mr. Jay Heaney has been appointed as a Navy member of the HUM-TP6 (Physiological and Psychological Aspects of Using Protective Clothing and Personal Equipment) of HUM Group U (Human Resources and Performance) of The Technical Cooperation Program (TTCP).
- (Jun-Dec) Dr. W. Y. Ensign presented, by invitation, 4 GMTs on the use of dietary supplements and ergogenic aids to the naval community (3 at AWS, and 1 for SEAL Teams One, Three, and Five).
- (Jul) Dr. W. K. Prusaczyk was an invited participant at Institute of Medicine meeting on Establishing Recommended Daily Minimum Requirements for Antioxidants.
- (Jul) Dr. W. K. Prusaczyk was an invited participant (only Navy representative) at Institute of Medicine workshop on Antioxidants and the Effects of Oxidative Stress in Military Personnel.
- (Aug) Dr. J. A. Hodgdon participated in a U.S. Air Force Review and Analysis of firefighter fitness/wellness programs. The U.S. Air Force is the agency responsible for the DoD firefighters and has asked Dr. Hodgdon to participate in a review of current DoD firefighter physical training and testing programs.
- (Aug) Drs. Don Roberts and W.Keith Prusaczyk met with representatives from the University of Utah and Natural Alternatives, Inc., a San Diego area company, to discuss collaborative research on strategies for reducing oxidative stress in military personnel.
- (Sep) Established a research link to do collaborative work with investigators at the Scripps Research Institute and the San Diego VA Medical center studying the effects of overuse skeletal injury and the mitogen-activated protein kinases.
- (Oct) CDR S. T. Ahlers performed analysis of combat swimmer performance for SEAL Team One during pre-deployment work-ups working with SEAL Team One, developed methods for computerizing dive mission planning.
- (Oct) Dr. Prusaczyk accompanied LTC Karl Friedl of USAMRMC, Ft Detrick, to a USSOCOM Biomedical Initiatives Steering Committee (BISC) meeting held 6-8 Oct at the Naval Special War Command, Coronado. LTC Friedl is the RAM for Army MOM and the briefing at the BISC was on that topic.
- (Nov) Dr. W. K. Prusaczyk was an invited participant in the Vanguard 98 Wargames.
- (Nov) CDR S. T. Ahlers co-wrote a \$4.7 million dollar multi-year grant application with Dr. Floyd Bloom, current editor of the journal, Science, and Dr. George Koob from Scripps Research Institute on the neurotoxic effects of exposure to stress. The grant has been approved for funding.

**(e) Major accomplishments (cont.)**

- (Nov) Dr. W. K. Prusaczyk was an invited speaker giving a presentation on "Operational Readiness" at the Association of Military Surgeons of the U. S. annual convention.
- (Nov) At the invitation of Naval Special Warfare Group-One, Dr. W. Y. Ensign conducted a training course on Nutrition, Dietary Supplement and Ergogenic Aids for Navy SEAL corpsman.
- (Dec) Dr. H. W. Goforth, Jr., received the 1998 Scientific Achievement Award, U.S. Navy Representative to The Technical Cooperation Program, Technical Panel HUM- G8, "Physical Performance Enhancement for Special Operations."
- (Dec) LTJG T. A. Loomis gave an invited presentation on neck and back pain in E-2C Hawkeye aircrew at 41<sup>st</sup> Meeting of the Department of Defense Human Factors Engineering Tactical Advisory Group (DoD HFE TAG)
- (Dec) CDR S. T. Ahlers and Dr. W. K. Prusaczyk developed an Army and Navy jointly-funded research involving collaborative effort between Naval Medical Research Center and NHRC. The research evaluates the efficacy of the amino acid tyrosine to protect sailors and Marine Corps personnel from cognitive impairment resulting from exposure to extreme stress.

**(f) Impact on Navy and Marine Corps mission.**

- (Jul) Body composition testing was conducted at the Human Performance Laboratory to evaluate the Marine Corps body fat equation. The equations developed from this work will be used to establish DoD-wide standards and methods for body composition assessment.
- (Jul) CDR Steve Ahlers worked with SEAL Team One using Global Positioning System (GPS) technology to assess the performance during combat swimmer training. The SEAL Teams are evaluating using GPS technology and computerized harbor mapping to perform all mission planning.
- (Aug) Mr. Jay Heaney went aboard the USS ABRAHAM LINCOLN (CVN 72) during its deployment to the Persian Gulf. The Battlegroup Commander was concerned about heat stress for flight deck crew. Mr. Heaney conducted heat stress thermoregulation studies with the crew and suggested use of a commercially available ice vest for reducing thermal stress among the crew. The study is designed to apply COTS technology to the problem of extreme heat stress.
- (Dec) CAPT J. Judkins, Head of Future Plans Biosciences Division, Commandant's Marine Corps Warfighting Laboratory, Quantico, VA, met with NHRC Dr. Prusaczyk to develop research strategies for meeting the physical demands encountered by Marines during Military Operations in Urban Terrain (MOUT). The required research is part of the overall Urban Warrior program, and will be integrated into the current Advanced Warfighting Experiment (AWE) conducted by the Warfighting Lab.
- (Dec) Dr. W. K. Prusaczyk and Naval Special Warfare Center medical department are jointly developing a protocol to determine return to training status for Basic Underwater

**(f) Impact on Navy and Marine Corps mission (cont).**

Demolition/SEAL (BUD/S) students that were heat casualties. NHRC has become the site for testing heat casualties for BUD/S students. The meetings included discussions on techniques for immediate treatment of heat casualties at all special operations forces training sites.

**(g) Technology transfer items of Interest.**

- (Jul) Code 21 received a request for guidance on exposure to heat stress from Mr. Rodney Palesano from the Western Farmers Electric Cooperative. They were concerned with the heat stress for personnel exposed to high temperature and humidity. Code 21 provided guidance on current Navy policy on using the wet-bulb globe temperature (WBGT) heat stress index and the use of Physiological Heat Exposure Limit (PHEL) curves to determine exposure limits. They also were provided information on the use of ice vest technology to increase stay times in hot environments.
- (Jul-Dec) The Automated Heat Stress Monitoring System was installed on USS Decatur and USS McFaul (ICAS version), and USS Bonhomme Richard (PC version). Upon completion of the evaluation period, official use of the AHSMS in lieu of using a manual heat stress meter will be submitted to BUMED and CNO for approval.
- (Aug) Dr. Jim Hodgdon met with Dr. Shumei Guo and Dr. W. Cameron Chumlea of Wright State University, LtCol Karl Friedl of U.S. Army Medical Research Center, Major Neal Baumgartner of USAFSAM, and Mr. Frank Spencer of OSD(P&R). Dr. Guo presented an outside, independent evaluation of the U.S. Army body composition data, using NHRC data to do a cross-validation of their findings from the Army data. A final body composition, equation, for DoD was selected.

**(h) Department Reports for 1998 include:**

(See 'Section 3. Supporting Documents' for list of 1998 Reports with abstracts)

(Report number, authors, year, title, publication information, AD#)

- 98-2 Canine, MK (1982). Environmental Heat Transfer to a Microclimate Cooling System during Heat Exposure (Center Publication, A349-469)
- 98-20 Williams, D; J Streeter, & T Kelly. Fatigue in Naval Tactical Aviators
- 98-25 Pfeiffer, JM; EW Askew, JE Benson, SC Johnson, DE Roberts, SM Wood, & Freedman, MS. Effect of antioxidant Supplementation on Urine and Blood Markers of Oxidative Stress during Extended Moderate Altitude Training
- 98-27 Babkoff, H; TL Kelly, & P Naitoh. Trial-to-Trial Variance in Choice Reaction time during Sleep Deprivation: Effect of Pemoline and Methylphenidate
- 98-31 Hodgdon, JA; MB Beckett, T Sopchick, WK Prusaczyk, & HW Goforth Jr Physical Fitness Requirements for Explosive Ordnance Disposal Divers
- 98-32 Vickers Jr., RR & L Hervig. Occupational Physical Demands and Hospitalization Rates in U.S. Navy Personnel
- 98-33 Vickers Jr., RR & JA Martin. Organizational Influences on Gender Differences in Stress and Strain aboard U.S. Navy Ships

**(h) Department reports (cont).**

- 98-34 Kujawa, K & J Hodgdon. Comparison of Circumference- and Skin-fold based Body Fat Estimation Equations
- 98-35 Prusaczyk, WK; JW Stuster, HW Goforth, MB Beckett, & JA Hodgdon. Survey of Physically Demanding Tasks of U.S. Navy Explosive Ordnance Disposal (EOD) Personnel
- 98-36 Chao, W-H, W Askew, DE Roberts, SM Wood, & JP Perkins. Indices of Oxidative Stress during Strenuous Cold Weather Work at moderate Altitude
- 98-37 Hodgdon, JA & MB Beckett. Body Composition and Physical Performance: Estimation of Lifting and Carrying from Fat-free Mass

Tech Doc 98-3C FOR OFFICIAL USE ONLY. Prusaczyk, WK & Goldberg, GM. An Overview of United States Special Operations Forces (No publication)

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## **Attachment B**

### **c. Description of 1998 Mission Accomplishments**

#### **(2) Medical Information Systems and Operations Research Department (Code 22)**

**William Pugh, Head**

**c. Description of 1998 Mission Accomplishments**

**(2) Medical Information Systems and Operations Research Department  
(Code 22)**

William Pugh, Head

**(a) Department Mission.** This department plans and conducts research programs designed to study the processing of medical information, develop improve methods of medical information management, and project the effects of illness trends on combat forces.

1. Medical Information Systems Division (221). Initiates research to develop improved medical information processing for medical providers and planners. The systems are designed to improve record keeping capabilities, facilitate the continuity of patient care, provide efficient access to medical reference information, support diagnostic and treatment discussions, and allow information on illness trends to be accessed and monitored.

2. Operations Research Division (222). Formulates research to project the effects of epidemiologic trends. Models are developed, simulations are conducted, and statistical forecasting techniques are used to project the effects of illness and injury. Results are used to develop improved strategies for the allocation of medical resources.

**(b) Research program descriptions (Work Units)**

New

DN234878 Army Reimbursable(Grant)-6814

A Comparison of Post-deployment Hospitalization Incidence between Vietnam and Gulf War Veterans (Blood) Start: 2-2-98

DN234885 64771N M2443.001-6901

Development of Combat Casualty Monitoring and Stabilization Technologies (Blood) Start: 10-1-98

DN234886 63706N M0005.005-6902

Projecting needed Medical Resources to Support Operational Maneuver from the Sea (OMFTS) [Blood] Start: 10-1-98

DN234888 61153N MR4113-6904

Psychological Screening Tools for Reduced Attrition (Larson) Start: 11-3-98

Continuations:

DN242642 PERS Reimbursable- 6309

Survey of Navy Recruits' Behavior (Merrill)

Study A: Survey of Recruits

Start: 4-15-93

Study B: Longitudinal Tracking

Start: 10-1-95

DN244632 63706N M0096.004-6509 (original assigned number was 6428)

Development of an Expert System for Shipboard Industrial Hygiene Survey Planning Hermansen) Start: 6-1-94

DN240618 63706N M2332.001-6710

Assessment of Mobile Medical Monitoring in Naval Environments (Konoske)

Start: 5-19-97

**(b) Research program descriptions cont.**

|                                                                                                                       |                 |
|-----------------------------------------------------------------------------------------------------------------------|-----------------|
| DN240612 [62233N MM33P30.002-] 63706N M0095.005-6714<br>Fatigue/Sleep Monitoring, Assessment, and Prevention (Makeig) | Start: 6-1-97   |
| DN240610 63706N M0095.005-6805<br>Augmentation of Field Medical Surveillance System (White)                           | Start: 10-1-97  |
| DN240613 63706N M0095.005-6808<br>Development Real-time Resupply Model (Konoske)                                      | Start: 1 Oct 97 |
| DN240614 63706N M0095.005-6809<br>Determining Medical Supply Requirements for Navy Ships (Konoske)                    | Start: 1 Oct 97 |
| DN240615 1160407BB.001-6810<br>Special Operations Interactive Medical Training Program Upgrade (Hermansen)            | Start: 1 Oct 97 |
| DN249527 63706N M0096.001-6812<br>Measuring the Effectiveness of Telemedicine (Larson)                                | Start: 1 Oct 97 |
| DN234880 61152N M0004.001-6815<br>Objective Correlates of Work Overload and Loss of Situational Awareness (Makeig)    | Start: 1 Oct 97 |

Completions/Terminations:

|                                                                                                                                                                           |                |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| DN241208 63706N M0096.001-6601<br>Modeling and Simulation of Telemedicine Applications to Fleet Operational Medical<br>Treatment Facilities (Konoske)                     | Start: 10-1-95 | Term: 9-30-98 |
| DN240552 63706N M0095.005-6704<br>Development of Planning Factors to Forecast Medical Support Requirements (Blood)                                                        | Start: 10-1-96 | Comp: 9-30-98 |
| DN240623 NRaD Reimbursable-6715<br>Workload Assessment Tools: Subtask 9 of the Multimodal Watchstation Thrust of the<br>SC21 Manning Affordability Initiative (Van Orden) | Start: 6-1-97  | Term: 9-30-98 |
| DN240609 63706N M0095.005-6804<br>An Analysis of Navy and Marine Corps Medical Research Requirements (Van Orden)                                                          | Start: 10-1-97 | Term: 9-30-98 |

**(c) Significant accomplishments (Jan-Dec 98)**

Chris Blood, Served as Chairperson of Battlefield Performance, Casualty Sustainment, and Medical Planning Working Group at the 66<sup>th</sup> Military Operations Research Society Symposium held at the Naval Postgraduate School, Monterey, CA, 23-25 June, 1998.

Jim Zouris, Completed programming enhancements to FORECAS ground casualty forecasting system to include projections of specific types of injuries and illnesses sustained.

Jennifer Jaeger, Karen Freeman and Dr. Paula Konoske. M3 Website design, development and implementation. <http://www.nhrc.navy.mil/m3/index.html>.

**(c) Significant accomplishments (cont.)**

- Gerald Pang, Developed a relational database for medical supply estimation for Navy and Marine Corps. Designed and developed a computer model to project medical supplies for a variety of operational scenarios.
- Mike Galarneau and Dr. Konoske completed work on three more Marine Corps Authorized Medical Allowance Lists (AMALs): Operating Room, SST, and Ward. In general, when compared to the current Operating Room AMALs, a 40% reduction in the number of items, weight and space was realized while maintaining the current the medical capability.
- Dr. Konoske & R. Dobbins, designed and developed a computer program for generating Marine Corps medical resupply requirements
- Dr. Konoske, For the M3 portable medical work station, a State-Of-the-Art Review (SOAR) was completed to identify COTS and FDA approved devices and candidate technologies compatible with the M3 unit. User feedback, identified FMF requirements, and SOAR data were used to define a prototype unit that could be configured, evaluated, and then delivered to the Marine Corps within the life of the current project.
- Dr. Konoske, The M3(B) system was designed and system integration begun. It features an integrated medical software package which allows a single patient to be monitored on a lightweight portable computer.
- Dr. Jerry Larson developed the Joint-Medical Operations-Telemedicine Advanced Concepts Technology Demonstration (JMO-T ACTD) Analysis Plan.
- Dr. Jerry Larson developed the JMO-T ACTD Demonstration Plan for Kernel Blitz '99.
- Dr. Jerry Larson compiled the Trade Study Report for teleconsultation technologies.
- William Pugh & Dr. Jerry Larson, Supporting documentation for JMO-T ACTD Exercise Participation: Data collection database, Patient Scenarios, Risk Assessment, Operational Architecture, Measures of Performance (MOP) guide, Rational paper, Critical Operational Issues (COI)/Measures of Effectiveness (MOE)/MOP Matrices
- Jennifer Jaeger completed the user's manual for The Field Medical Surveillance System (FMSS)
- Martin White developed and tested the ability to track individual data sets based on combat units in which all data is input via FMSS.
- Eleanor Gauker completed an on-line Catalog of Department of Defense Medical Models and Simulations, Version 2, Naval Health Research Center Document 96-7G
- William Pugh participated in a Medical Workshop to review the design of medical spaces on the LPD-17
- William Pugh participated in a Flag and General Officer Review of the Joint Medical Operations-Telemedicine ACTD.

**(c) Significant accomplishments (cont.)**

William Pugh briefed ADM Gaffney on the JMO-T ACTD.

William Pugh participated in telemedicine meetings with representatives from BUMED, N91, N931, and NMIMC. Briefed the M3 program to Dr. Johnson-Winegar, CDR Forcino, COL Vandre (Army R&D) and other ONR-341 personnel.

Dr. Scott Makeig successfully replicated previous finding of excellent real-time EEG-based performance estimation in an analysis of data from an National Highway Transportation Safety Administration (NHTSA) sleep deprivation study in which subjects performed successive bouts of a novel compensatory tracking task across 40 hours of sleep deprivation.

Dr. Scott Makeig obtained significant new results in the use of Independent Components Analysis (ICA) to analyse both EEG and fMRI data. ICA has been shown to give significant new information about sub-components of event-related brain potentials (ERPs) closely linked to perception, attention, decision-making and motor performance. New methods of EEG artifact suppression and single-trial analysis have been developed. Applied to fMRI data, ICA has proven more sensitive in detecting brain regions activated task performance than previous correlation-based methods. In addition, ICA appears able to identify the exact time course as well as the extent of performance-related brain activations, allowing analysis of shifts in brain activation during learning, stress, and loss of situational awareness.

**(d) Changes in departmental mission, functions, and resources.**

On 1 Oct, LCDR Karl Van Orden, MSC, USN, transferred to SPAWAR Systems Center, San Diego.

**(e) Major accomplishments**

Larry Hermansen, The Special Operations Interactive Medical Training Program, 5<sup>th</sup> Edition (SOIMTPV5) was completed. This is an interactive medical training program developed for medical personnel attached to Special Operations Forces of the Army, Navy, and Air Force. This latest version is the first edition to run in a Windows environment. It contains training modules in 22 different subject areas and is distributed on CD-ROM.

Larry Hermansen, The Naval Shipboard Survey Planning System (NSSPS) was completed. This is an expert system to be used by Navy industrial hygienists for planning and conducting shipboard industrial hygiene surveys. It automatically provides access to information about specific compliance requirements (OPNAVINST 5100.19C). It also provides "expert knowledge" of US Navy industrial hygiene professionals, allows for data entry during the IH survey, and automatically generates summary reports.

Martin White and Jennifer Jaeger, Completed Version 1.0 of Field Medical Surveillance System (FMSS), which is an easy to use Windows-based program that will enable Military Environmental Health Officers and Preventive Medical Officers the ability to record and analyze disease and injuries that may occur during foreign deployments or conflicts.

**(f) Impact on Navy and Marine Corps mission.**

- \* Research to optimize the mix of medical supplies used by the Marine Corps has resulted in a continuing stream of products designed to improve the clinical capability of forward units while reducing the logistical burden of weight and cube. The Naval Health Research Center (NHRC) developed a model of clinical events which establishes a clinical requirement for supply and equipment items carried by deployed units. Because each clinical requirement is associated with a particular medical task and patient injury or disease known to occur in theater, the NHRC medical supply model can be used to project the optimal mix of supplies for user defined scenarios. This approach has been used to configure the AMALs used by the Fleet Marine Force. When the Battalion Aid Station (BAS), lab, x-ray, operating room, triage and acute care ward AMALs were produced, results showed substantial reductions (approximately 30%) in the number of items required, weight and cube of the proposed AMALs when compared to the current Marine Corps AMALs. The NHRC model recently has been used to optimize the mix of supplies needed to support the preventive medicine function for surgical companies. These results demonstrate that significant reduction in weight and cube could be achieved without compromising the quality of care. Because, medical supply technology was upgraded as part of the process and new capability added, it was possible to also increase the clinical capability of the blocks. This work supports the Marine Corps' doctrine, Operational Maneuver From the Sea, by reducing the medical footprint ashore. The Marine Corps Combat Development Center has endorsed NHRC's review process and the study's recommendations are being implemented by the Marines. Additional efforts are underway to examine the AMAL/ADALs of shipboard medical departments.
- \* Use of NHRC casualty projection tools permits estimates to be derived as to medical resources needed to support a military operation. This ensures that not only sufficient resources will be available, but also that the logistics burden of transporting unneeded supplies is minimized.

**(g) Technology transfer items of Interest.**

- \* NHRC casualty projection algorithms are being incorporated into the Synthetic Theatre of War (STOW) model under development at SPAWAR. Further, the Joint Simulation System (JSIMS) - Maritime Division is seeking to incorporate NHRC personnel casualty algorithms into an effort to model the effects of manpower losses on shipboard mission accomplishment.

**(h) Code 22 Reports for 1998 include:**

(See 'Section 3. Supporting Documents' for List of 1998 Reports with Abstracts)

(Report No., Authors, Year, Title, Publication information, AD#)

- 98-1 Galarneau, MR; PJ Kooske, KE Emens-Hesslink, & G Pang (1998). Reducing the Logistical Footprint of Forward Resuscitative Surgical Units using a patient-driven Model of Clinical Events. (Center Publication, A339-516)
- 98-4 Van Order, KF; T-P Jung, & S Makeig. Eye Activity Correlates of Fatigue during a Visual Tracking Task

**(h) Code 22 Reports for 1998 include (cont.):**

- 98-8 Walker, GJ & CG Blood (1998). The Patient Flow of Wounded Marines Within a Multi-echelon System of Care. (Center Publication, 349-237)
- 98-9 Jung, T-P; C Humphries, T-W Lee, MJ McKeown, V Iragui, S Makeig, & TJ Sejnowski. Removing Electroencephalographic Artifacts by Blind Separation
- 98-10 Makeig, S; M Westerfield, T-P Jung, J Covington, J Townsend, TJ Sejnowski, & E Courchesne. Independent Components of the Late Positive Event-related Potential in a Visual Spatial Attention Task
- 98-11 Walker, GJ & CG Blood (1998). The Patient Flow of Marine Disease and Non-battle Injury Conditions within a Multi-echelon System of Care (Center Publication, A352-066)
- 98-13 Larson, GE; RG Burr, DM Pearsall, & J Silva (1998). An Evaluation of the Clinical Effectiveness of Telemedicine: Medical Provider's Perspective (Center Publication, A351-912)
- 98-15 Galarneau, MR; G Pang, PJ Konoske & ED Gauker (1998). Using a Model of Clinical Events to Determine Supply Requirements for Marine Corps Shock Surgical Team/Triage (SST) and Acute Care Ward Units (Center Publication, A351-922)
- 98-18 Deniston, WM; PJ Konoske, & WM Pugh (1998). Mobile Medical Monitoring at Forward Areas of Concern (Center Publication, A352-136)
- 98-26 Emens-Hesslink, K; M Galarneau, D Lowe, & P Konoske (1998). Development of a Medical Supply Set for Corpsmen in the Field (Center Publication)
- 98-28 Jung, T-P; S Makeig, M Westerfield, J Townsend, E Courchesne, & TJ Sejnowski. Analysis and Visualization of Single-Trial Event-Related Potentials
- 98-30 Derderian, BR & CG Blood (1999). Shipboard Medical Admissions during Peacetime and Combat Support Deployments (Center Publication)
- 98-38 Gauker, ED; K Emens-Hesslink, PJ Konoske (1999). A Descriptive Analysis of Patient Encounter Data from the Fleet Hospital 5 Humanitarian Relief Mission in Haiti (Center Publication)
- Tech Doc 98-1A Hermansen, LA (1998). An Overview of the Special Operations Interactive Medical Training Program (SOIMTP) (Center Publication, A349-300)
- Tech Doc 98-2B Konoske, PJ; W Deniston, R Barker, R Merchant, & D Moses (1999). Evaluation of the Mobile Medical Monitor (M3) at Forward Levels of Care (Center Publication)

## **Attachment C**

### **c. Description of 1998 Mission Accomplishments**

#### **(3) Health Sciences and Epidemiology Department (Code 23)**

**Frank C. Garland, Ph.D., Head**

**c. Description of 1998 Mission Accomplishments**

**(3) Health Sciences and Epidemiology Department (Code 23)**

Frank Garland, Ph.D., Head

**(a) Department Mission.** This department conducts research and evaluations in areas such as Health and Physical Readiness, Alcohol Rehabilitation, Health Promotion, Family Advocacy, and Operational Medicine. These studies provide large-scale survey data to address emergent issues and policy considerations identified by the Bureau of Medicine and Surgery, and the Bureau of Naval Personnel.

**1. Health Sciences Division (231).** Performs research and development in areas such as Health and Physical Readiness, Alcohol Rehabilitation, Health Promotion, Family Advocacy, and Operational Medicine. These studies provide large-scale survey data to address emergent issues and policy considerations identified by the Bureau of Medicine and Surgery, and the Bureau of Naval Personnel.

**2. Clinical Epidemiology Division (232).** Exercises a broad range of epidemiologic research with a strong clinical component HTLV I and II. This division conducts interventional trials for the prevention of sexually transmitted diseases, musculoskeletal injuries, prophylactic agents, and vaccines.

**3. Occupational Epidemiology & HIV Studies Division (233).** Epidemiologic research focuses on human immunodeficiency virus (HIV) seroconversion, cancer, neurologic disorders, various other infectious and chronic diseases, and injuries which affect the health of active duty Navy and Marine Corps personnel. These studies integrate multiple large-scale data sources to describe in epidemiologic terms the distribution of these disorders and to identify their possible causes and associated factors, with the objective of providing information needed for effective strategies for prevention. This division also studies sub-populations with unique characteristics such as women serving aboard ships or in other deployed situations.

**4. Emerging Illness Division (234).** Exercises a broad range of epidemiologic research with a strong clinical component including Unexplained Persian Gulf Syndrome, respiratory diseases and resistant strains of common pathogens such as streptococcus.

**(b) Research program descriptions (Work Units)**

New

DN245882 NTC Reimbursable-6818

Naval Recruit Training Injury Prevention Curriculum Modification and Evaluation (Trone)  
Start: 7-1-98

DN234890 SECNAV/BUPERS/HQMC Reimbursable-6821

Evaluation and Pilot Test of the DON Suicide Incident Report (Hourani)  
Start: 9-15-98

Continuations:

DN247503 65152N M0106.001-6001

Navy Medical Support Capability (Nice) Start: 10-1-86

DN243582 BUMED Reimbursable-6257

Navy HIV Surveillance and Clinical Evaluation Study (Garland) Start: 7-1-86

(b) Research program descriptions (cont.)

Continuations (cont):

DN244622 (63738D P4464.001) NMRDC Reimbursable- 6423

Epidemiologic Studies of Morbidity Among Gulf War Veterans: A Search for Etiologic Agents and Risk Factors (Gray) Start: 4-1-94

**Study 1:** A Case-control Study of Symptoms Among 2250 Seabees

**Study 2:** A Comparative Study of Hospitalizations Among Active Duty Military Personnel who Participated in the Gulf War and Similar Military Personnel Who Did not Participate

**Study 3:** A Comparative study of Pregnancy Outcomes among Gulf War Veterans (Male and Female) and Other Active duty Personnel

**Study 4:** Reproductive Outcomes

7-12-95

**Study 5:** Seabee Health Study

1 Oct 95

**Study 6:** A Comparison of Federal and Nonfederal Hospitalization Rates among Veterans who have Separated from Active Service: Gulf War Veterans Versus Non-Gulf Veterans

8-1-95

**Study 7:** Prevalence of Congenital Anomalies among Children Born to Gulf War Veterans

8-1-95

DN241257 61102A M0101.BKX-6609

Epidemiological Studies of Emerging Illnesses among U.S. Military Personnel (Gray) Start: 10-1-95

Study A. The Immunologic, Bacteriologic and Demographic Risk Factors for Invasive *Streptococcus pyogenes* Infections

10-1-95

Study B. Quality Assurance Test of New ELISA Reader using a Commercial Test for *Helicobacter pylori*

1-96

Study C. Triservice Surveillance for Antibiotic Resistance among *Streptococcus pneumoniae* Isolates Infecting U.S. Military Health Care Beneficiaries

7-97

Study E. Double-blind, Placebo controlled, clinical trial of Azithromycin as Prophylaxis against Bacterial Agents causing Acute Respiratory Disease among Military Trainees (Gray)

Study F. Triservice Population-Based Surveillance for Viral Respiratory Pathogens among High-risk U.S. Military Personnel

9-98

Study, Pilot Study, Surveillance for Birth Defects among U.S. Naval Health Care Beneficiaries in San Diego County

11-97

Study, Surveillance for Respiratory Infections at the U.S. Naval Academy

7-98

Study, National Surveillance for Birth Defects among Department of Defense (DoD) Health Care Beneficiaries

12-98

DN241295 U Alabama (CRADA 96NMR444) Reimb-6615

Risk Factors for Chorioamnion Infection and Adverse Pregnancy Outcomes among Active Duty Military Women and Dependent Women (Cassell/Gray/et al) Start: 6-1-96

DN240553 63706N M0095.008-6705

Musculoskeletal Injury Incidence and Physical Activity in Navy and Marine Corps Operational Personnel (Brodine) Start: 10-1-96

DN240558 63706N M0095.001-6706

Defense Medical Epidemiology Database Development (Garland) Start: 10-1-96

DN240554 63706N M0095.001-6707

Health Readiness of Women and Men Aboard Navy Ships (Garland) Start: 10-1-96

DN240598 JHopkins CRADA-6712

Structural Indices of Stress Fracture Susceptibility in Female Military Recruits (Shaffer) Start: 9-22-96

DN240599 HQMC Reimbursable-6713

Intervention to Reduce Heavy Alcohol Use among Marine Corps Personnel (Shaffer) Start: 3-1-97

DN240611 63706N M0095.005-6806

Training Modifications to Prevent Stress Fractures in Female Marine Corps Recruits (Shaffer) Start: 10-1-97

**(b) Research program descriptions (cont.)**

Completions/Terminations:

DN240572 NEHC/BUMED Reimbursable-6709

Tri-service Adenovirus Isolation and Typing Surveillance among High-risk Military Populations (Gray) Start: 10-1-96 Term: 9-30-98

DN240597 DOD Reimbursable-6711

(short title): Global Surveillance for Infectious Diseases [DOD Surveillance Response System for Emerging Infectious Diseases: U.S. Navy Mode at Naval Health Research Center, San Diego] (Garland) Start: 5-6-97 Term: 9-30-98

DN240607 63706N M0095.001-6802

Suicide Risk and Adverse Psychological Response Assessment in the U.S. Navy (Hourani) Start: 10-1-97 Term: 9-30-98

DN240608 63706N M0095.001-6803

Operational Health Risk Reduction in Hospital-based Health Promotion Interventions (Trent) Start: 10-1-97 Term: 9-30-98

**(c) Significant accomplishments (reporting period: Jan-Dec 1998)**

Clinical Epidemiology Division

18-19 Aug Dr. Stephanie Kewley and Ms. Patricia Gilman were at the Naval School of Health Sciences, Naval Medical Center San Diego, monitoring and evaluating the SHIP (STD/HIV Intervention Program) training that is given to preventive medicine technicians (PMTs). They also interviewed PMTs who received SHIP training in 1997 to determine the effectiveness of the training.

23 Nov Admiral Hunter, the new Commander at Naval Training Center (NTC) Great Lakes, requested the latest information regarding physical training guidelines of Navy recruits from the experts in the Division. Dan Trone took the lead and provided the information; and he also provided information for a new physical training initiative to test Navy recruits during processing week, called PT-Zero. This new program is a priority of both the NTC Commander and RTC Commanding Officer.

14 Dec CDR Shaffer provided a quick-turnaround response to the BUMED PAO concerning an article that appeared in the Washington Times on 7 Dec, stating "women were at much higher risk of knee injuries during military training than men." Information from the Division's studies were provided to assist BUMED in developing a POA position.

**(d) Changes in departmental mission, functions, and resources.**

Emerging Illness Division

15 Oct LCDR Megan Ryan, MC, USN, reported onboard to the Department of Health Sciences and Epidemiology and assigned to the Emerging Illness Division. LCDR Ryan is board certified in occupational medicine and also has considerable experience studying the epidemiology of disease among recruit trainees. She brings expertise to the Department in infectious disease epidemiology and health promotion.

**(e) Major accomplishments**

Clinical Epidemiology Division

- 10 Aug The Clinical Epidemiology Division had a very productive meeting with Dr. John Mascola, Donna Ruscavage, and Keith Johnson, from Walter Reed, Division of Retrovirology and HMJ. Dr. Mascola has been a collaborator on the Division's HIV studies for many years. These visitors worked on a manuscript describing the various sub-types of HIV that are being identified in the Department of Defense.
- 17 Aug A recent edition (April-June) of the Naval Medical Surveillance Report published by Navy Environmental Health Center featured an article on trends in HIV seroconversion in U.S. Navy and Marine Corps personnel. This article described the 1997 annual seroconversion rates by demographic factors and homeport using data provided by the HIV Central Registry. The HIV and Occupational Health Division's annual and quarterly seroconversion reports were the basis of this article. The 1998 second quarter summary of HIV Seroconversion rates has been prepared for the HIV Program Office.

Emerging Illness Division

- 26 Mar-3 Apr Mr. Tyler Smith won first place in the Operational Research Competition at the 39th Annual Navy Occupational and Preventive Medicine Workshop in San Diego for his paper "The Postwar Hospitalization Experience of Gulf War Veterans Possibly Exposed to the Chemical Munitions Destruction at Khamisiyah, Iraq."
- 14-16 Oct Mr. Tyler Smith received his second research award this year at the Western Users of SAS Software Conference in Oakland, CA. Tyler's oral presentation "The Capabilities of PROC FACTOR to Conduct an Exploratory Factor Analysis" won the Best Contributed Paper Award. He demonstrated that symptom factors were similar between Gulf War veterans and nondeployed veterans of the same era.
- 23 Nov The Emerging Illness Division completed enrollment of the second BUDs class in their clinical trial to reduce respiratory disease. A team of eight members conducted a smooth and successful enrollment. A visiting scholar at UCSD from Finland, Dr. Laurila, joined in the effort and was impressed with the team's skill and success.

LCDR Ryan gave two major presentations at the Armed Forces Epidemiology Board (AFEB) meetings. She spoke on "Chlamydia Screening in Navy Recruits" and "ARD Surveillance and Control: NHRC's Data and Experience." LCDR Ryan also has played a role in writing a presentation concerning DoD immunizations. The AFEB is the primary military epidemiology board of distinguished scientists that reviews epidemiologic and preventive health measures used in the services. LCDR Ryan will represent the Department at the next AFEB.

The Emerging Illness Division's was called upon again by DOD Health Affairs for their expertise. COL Gackstetter requested CAPT Gray and the Division to assess the feasibility of studies on postwar morbidity among Saudi Arabian military families.

- 30 Nov The Naval Health Research Center has been recognized by the Army, Navy, and Air Force Surgeon Generals and Dr. Sue Bailey of DoD/HA, as the institution to conduct national DoD surveillance for birth defects. Funding is being programmed through 2005. Ruth Bush, William Honner, Debbie Kamens, Happy Araneta, Paul Sato and CAPT Gray will be involved with this effort.

**(f) Impact on Navy and Marine Corps mission.**

Clinical Epidemiology Division

- 3 Aug The Alcohol Abuse Prevention Project received high praise when LtGen Libutti briefed the Commandant of the Marine Corps, General Krulak, in a forum that included the Health Promotion Unit at Headquarters Marine Corps. During LtGen Libutti's brief he specifically mentioned the great work done by 3rd Marine Expeditionary Force and NHRC in designing an alcohol abuse prevention program for the Marine Corps. This endorsement has given the project a high profile at Headquarters Marine Corps and the project is rapidly moving forward. The hard work, dedication, and skill of CDR Shaffer and his team of Suzanne Hurtado, Dr. Rahn Minagawa, Steve Tschinkel, and their university collaborators, has been well recognized by the line community.
- 24 Sep CDR Rick Shaffer returned from a series of extremely successful briefings on the Alcohol Misuse Prevention Program. The briefings included CG III MEF, CG MCB Okinawa, CG IIII MARDIV, CG IIIFSSG and MARFORPAC. The Alcohol Misuse Prevention Program has high visibility and has the full support of the line community.
- 5 Oct The Alcohol Misuse Prevention Intervention Program, sponsored by Headquarters Marine Corps, will enroll 4 infantry battalions of Marines. This program was given the "go-ahead" to do an intervention trial which enrolled 4000 Marines over the next four months and then will follow them for a six-month deployment. Half of the enrolled Marines will be given an newly developed education and skills building program and the other half will act as controls.
- 8 Oct This Division is actively involved in data collection for the Alcohol Abuse Prevention Project at Twenty-nine Palms. In a real team effort at least 7 members of the Division assisted in the enrollment. In the first two days of data collection over 500 members of a battalion were enrolled. Enrollment was completed before the battalion deployed to Okinawa.
- 23 Nov CDR Shaffer and his team of Dr. Rahn Minagawa, Steve Tschinkel, and Dr. John Baer enrolled a battalion of over 1,000 Marines in the Alcohol Abuse (AA) Prevention Intervention Project in Kaneohe Bay Hawaii last week. This team also trained 250 Sergeants and Corporals to use the newly developed AA Intervention Program.
- 14 Dec CDR Shaffer provided information to the Marine Corps in support of a new initiative sponsored by General Duke, Assistant Commandant of the Marine Corps, entitled "Readiness, Responsibility, Retention, and Risk Management (R4M) Initiative." This initiative includes several topic areas by current efforts in the department including alcohol abuse prevention, accidents, suicide prevention, and others.

Emerging Illness Division

- 7 Dec This Division was asked by the Surgeon General (via CAPT Chris and CAPT David Trump) to provide a paper on the impact of loss of adenovirus vaccine for populations in training, and alternative methods of prevention of the spread of adenovirus until a vaccine becomes available again. The single manufacturer of adenovirus vaccine is no longer producing the vaccine. LCDR Megan Ryan, CAPT Gregory Gray, and Tony Hawksworth developed the paper. The careful research conducted by the Division describing the occurrence of adenovirus infections by specific strain was a key factor in DOD's decision to fund development of an adenovirus vaccine, an important element in Force Medical Protection.

**(f) Impact on Navy and Marine Corps mission (cont.).**

- 7 Dec LCDR Ryan and team, Dr. Paul Sato, Tyler Smith, Kevin Kaiser, and Karen Schlangen, provided LTC Leggieri of USAMRMC with updates of NHRC Gulf War Illness research for the 1998 Annual Report to Congress of Federally Sponsored Research.

**(g) Technology transfer items of Interest.**

- 24 Aug The Department responded to a request from COMNAVSURFLANT's Scientific and Technology Advisor on research being conducted in this Department related to current Fleet medical issues. Some of the areas of immediate interest include smoking, ship-board reproductive health, and prevention of unplanned pregnancy. The advisor was impressed with the range of studies NHRC was doing that relate to important Fleet issues.
- 24 Sep Drs. Frank Garland, Ed Gorham, and Laurel Hourani attended the Department of Defense Breast Cancer Conference held at the Town and Country Hotel. This conference provided an opportunity to meet many of the DOD Breast Cancer clinical staff from around the Country and hear about their regional projects. Dr. Sue Bailey, the incoming Assistant Secretary of Defense for Health Affairs was the keynote speaker. Dr. Bailey will be returning to the San Diego area and hopes to visit NHRC on Oct 7th for a command Brief and tour.
- 2 Nov Drs. Frank Garland and Ed Gorham of the Department, and Dr. Cedric Garland of UCSD School of Medicine, La Jolla, have been invited to Basel, Switzerland, to receive a prize for their studies on human health effects of light. The prize is awarded every three years for outstanding research in the field of photobiology and human health. An international science committee selects the prize winners.

Health Sciences Division

- 3 Aug At the request of BUPERS, Dr. Laurel Hourani developed a proposal to evaluate a new method for review of circumstances surrounding suicides in the Navy and Marine Corps. The title is "Department of the Navy Suicide Interview Report" (DONSIR). Dr. B. Rostker, Assistant Secretary of the Navy for Manpower and Reserve Affairs, BUPERS, and SECNAV requested the Division's expertise to determine if the DONSIR is the appropriate data collection instrument. High level consultation recognized the good work conducted in the past on this topic by this Division.

Clinical Epidemiology Division

- 5 Oct CDR Shaffer and Mr. Dan Trone briefed CAPT Hanson, Commanding Officer of the Recruit Training Command (RTC) in Great Lakes, on the Naval Recruit Training Injury Prevention Curriculum and Evaluation project. The presentation was well attended by RTC senior officers and staff who expressed great interest in the project.

Emerging Illness Division

- 3 Aug CAPT Greg Gray and his team in the Emerging Illness Division continue to develop new areas and projects. CAPT Gray, working with Marietta Malasig, Pulak Goswami and Tony Hawksworth, were successful in developing an Influenza Surveillance

**(g) Technology transfer items of Interest cont.**Emerging Illness Division (cont).

Program as part of the DOD Global Emerging Infections System (DOD-GEIS). This project represents a collaboration of NHRC with the Army, Air Force, and CDC to conduct global surveillance for influenza. NHRC is taking the lead in domestic, population-based surveillance. COL Pat Kelley, Director of the Central Hub of the DOD-GEIS, praised NHRC for providing rapid feedback of information to the medical and line communities. The first results of the influenza surveillance program can be seen on the Division's web site at: <http://pc176.nhrc.navy.mil/disease/>.

- 17 Aug Contacted by the General Accounting Office (GAO) regarding current studies of Gulf War Veterans, this Division had two GAO investigators as guests. The investigators were tasked by the House Committee on Veterans' Affairs to review the thoroughness of the research efforts of the Office of the Special Assistant to the Deputy Secretary of Defense for Gulf War Illnesses. Specifically, the GAO investigators were reviewing the case narrative on events at Al Jubayl, Saudi Arabia, which involved Seabees. The documents investigate three Desert Storm events which occurred at Al Jubayl, SA, termed the "Loud Noise," the "SCUD Impact," and "Purple T-shirts" episodes. CAPT Gray gave a briefing and offered to provide whatever information his studies yielded which could shed light on the outcomes of these events.
  
- 15 Aug The August issue of the American Journal of Epidemiology (AJE) has an extensive section devoted to discussion of the studies of Gulf War Veterans. CAPT Greg Gray, Tony Hawksworth, Tyler Smith and James Knoke of NHRC are authors of a major report "Who is Most Likely to Seek Evaluation?" among Gulf War Veterans. CAPT Gray and other members of his team, are also authors on two additional papers in the Journal that discuss methodological issues. The AJE is a major journal with a focus on epidemiological methods and the Department's contribution to this issue is a testament to the work going on in the Department.
  
- 24 Sep CAPT Greg Gray and several members of the Emerging Illness Division, attended the International Conference on Antimicrobial Agents and Chemotherapy (ICAAC) meetings, at the San Diego Convention Center. Because of the Division's numerous activities in population-based infectious disease research, this Division conducted a successful Laboratory Open House in conjunction with the ICAAC meetings. Dr. Claire Broome, the Assistant Surgeon General of the United States from the Centers for Disease Control spent over 3 hours discussing NHRC studies. Much of the time was spent discussing a proposed clinical trial using a vaccine developed by Merck to prevent bacterial pneumonia in military populations. Dr. Broome was extremely supportive of the planned trial. Other visitors included the Medical Director for Hampton's VA Health Department; a public health official from the Saudi National Guard; the Navy's research area manager for infectious diseases; and a cadre of mycoplasma experts from University of Alabama. CAPT Greg Gray and his researchers were hosts and provided instructive briefings to the visitors.
  
- 8 Oct NHRC's expertise in epidemiology, database development, and particularly with CAPT Gray and his team's work in Gulf War studies, NHRC is DoD Health Affairs front runner for being designated as the DoD's "Center for Study of Post-Deployment Health of Members of the Armed Forces." The Congress has authorized the Secretary of Defense to establish a center devoted to "a longitudinal study to evaluate data on the

**(g) Technology transfer items of Interest cont.**

Emerging Illness Division (cont):

health conditions of members of the Armed Forces upon their return from deployment on military operations for purposes of ensuring the rapid identification of any trends in disease, illness, or injuries among such members as a result of such operations." Creation of the Center will require DDR&E and ASD (HA) to sign a joint memorandum establishing the Center as a major Force Health Protection initiative.

9 Nov Cassie Morn, Colleen McDonough, and Tony Hawksworth of the Emerging Illness Division created a Global Emerging Infectious Disease (GEIS) WWW site which records Navy GEIS surveillance activities. The pages describe NHRC's work; of particular interest is that they document a number of GEIS projects, including an influenza-like-illness outbreak at Ft. Jackson, SC, largely due to adenovirus. The home page is: <http://pc176.nhrc.navy.mil/disease/>. This WWW site has won many compliments from DOD public health officials.

9-11 Dec CAPT Gregory Gray and Dr. Happy Araneta attended the International Gulf War Study meeting in London, hosted by the Royal Society of Medicine. CAPT Gray and Dr. Araneta received many compliments from international investigators for the Emerging Illnesses Division's diverse Gulf War research and it was widely expressed that NHRC was a pacesetter in this area of research.

**(h) Code 23 Reports for 1998 include:**

(See 'Section 3. Supporting Documents' for list of 1997 Reports with abstracts)

(Report No., Authors, Title, Publication Info, AD#)

- 98-3 Gunderson, EKE & LL Hourani (1998). The Epidemiology of Mental Disorders in the U.S. Navy: The Psychoses (Center Publication, A349-419)
- 98-5 Gray, GC; KS Kaiser, AW Hawksworth, & HL Watson. No Serological Evidence of an Association found between Gulf War Service and *Mycoplasma fermentans* Infection American Journal of Tropical Medicine & Hygiene (in press)
- 98-7 Garland, FC; CD Garland, & ED Gorham. The Association of Unplanned Pregnancy, Marital Status and Age with Adverse Reproductive Outcomes and Elective Abortions in U.S. Navy Women
- 98-12 Thomas, MD; PJ Thomas, FC Garland. Contraceptive Use and Attitudes toward Family Planning in Navy Enlisted Women and Men
- 98-14 Hourani, LL; H Yuan, RM Bray, & AA Vincus (1998). Psychosocial Correlates of Nicotine Dependence among Men and Women in the U.S. Naval Services (Center Publication, A351-911)
- 98-16 Garland, FC; CF Garland, & ED Gorham. A Model of the expected Occurrence of Adverse Pregnancy Outcomes during U.S. Navy Ship Deployments
- 98-17 Gunderson, EKE & LL Hourani (1998). The Epidemiology of Mental Disorders in the U.S. Navy: The Neuroses (Center Publication, A352-147)

## 1998 Command History-NHRC

### (h) Code 23 Reports for 1998 include (cont):

- 98-19 Hourani, L; H Yuan, RM Bray, S Wheelless (1998). The Health Status of Women in the Navy and Marine Corps: Preliminary Findings from the Perceptions of Wellness and Readiness (POWR) Assessment (Center Publication, A356-419)
- 98-21 Gray, GC; TC Smith, HK Kang & JD Knoke. Are Gulf War Veterans suffering war-related illnesses? Federal and Civilian hospitalizations examined, June 1991 to December 1994
- 98-22 Gray, GC; JD Callahan, AW Hawksworth, C Fisher & J Gaydos. Respiratory Disease among U.S. Military Personnel: Strategies to Counter Emerging Threats Emerging Infectious Disease (in press)
- 98-23 Kaiser, KS; AW Hawksworth & GC Gray. Pyridostigmine Bromide Intake during the Persian Gulf War not associated with Postwar Handgrip Strength
- 98-24 Araneta, MRG; D Destiche, IK Schlanger, B Horiuchi, & A Onaka. Deterministic Linkage to Identify Births to Military Personnel, using Hawaii Birth Certificate and Military Personnel Records
- 98-29 Araneta, MRG; D Destiche, K Schlangen, R Merz, M Forrester, & GC Gray. Birth Defects Prevalence among Infants of Persian Gulf War Veterans born in Hawaii, 1989-1993

### TECHNICAL DOCUMENTS

(Report No., Authors, Title, Publication Info, AD#)

- 98-4D Bush, RA; TC Smith, DE Gee, WK Honner, O Lekarev, ME Stroll & GC Gray (1999). Active Surveillance of Birth Defects among U.S. Department of Defense Beneficiaries: Report of a Feasibility Study (Center Publication)

## **2. SPECIAL TOPICS**

### **a. Statistics on major functions such as volume of logistic support, maintenance work, training, or recruiting:**

#### **(1) Library Support.**

The NHRC Wilkins Biomedical Library (WBL) support includes:

- receiving from military, academic, and private institutions and individuals world-wide, approximately 300 requests for copies of NHRC reports;
- upgrading its STILAS Integrated Library System to version 98.2, of which there are 16,000 in STILAS;
- negotiating license agreements for EndNote, the bibliographic database manager distributed to NHRC researchers; and
- began using QuikDoc to handle the high volume of interlibrary loan requests received through the National Library of Medicine's Docline;

The WBL borrows approximately 1000 items each year, and supplies 2000 journal articles to other libraries, many of which are Navy and Defense Department libraries. The Librarian held the position of Chair of the Federal Library Section of the Medical Library Association.

#### **(2) Training. Staff participation for in-house training is 100%.**

- In-house training includes, but is not limited to, Equal Employment Opportunity functions, opportunities for Total Quality Leadership (TQL), and sexual harassment. Flyers and messages regarding sexual harassment are provided in the command's Plan of the Week.
- Training for the professional staff is conducted by staff or visitor presentations on monthly basis, of their specialty work or currently work on a work unit study.
- Civilian Personnel office sends announcements by E-mail of training available to Civilians.
- Safety training is scheduled on a monthly basis.
- CPR certification and re-certification is provided on a quarterly basis.
- All staff members are encouraged to take advantage of the numerous private one-, two-day training programs available year round.

**a. Statistics on major functions, etc. (cont.)**

- Throughout the year the command provides training to numerous Ensigns, Medical Corps on a ADT/OJ clerkship in preventive medicine/sports medicine/research neurology/epidemiology

(3) Recruiting. Although the command does not have a recruiting program, on occasion contract employees or students onboard, from San Diego State University or University of California San Diego assisting in the various research programs, will inquire about the Navy programs available to graduate students.

**b. Military and Civilian Personnel onboard as of 31 Dec 98:**

60 Civilians (4 Part time)

19 Military (12 Officers, 7 Enlistees)

63 Contractors (GEO, Uniband, Jackson Foundation, Anteon, MACC, MTS, UAB)

**c. Major 1998 command problems faced:**

None.

**(1) Significant changes during 1998:**

(Jun) On the 12th, a change of command and retirement ceremony took place at NAS North Island. CAPT Larry M. Dean, MSC, USN was relieved as Commanding Officer by CAPT Lawrence H. Frank, MSC, USN, followed by the retirement ceremony for CAPT Dean.

(Oct) The Medical Research and Development Command, Bethesda, Maryland, was disestablished 1 October 98. Under the new organizational structure, Naval Health Research Center (NHRC) was designated an Echelon 3 command with four Echelon 4 labs reporting to NHRC. See section 3. Supporting Documents, enclosure (9), Miscellaneous Items, "A. OPNAVNOTE 5450 dtd 7 Jan 98."

**(2) Noteworthy events during 1998:**

(Jan) The HIV Central Registry has been maintained since 1986 by the Department of Health Sciences and Epidemiology, in support of the Bureau of Medicine and Surgery's HIV testing and surveillance mission.

(Apr) On the 2nd, an open house was held at Code 21's Human Performance Laboratory, Bldg 74. This laboratory houses thermal chambers, a swim flume, hydrostatic weighing tank, treadmills, stationery cycles, two dual x-ray bone absorption meter (DEXA), residual lung volume machine, metabolic carts, KINCom muscle analyzer, thermal image camera and other physiological testing equipment.

(May-Aug) This command continues to promote the American Society for Engineering Education (ASEE) summer research program. The ASEE program

**(2) Noteworthy events during 1998 (cont).**

provides the college and university faculty members the opportunity to establish continuing research relations and to expand their professional contacts with the R&D community, an experience which is beneficial both personally and professionally.

This year's ASEE fellow was Ben Hansen, ONR Fellow Student from UC Berkley for the period 29 June to 21 August with Dr. Knoke, Code 23.

(May) A command brief and tour were given to RADM Joan M. Engel, NC, USN, Assistant Chief for Operational medicine and Fleet Support, during her visit on the 13th. See section "3. Supporting Documents, enclosure (9), Miscellaneous Items, "B. RADM Engel's thank you letter."

(May-Dec) Dr. J. A. Hodgdon (Code 21) assisted the DoD (OSD, Personnel & Readiness) in development of a new policy on physical fitness and body fat, and best models for prediction of percent fat from anthropometry physical fitness and body fat standards. Dr. Hodgdon brief the initial DoD meeting to revise the physical fitness Instruction.

(Jun-Aug) This command receives medical students from the various universities and colleges throughout the United States to perform a clinical clerkship. The students are responsible for obtaining their ACDUTRA orders via the Health Sciences Education and Training Command in Bethesda, MD. Their tours range from 14-, 24- to 48-day ACDUTRA.

This year's medical students, assigned to CDR Shaffer, Code 23 are:

ENS Lesley Ross, MC, USNR, St Louis University Medical School, MO (1 Jun -15 Jul )  
ENS Jill Brown, MC USNR, Tufts Medical School, Boston (1 Jun-15 Jul)  
ENS Wendy Sands, MC, USNR, Medical College Penn-Hahnemana, Philadelphia  
(8 Jun-15 Jul)  
ENS Joen Schofer, MC, USNR, Medical College Penn-Hahnemana, Philadelphia  
(8 Jun-15 Jul)  
ENS Brian Drummond, MC, USNR, Northwest University, Chicago (15 Jul to 19 Aug)  
ENS Christen Pusateri, MC USNR, Tufts University, Boston (15 Jul-20 Aug)  
ENS Tata L. Corson, MC USNR, Thomas Jefferson Medical College, Philadelphia  
(15 Jul-20 Aug)  
ENS John Seok, MC USNR, Syracuse University, New York (15 Jul-28 Aug)

(Jul) On the 16th, CAPT Gray and his Emerging Illness Division staff from Code 23, had an informal scientific exchange with health professional colleagues from the Mexican military commands in the State of Baja California, Mexico, to discuss potential bi-national collaboration in acute respiratory infections surveillance among our military populations. This proposed surveillance would help provide early warning of potential epidemics, and allow timely recommendation of appropriate preventive and curative measures on both sides of the US/Mexico border.

**(2) Noteworthy events during 1998 (cont).**

(Jul) NHRC hosted the Military Operational Medicine (MOM) Lab Consolidation Meeting, 14-15 July.

(Jul-Aug) In response to a request for assistance in combating severe heat stress conditions, Code 21 conducted a heat stress evaluation aboard USS Abraham Lincoln while deploying to the Persian Gulf, 1998. A collaborative research team from NHRC (Mr. J. Heaney), NAVSEA and COMNAVAIRPAC evaluated the use of an ice vest to reduce thermal strain using 42 flight deck and hangar deck personnel. This was the first time heat stress data was collected on personnel during actual flight operations. Results from this evaluation were instrumental in COMNAVAIRPAC purchasing 350 ice vests and 1,400 ice packs for future deployments in the Persian Gulf.

(Aug) In response to a request for assistance from the rewrite team revising OPNAVINST 5100.19C, Chapter 2 – Heat Stress, Mr. J. Heaney provided subject matter expertise in the area of human thermoregulation and physiology. This effort was directed by the CNO and managed by NAVSEA, modified the OPNAVINST to provide better heat stress guidance for acute and chronic heat exposure while eliminating the need to perform unnecessary heat stress surveys.

(Sep) The CO, XO, and SD attended the R&D Conference in Bethesda, MD, 17-19 Sep.

(Sep) The CO, XO, SD attended the Surgeon General's Leadership Conference in Norfolk, VA, "Readiness is the Nature of the Enterprise," 21-25 Sep.

(Oct) Investigators from NHRC Code 21 hosted the 8<sup>th</sup> International Conference on Environmental Ergonomics. The meeting was the culmination of 2 years of preparatory work. Attendance was approximately 135 researchers and product developers from academia and industry, representing 15 countries.

(Oct) The CO, XO, and SD attended the second MOM meeting which was held at Naval Aerospace Medical Research Laboratory, Pensacola, Florida, 12-16th October.

(Oct) October visitors, who received command briefs and tours, were:

- On the 23rd, RADM Johnson, Medical Officer of the Marine Corps from 1300-1500
- On the 26th, Dr. Anna Johnson-Winegar, Office of Naval Research, Code ONR-34. The Naval Special Warfare Command at NAB Coronado arranged for her to have a MARK V SOC demonstration ride. LTJG Kyle and crew answered all questions she had relating to the MK-V SOC and special Boat Unit Operations. See section 3. Supporting Documents, enclosure (9), Miscellaneous Items, "C. Dr. Johnson-Weinger's thank you letter."
- Week of 26-30 October, Price Waterhouse Coopers people visited the command.

**(2) Noteworthy events during 1998 (cont).**

(Nov) NHRC was designated DOD's Center for Birth Defects Surveillance by Assistant Secretary of Defense (Health Affairs). See section 3. Supporting Documents, enclosure (9), Miscellaneous Items, "D. Dr. Sue Bailey, ASD (Health Affairs) letter."

(Nov) Dr. J. A. Hodgdon (Code 21) and LCDR Shaffer (Code 23) provided expert testimony before the Blair Commission. He prepared a written testimony and was a witness in separate sessions for the Navy and the Marine Corps, on matters of gender differences in physical fitness, and responses to physical training, as well as bases for the setting of physical fitness and body composition standards.

(Dec) While attending and presenting at the Gulf War Research Meeting, December 9 and 10, at the Royal Society of Medicine, in London, England, CAPT Gray, of Code 23, received on Dec 10th the prestigious Brooke Professorship certificate from Professor Malcom Forsyth of The Royal Society of Medicine, Section of Epidemiology Academy Department.

**d. Major facility developments, including new construction and base right agreements.**

The Human Performance Department, Code 21, moved to Point Loma Barracks Building 328 in April, from Building 287 at Naval Training Center.

The new Human Performance Laboratory, Building 74, Fleet Training Center Pacific MILCON project was completed in January. A move-in was completed in March, and an open house was held April 2nd.

**e. Major accidents or casualties: None**

**f. Storage or disposal of hazardous waste:**

The Center does not store hazardous waste. Generated hazardous waste is disposed of by SPAWAR. Biohazardous waste is created in Building 315 but is not considered Hazardous waste. NHRC has a health permit to do a short term "store" of biohazardous waste before its collection.

**g. Community Relations (including disaster relief):**

- The command continues to participate in the annual Combined Federal Campaign, Navy and Marine Corps Relief Fund Drive, and Navy Technology Transfer Program.
- In November, the command continued to participate in and support the Great American Smokeout campaign headed by the Commander, Naval Medical Center San Diego. This year November 19th was observed.
- Students from San Diego State University (SDSU), the University of California at San Diego (UCSD), Point Loma Nazarene College, and City College are utilized in the various departments as research assistants, psychology and/or statistical technicians, and administrative support

**g. Community Relations (cont).**

- Several members of our staff continue to teach in the evening at local colleges. Almost all of our senior scientists hold Adjunct Professorships at the local universities. These ties with local universities and colleges serve to keep our researchers up-to-date with the latest academic advances in their fields. These appointments also reflect a high level of acceptance of many of our staff and their work by academic appointment committees.
- In September, staff members volunteered for the 7th Annual "Hands on San Diego," the single largest volunteer event in the county, sponsored by United Way/CHAD of San Diego County.

**h. Records set or other unique and unusual events:**

Scientific Administration: Using in-house personnel, NHRC developed an automated project reporting system to streamline reporting requirements, such as the work unit information system and Office of Naval Research reports, and improve the quality of information management. This system has now been installed at many other Navy R&D activities and was very favorably reviewed by the Defense Technology Information Center.

Safety Issue: For 1998, of 60 civilians (three part time), and 63 contractor employees, NHRC incurred no civilian or contractor injuries while on duty. Of 14 military staff, no on-duty injury was recorded, however, two off-duty injuries/accidents were recorded and resulted in no work time lost.

Safety Issue: A power outage occurred in five of our buildings: 315, 322, 331, 332, and 346. Some of the refrigerators in building 315, containing reagents worth around \$20,000 dollars, were affected. We were fortunate enough to get the power back within about two hours.

**i. Aircraft assigned: N/A**

### 3. SUPPORTING DOCUMENTS

- Encl (1) Scientific AND Technical Reports:
- a. List of 1998 Scientific and Technical Reports and Publications with Abstracts
  - b. Other Journal Publications in 1998
  - c. Other Technical Reports Published in 1998
  - d. Reports "in press"
- Encl (2) Biography and Photo of Commanding Officer
- Encl (3) \* Organization Chart as of 31 December 1998  
\* Staff Directory  
\* Boards, Committees, Collateral Duties
- Encl (4) Presentations at Major Conferences
- Encl (5) Civilian Honors, Awards and Other Information
- Encl (6) Military Honors, Awards and Other Information
- Encl (7) Logistic Support
- Encl (8) Visitors
- Encl (9) Miscellaneous items:
- A. OPNAV NOTICE 5450 Ser 09B22/8U509407 dtd 7 Jan 98; Subj: Disestablishment of Naval Medical Research and Development Command (NAVMEDRSCHDEVCOM), Bethesda, MD and Change in Delegation of Authority for NAVMEDRSCHDEVCOM Subordinate Activities and Detachments
  - B. Thank you letter from RADM J. M. Engel, NC, USN dtd 22 May 98
  - C. Thank you letter from Anna Johnson-Winegar, Ph.D., dtd 3 Nov 98
  - D. Dr. Sue Bailey, The Assistance Secretary of Defense (Health Affairs) ltr dtd 17 Nov 98, re designating NHRC as DoD's Center for Surveillance of Birth Defects
  - E. NHRC Updates: January, No. 8; April, No. 9; and July, No. 10

### **3. SUPPORTING DOCUMENTS**

#### **Scientific and Technical Reports:**

- a. List of 1998 Scientific and Technical Reports and Publications with Abstracts (pages 1-1 to 1-15)
- b. Other Journal Publications in 1998 (page 1-16)
- c. Other Technical Reports Published in 1998 (page 1-17)
- d. Reports "in press" (page 1-17)

**Encl (1)**

### 3. Supporting Documents

#### a. Scientific and Technical Reports with abstracts; list of 1998

Report No. (Authors/Title/Publication Data/AD#, Work Unit number)

- 98-1 Galarneau, MR; PJ Konoske, KE Emens-Hesslink, & G Pang (1998)  
Reducing the Logistical Footprint of Forward Resuscitative Surgical Units Using a  
Patient-driven Model of Clinical Events  
(Center Publication, A339-516)  
Work Unit Number: 63706N M0095.005-6510

**Abstract:** The primary objective of this work was to reduce the surgical footprint by developing a model of the far forward medical supply stream that linked specific clinical requirements to individual medical treatment items. A list of medical items required for the operating room was produced by loading information into a patient generating model (PATGEN). When compared to the current Marine Corps operating room AMALs, the proposed AMALs resulted in reductions of 15.0% in weight and 13.2% in cube for the equipment AMAL 639 and 22.4% reductions in weight and 36.3% in cube for the consumable AMAL 640. This approach, which also resulted in an increase in operating room clinical capability, produced an audit trail for each item that allows medical logisticians to substantially improve the AMAL configurations because only items that can be clinically related to a treatment task conducted in theater are considered for inclusion in the AMALs.

- 98-2 Canine, MK (1982)  
Environmental Heat Transfer to a Microclimate Cooling System during Heat Exposure  
(Center Publication, A349-469)  
Work Unit Number: 62233N MM33P30.007-6207

**Abstract:** Heat transfer from the environment ( $Q_{env}$ ) to a water-based microclimate cooling system (MCS), operated at four temperatures of water ( $T_w$ ), was measured utilizing a rubber manikin outfitted in coveralls and chemical protective clothing.  $Q_{env}$  increased in direct proportion to the difference to  $T_w$  and ambient temperature ( $T_a$ ). Good linear models were found for predicting  $Q_{env}$  when  $T_a$  or temperature between clothing layers and  $T_w$  are known. These models can be used in future physiological tests to apportion heat transfer between the environment and the body.  $Q_{env}$  was substantial, greater than 100 w at the lowest temperature of water, even when insulated from the environment. Because many MCSs have limited cooling capacities, it is important to reduce  $Q_{env}$ . Thus, it is advantageous to wear insulating garments in hot environments when microclimate cooling is used.

- 98-3 Gunderson, EKE & LL Hourani (1998).  
The Epidemiology of Mental Disorders in the U.S. Navy: The Psychoses  
(Center Publication, A349-419)  
Work Unit Number: 63706N M0095.001-6706

**Abstract:** This study provides a comprehensive overview of psychosis in U.S. Navy enlisted personnel. The objectives of this study were to (1) determine first hospitalization incidence rates of psychosis in an initially healthy young adult population; (2) determine institutional and personal costs in terms of interruption of military careers and premature manpower losses; (3) determine the age at onset (first hospitalization) and the duration of acute illness; and (4) to evaluate the effects of age, gender, race, and education on disease onset and outcome. The sample included all first hospitalizations for psychosis of active-duty enlisted persons during the period 1980 to 1988. All information used was from official personnel and

(Report 98-93 cont)

medical records. Patients' service and medical histories were tracked through 1992 to provide at least 4 years of follow-up data. Incidence rates varied greatly over time and across gender, age, race, and diagnostic groups. A large increase in the rate of affective psychosis for women was in sharp contrast to marked declines in rates for drug psychoses, schizophrenia, and other inorganic psychoses and to the relatively stable rates for alcohol psychoses and paranoid states. Psychoses had a very significant negative impact on naval careers.

- 98-4 Van Order, KF; T-P Jung, & S Makeig  
 Eye Activity Correlates of Fatigue during a Visual Tracking Task  
 Work Unit Numbers: ONR & NPRDC Reimbursable-6429

**Abstract:** Five concurrent eye activity measures were used to model fatigue-related changes in performance during a visual compensatory tracking task. Five participants demonstrated considerable variations in performance level within two 53-min testing sessions during which continuous video-based eye activity measures were obtained. For each participant, moving estimates of blink duration and frequency, fixation duration and frequency, and mean pupil diameter from one session were used to train an artificial neural network to produce moving estimates of changes in mean tracking performance during the same session. Applied to eye tracking data from a second session, the same networks produced moving estimates of tracking performance that were highly correlated with actual performance changes ( $R^2=0.65$ , range 0.30-0.89 across ten sessions). The results suggest that information from multiple eye measures may be combined to produce individualized and accurate estimates of sub-minute scale changes in alertness during continuous task performance.

- 98-5 Gray, GC; KS Kaiser, AW Hawksworth, & HL Watson  
 No Serological Evidence of an Association found between Gulf War Service and *Mycoplasma fermentans* Infection.  
American Journal of Tropical Medicine & Hygiene (in press)  
 Work Unit Number: 63738D P4464.001-6423

**Abstract:** Occult occupational infection with *Mycoplasma fermentans* has been proposed as a cause for illness among Persian Gulf War veterans. Symptom data and sera from a 1994 to 1995 cross-sectional survey of Navy Seabees were used to select symptomatic and asymptomatic, Gulf War veterans and nondeployed veterans to evaluate this hypothesis. Survey sera from 96 Seabees were matched to prewar (before September 1990) archived sera. Immunoblot serological analyses were performed for *M. fermentans* in a controlled, blinded fashion. Both Gulf War veterans and nondeployed veterans had prewar and postwar serological evidence of *M. fermentans* infection consistent with natural infection data. Among study subjects collectively, and stratified by Gulf War service, none of the immunoblot banding profiles (prewar or postwar) or their changes over time were associated with postwar symptoms. These serological data do not support the hypothesis that Gulf War veterans have experienced Gulf War-related morbidity from *M. fermentans* infection.

- 98-6 Knoke, JD; TC Smith, GC Gray, KS Kaiser, & AW Hawksworth  
 Factor Analysis of Self-reported Symptoms: Does it identify a Gulf War Syndrome?  
 Work Unit Number: 63738D P4464.001-6423

**Abstract:** Active-duty US Naval mobile construction battalion personnel (Seabees) were surveyed in 1994 for the presence of a variety of symptoms. Questions were drawn from the *Hopkins Symptom Checklist* and a collection of symptoms defining clinical depression or commonly reported by Persian Gulf War veterans. Of those surveyed, 524 were Gulf War veterans and 935 were nondeployed Gulf War era veterans. Factor analysis applied to Gulf

(Report 98-6 cont)

War veterans yielded five factors, three deriving from the *Hopkins Symptom Checklist*, one suggesting clinical depression, and one containing symptoms commonly reported by Gulf War veterans. Factor analysis applied to nondeployed veterans yielded five similar factors. Three of the factors yielded statistically significantly greater standardized factor scores for Gulf War veterans than for nondeployed veterans. Four of the factors resembled factors resulting from a previous analysis on a sample of similar Gulf War veterans. Gulf War veterans and nondeployed era veterans reported similar clusters of symptoms and illnesses. However, Gulf War veterans reported these same clusters with greater frequencies than did nondeployed veterans. We conclude that, in contrast to a previous report, factor analysis did not identify a unique Gulf War syndrome.

- 98-7     Garland, FC; CD Garland, & ED Gorham  
 The Association of Unplanned Pregnancy, Marital Status and Age with Adverse Reproductive Outcomes and Elective Abortions in U.S. Navy Women  
 Work Unit Numbers: Army Reimbursable-6611 & 63706N M0095.001-6707

**Abstract:** Adverse pregnancy outcomes can create health care needs with operational impact. This report is based on a survey of self-reported pregnancy outcomes in 3,853 Navy women in 1995-96. Data were collected aboard 61 ships. There were 1,066 pregnancy outcomes while in the Navy including 934 that were the basis of the demographic analyses in this report. A total of 58% (540/934) of pregnancies were unplanned, and 34% (322/934) were to unmarried women. Unadjusted pregnancy outcome rates were: 11% (99/934) elective abortion (EA), 10% (93/934) spontaneous abortion (SA), 1.4% (13/934) ectopic pregnancy (EP) and 0.3% (3/934) stillbirth (SB). EA was most common at 18-23 years, in the unmarried and in unplanned pregnancies ( $p < 0.001$  for each). The adjusted rate of adverse pregnancy outcomes (SA, EP and SB combined) was higher in unmarried (18%) than married (10%) women ( $p < 0.001$ ). The highest EA rate (25%) was in 18-23 yr unmarried women with unplanned pregnancies. The highest rate of adverse pregnancy outcomes (19%) was in unmarried women with unplanned pregnancies. In sub-analyses comparing pregnancies conceived while assigned aboard ship compared to those conceived while assigned ashore, rates of EA and SA were higher for pregnancies conceived while assigned aboard ship.

- 98-8     Walker, GJ & CG Blood (1998)  
 The Patient Flow of Wounded Marines Within a Multi-echelon System of Care  
 (Center Publication, A349-237)  
 Work Unit Number: 63706N M0095.005-6704

**Abstract:** To support resource planning for future combat operations, the present investigation sought to examine the flow of hospitalized Marines through the multi-echelon system of medical care in place during the Vietnam War. Hospitalization data covering the 1965 to 1969 era indicated that almost half of the admissions to Echelon II facilities and over half of the admissions to Echelon III facilities showed no further treatment at higher echelons of care. Over one fifth of the hospitalized Marines were seen at Echelon IV and more than one third required care at Echelon V (continental U.S.) facilities. Patients with open wounds were most likely to be seen at Echelon II, while those with fractures and head/scalp wounds were most likely to receive treatment at an Echelon III facility. The majority of patients with fractures were eventually treated at Echelon V facilities. By combining rate and echelon flow projections with the expected evacuation policies and time needed for treatment, medical resource allocation can be most accurately determined.

- 98-9 Jung, T-P; C Humphries, T-W Lee, MJ McKeown, V Iragui, S Makeig, & TJ Sejnowski  
Removing Electroencephalographic Artifacts by Blind Separation  
Work Unit Numbers: ONR & NPRDC Reimbursable-6429

**Abstract:** Eye movements, eye blinks, cardiac signals, muscle noise and line noise present serious problems for electroencephalographic (EEG) interpretation and analysis when rejecting contaminated EEG segments results in an unacceptable data loss. Here, we propose a new and generally applicable method for removing a wide variety of artifacts from EEG records based on blind source separation by Independent Component Analysis (ICA) (Lee et al., 1997; Bell and Sejnowski, 1995a). Our results on EEG data collected from normal and autistic subjects show that ICA can effectively detect, separate and remove contamination from a wide variety of artifactual sources in EEG records with results comparing favorably to those obtained using regression and PCA methods. ICA can also be used to analyze blink-related brain activity.

- 98-10 Makeig, S; M Westerfield, T-P Jung, J Covington, J Townsend, TJ Sejnowski, & E Courchesne  
Independent Components of the Late Positive Event-related Potential in a Visual Spatial Attention Task  
Work Unit Numbers: ONR & NPRDC Reimbursable-6429

**Abstract:** Brain event-related electrical potentials (ERPs) were recorded from 10 subjects presented with visual target and nontarget stimuli at five screen locations and responding to targets presented at one of the locations. ERP characteristics from the two task conditions were simultaneously analyzed with Independent Component Analysis (ICA), a new computational method for blindly separating linearly mixed signals. Three spatially-fixed, temporally-independent, behaviorally-relevant and physiologically-plausible components were identified without reference to ERP peaks in single-channel waveforms. Further, these components were related to performance differences on the target detection task. Direct relationships between component amplitudes, latencies and behavioral responses, plus similarities between component scalp distributions and regional activations reported in functional brain imaging experiments, suggest that the ERP components identified in our experiment measure the time course and strength of functionally distinct brain processes.

- 98-11 Walker, GJ & CG Blood (1998)  
The Patient Flow of Marine Disease and Non-battle Injury Conditions within a Multi-echelon System of Care  
(Center Publication, A352-066)  
Work Unit Number: 63706N M0095.005-6704

**Abstract:** Records indicate that the occurrence of disease and non-battle injuries (DNBI) has always exceeded combat-related injuries in every major U.S. military operation. Determining the specific types of injuries and diseases expected to be seen at the various levels of care and ascertaining the required personnel and medical resources is essential to placing the appropriate medical resources to best meet operational demands. The objective of this paper is to analyze the rates and types of DNBI seen through the multi-echelon care system in place during the Vietnam War. The number of hospital admissions to facilities in the combat theater will be computed. Then, the percentages of admissions that required treatment at each higher echelon will be ascertained to determine the inter-echelon flow rates. Differences in the patient flow for the leading categories of DNBI conditions will also be examined.

- 98-12 Thomas, MD; PJ Thomas, FC Garland  
Contraceptive Use and Attitudes toward Family Planning in Navy Enlisted  
Women and Men  
Work Unit Number: 63706N M0095.001-6707

**Abstract:** As part of the Women Aboard Navy Ships Comprehensive Health and Readiness Project conducted at the Naval Health Research Center in San Diego, California, contraceptive use and attitudes toward family planning were assessed in a sample of 714 enlisted women and 665 enlisted men on 15 ships. Contraceptive use was related to age and marital status, with young unmarried personnel more likely to take measures to prevent pregnancy than their older married shipmates. More favorable family planning attitudes were related to contraceptive use. Depression, shipboard stress, and job quality of life were not related to use of birth control. Women and men differed in their attitudes toward family planning, with women's responses more positive than men's.

- 98-13 Larson, GE; RG Burr, DM Pearsall, & J Silva (1998)  
An Evaluation of the Clinical Effectiveness of Telemedicine: Medical Provider's  
Perspective  
(Center Publication, A351-912)  
Work Unit Number: 63706N M0096.001-6812

**Abstract:** Despite the growing use of telemedicine technology in civilian and military health care, relatively little work has been performed in the area of evaluation. To address this deficiency, a preliminary set of telemedicine evaluation instruments (primarily surveys) was developed and pilot tested. Surveys for health care providers were administered aboard three Navy carrier groups and one remote shore station. A separate questionnaire, designed for the medical specialist consultants that were contacted via telecommunications, was administered at the consultant sites. Results suggest that providers view telemedicine as a highly effective tool, and that telemedicine consultations have their greatest impact on treatment (as opposed to diagnosis). The usefulness of "basic" telemedicine technologies, such as telephone and e-mail, was strongly supported.

- 98-14 Hourani, LL; H Yuan, RM Bray, & AA Vincus (1998)  
Psychosocial Correlates of Nicotine Dependence among Men and Women in the U.S.  
Naval Services  
(Center Publication, A351-911)  
Work Unit Numbers: 63706N M0096.004-6428 & Army Reimbursable-6604

**Abstract:** This study assessed the prevalence and psychosocial correlates of DSM-III-R criteria-based diagnoses of nicotine dependence in men and women in the United States naval services. Analyses were based on data from the 1995 Perceptions of Wellness and Readiness (POWR) Assessment, a population-based self-report survey of 9,856 active-duty Navy and Marine Corps members, specifically focusing on a subsample of those who completed the telephone version of the Quick Diagnostic Interview Schedule (n=782). There was no difference in nicotine dependence by traditional versus non-traditional job classification among women. Women who were abused prior to entering the military were almost 3 times as likely to be nicotine dependent as those not abused. Men who had been exposed to combat or violence were twice as likely to be nicotine dependent as those not exposed.

- 98-15 Galarneau, MR; G Pang, PJ Konoske & ED Gauker (1998)  
Using a Model of Clinical Events to Determine Supply Requirements for Marine Corps Shock Surgical Team/Triage (SST) and Acute Care Ward Units  
(Center Publication, A351-922)  
Work Unit Number: 63706N M0095.005-6809

**Abstract:** The primary objective of this work was to reduce the logistic footprint of the Shock Surgical Team/Triage (SST) and Acute Care Ward units by developing a model of the far forward medical supply stream that linked specific clinical requirements to individual medical treatment items. A list of medical items necessary to complete SST and Ward tasks was produced by loading information into a patient generating model (PATGEN). When compared to the current Marine Corps SST and Ward care blocks, the proposed AMALs resulted in weight reductions of 31.9% and 26.4% for the SST equipment and consumable AMALs, respectively and 11.2% and 20.7% for the Ward equipment and consumable AMALs, respectively. Similar reductions were also realized in cubic volume. This approach, which also resulted in an increase in clinical capability, produced an audit trail for each item that allows medical logisticians to substantially improve the AMAL configurations because only items that can be clinically related to a treatment task conducted in theater are considered for inclusion.

- 98-16 Garland, FC; CF Garland, & ED Gorham  
A Model of the expected Occurrence of Adverse Pregnancy Outcomes during U.S. Navy Ship Deployments  
Work Unit Number: 63706N M0095.001-6707

**Abstract:** The goal of this study was to model the incidence of ectopic pregnancy (EP) and spontaneous abortion (SA) if pregnant women in the first 20 weeks of gestation remained aboard ship during deployments. This report characterizes the pregnancy rate and predicted incidence of EP and SA aboard each ship type during the first 20 weeks of pregnancy and incidence of these events aboard Navy ships. Data sources used were the Hospitalized Pregnancy Study, the Women Aboard Ship Study and, Enlisted Personnel Survey. Pregnancy occurrence data were collected from shipboard medical departments. The overall pregnancy rate was 19 per 100 woman-years (95% confidence interval 18-20) based on the complement of women assigned to participating ships as the denominator. If pregnant women routinely were to remain aboard ships during deployments through their first 20 weeks of pregnancy, it is expected that there would be approximately nine ectopic pregnancies and 40 spontaneous abortions per year during deployments.

- 98-17 Gunderson, EKE & LL Hourani (1998)  
The Epidemiology of Mental Disorders in the U.S. Navy: The Neuroses  
(Center Publication, A352-147)  
Work Unit Number: 63706N M0095.001-6706

**Abstract:** As the second study in a series of investigations of the incidence and outcome of mental disorder in the US Navy, this study focuses on men and women diagnosed with a neurotic disorder. The objectives of this study were to (1) determine first hospitalization incidence rates in an initially healthy young adult population by gender, race, and age and evaluate the effects of other demographic characteristics on onset and course of illness and (2) determine duration of acute illness, severity, and post-hospital outcomes in terms of military performance and premature personnel losses. First hospitalizations for neurotic disorders were extracted from automated medical record data files for all active-duty Navy personnel admitted between 1980 and 1988. Incidence rates were calculated for major demographic

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subgroups and career history records provided a four-year follow-up of service-related outcomes. Overall incidence ranged from a low of 3 per 100,000 for obsessive-compulsive disorders to a high of 58 per 100,00 for other neurotic disorders/NOS. The Phobia and Depressive groups had the poorest prognoses for continued service, and the NOS and Anxiety groups had the best prognoses.

- 98-18 Deniston, WM; PJ Konoske, & WM Pugh (1998)  
Mobile Medical Monitoring at Forward Areas of Concern  
(Center Publication, A352-136)  
Work Unit Number: 63706N M2332.001-6710

**Abstract:** The objective of this report was to document the required and potential uses for mobile medical monitoring in support of specified U.S. Marine operational scenarios. Medical doctrine and policy and medical resource requirements were reviewed and user feedback was gathered using surveys and discussion groups. The results revealed several requirements for a M3 capability. ECG monitor, pulse oximeter, blood pressure, temperature, ultrasound, and digital x-ray were recommended as clinical functions, while multi-patient monitoring. Smartcard reader/writer, electronic patient record, and image capture were mentioned as clinical support functions. The ability to store and transmit patient information was also indicated as a beneficial capability for use by medical personnel in forward areas of care.

- 98-19 Hourani, L; H Yuan, RM Bray, S Wheelless (1998)  
The Health Status of Women in the Navy and Marine Corps: Preliminary Findings from the Perceptions of Wellness and Readiness (POWR) Assessment  
(Center Publication, A356-419)  
Work Unit Numbers: 63706N M0096.004-6428 & Army Reimbursable-6604

**Abstract:** This study was designed to produce prevalence estimates of a broad range of physical and mental disorders and potential risk factors in Navy and Marine Corps men and women and to make comparisons among and between military populations and civilians. A comprehensive, self-report questionnaire survey was administered to a two-stage, stratified probability sample of 9,859 active-duty, shore-based Navy and Marine Corps personnel worldwide. Although relatively low rates of disorder were found in the military populations examined, female Sailors and Marines, similar to civilians, tend to have higher rates of physical and mental illness, poorer perceptions of their health status, and greater health care and medication utilization than their male counterparts. Women reported more psychosocial risk factors such as greater stress, less social support, and a lower quality of life than men. They were more likely to have been abused prior to service entry and be concerned with their weight. A few chronic physical conditions such as anemia and migraines were found to be more prevalent among this military sample than reported among civilians. Navy women perceived themselves to be healthier and less stressed and angry than Marine Corps women.

- 98-20 Williams, D; J Streeter, & T Kelly  
Fatigue in Naval Tactical Aviators  
Work Unit Number: 63706N M0095.005-6714

**Abstract:** Surveys of sleep habits and problems with fatigue were distributed to 78 combat aviators in two administrations. These pilots were receiving training prior to deployment at the Tactical Aircrew Combat Training System, also known as "Top Gun." The results of the surveys suggest that pilots believe their job performance is compromised by fatigue. In the first survey, pilots indicated that they believed that fatigue affected their performance on a weekly basis. About one third of pilots in both samples indicated that they had fallen asleep in the cockpit at least once, with an average of three times in their careers. Their fatigue does not

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appear to result from sleep deprivation. It may result from having to shift their sleep cycle to meet scheduling requirements that can lead to circadian desynchronization and consequent fatigue. Changes in current naval procedures, especially scheduling that ignores circadian rhythms and dictates crew days that exceed naval regulations, could potentially decrease fighter pilots' reported problems with fatigue.

- 98-21 Gray, GC; TC Smith, HK Kang & JD Knoke  
Are Gulf War Veterans suffering war-related illnesses? Federal and Civilian hospitalizations examined, June 1991 to December 1994  
Work Unit Number: 63738D P4464.001-6423

**Abstract:** A previous epidemiologic study demonstrated no unexplained increase in risk for postwar hospitalization among Gulf War veterans who had remained on active-duty. We sought to expand this study to include Reserve and separated military personnel. We examined hospitalization data from the Department of Defense (DoD), Department of Veterans Affairs (VA), and the California Office of Statewide Health Planning and Development (CA) hospital systems for the years 1991 to 1994. Since denominator data were not available, we compared the proportional morbidity ratios (PMRs) of hospitalization discharge diagnoses (both large categories and specific diagnoses) between Gulf War veterans and other veterans of the same era. There were no indications that Gulf War veterans were suffering increased PMRs for infectious diseases, neoplasms, endocrine diseases, blood diseases, nervous system, circulatory system, musculoskeletal system or skin conditions. However, Gulf War veterans did experience proportionally more hospitalizations for various specific diagnoses, namely fractures, bone and soft tissue injuries (DoD and CA), for various diseases of the respiratory (including asthma) and digestive systems (VA), and for diverse symptom diagnoses (VA). While these findings may be influenced by chance or a number of potential confounders, including health registry participation, they merit further examination using other study designs.

- 98-22 Gray, GC; JD Callahan, AW Hawksworth, C Fisher & J Gaydos  
Respiratory Disease among U.S. Military Personnel: Strategies to Counter Emerging Threats  
Work Unit Number: 61102AM0101.BKX-6609

**Abstract:** Respiratory disease is a leading cause of illness in military populations. Emerging respiratory disease agents, increased antibiotic resistance and the loss of effective vaccines promise to increase this morbidity. The authors review the history, epidemiology and efforts to control acute respiratory diseases among U.S. military populations. Six emerging respiratory threats are evaluated: adenoviruses, influenza, *Streptococcus pyogenes*, *Streptococcus pneumoniae*, *Mycoplasma pneumoniae* and *Bordetella pertussis*. U.S. Department of Defense (DOD) Surveillance strategies, limitations in diagnostic testing, and vaccine needs are presented. To meet these challenges the DoD must establish laboratories for the diagnosis and study of respiratory diseases and partner with other institutions to improve diagnostic testing and develop vaccines.

- 98-23 Kaiser, KS; AW Hawksworth & GC Gray  
Pyridostigmine Bromide Intake during the Persian Gulf War not associated with Postwar Handgrip Strength  
Work Unit Number: 63738D P4464.001-6423

**Abstract:** Thousands of US Persian Gulf War veterans took pyridostigmine bromide (PB) tablets during January and February 1991 as a pretreatment in the event of a nerve gas attack during the Persian Gulf War. Previous experimental research suggests that chronic PB intake may reduce muscular strength and may have other biological effects by itself or through

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interactions with other exposures. As part of an epidemiological study during 1994 and 1995, we examined relationships between self-reported PB intake and handgrip strength in US Navy Seabees (construction workers). We studied 527 Gulf War veterans (GWVs) and 969 nondeployed veterans of that era (NDVs). Of the GWVs, 25.4% and 6.7% of the NDVs reported experiencing 30 or more days of unusual fatigue or generalized muscle weakness since the Gulf War. Dominant handgrip strength was measured three times with a hand-held dynamometer in subjects standing with elbow bent at a right angle. Multiple linear regression analysis was used to examine possible effects of PB and other health and demographic risk factors on handgrip strength. While handgrip strength was negatively associated with age ( $p = .001$ ), and female gender ( $p < .001$ ), and positively associated with height ( $p < .001$ ), it was not associated with PB intake ( $p = .558$ ). Exposure to insecticide spray or burning insecticide in combination with PB also had no major effect on handgrip strength. These results suggest that PB intake had little or no effect on postwar handgrip strength among Seabees who have remained on active duty since the Gulf War.

98-24 Araneta, MRG; D Destiche, IK Schlanger, B Horiuchi, & A Onaka  
Deterministic Linkage to Identify Births to Military Personnel, using Hawaii Birth Certificate and Military Personnel Records  
Work Unit Number: 63738D P4464.001-6423

**Abstract:** The ability to monitor health outcomes of military personnel who have separated from the military or are treated in nonmilitary hospitals is limited. Data linkage was performed using military and Hawaii birth certificate (HBC) data to identify live births between 1989 and 1993 to military personnel. Data from military personnel ( $n = 2,271,747$ ) and their dependents were obtained from the Department of Defense Manpower Data Center. HBC data for 99,545 live births were provided by the State of Hawaii Department of Health. Personal identifiers including name, date of birth, and social security number were used to link military and HBC records. LinkPro, an integrated linkage software system for deterministic and probabilistic record linkage, was used for data linkage. Matching algorithms were developed to compensate for missing or incomplete data, changes in last name, typographical and transpositional errors, and to identify ambiguous matches. Data linkage identified 17,182 live births to military personnel in Hawaii. When compared with 19,232 HBC records which recorded parental employment in the military, 16,717 (87% of HBC records with recorded military employment, and 97% of the matched records) were common to both files. Deterministic data linkage is an efficient means of linking military and state surveillance data.

98-25 Pfeiffer, JM; EW Askew, JE Benson, SC Johnson, DE Roberts, SM Wood,  
& Freedman, MS  
Effect of antioxidant Supplementation on Urine and Blood Markers of Oxidative Stress during Extended Moderate Altitude Training  
Work Unit Number: 62233N MM33P30.002-6603

**Abstract:** Oxidative stress is increased during work at altitude due to additional energy expenditure, tissue anoxia and UV light exposure. Thirty U.S. Marine Corps volunteers were divided into placebo (P) and antioxidant supplement (S) groups and tested for markers of oxidative stress before, at midpoint of, and after winter training at 8858 feet elevation. Urine was collected. Both groups exhibited significant increases in urine, with the increase being significantly greater in the S group than the P group. The conflicting results between plasma and urine markers of oxidative stress may be due to a time phase relationship.

- 98-26 Emens-Hesslink, K; M Galarneau, D Lowe, T. J. Smith, & P Konoske  
Development of a Medical Supply Set for Corpsmen in the Field  
(1998, Center Publication)  
Work Unit Number: 63706N M0095.005-6808

**Abstract:** The purpose of this investigation is to develop a medical supply set for Fleet Marine Force corpsmen, the first medical responders to treat casualties during training exercises and in battle. An updated list of supplies to be carried into the field and an updated list of items that will be pulled from the BAS were generated using the Naval Health Research Center medical supply model. A clinical requirement was established for each item by attaching it to one or more of the field tasks performed by corpsmen, thereby producing an audit trail for each supply item. The results show that the new medical module for field corpsmen will allow them to carry more items. Making these improved supplies available to the corpsmen will greatly improve treatment capability and, as technology and need change, replacements, additions, and deletions can easily be made. Training can also be enhanced by using the defined treatment tasks and supplies attached to them.

- 98-27 Babkoff, H; TL Kelly, & P Naitoh  
Trial-to-Trial Variance in Choice Reaction time during Sleep Deprivation: Effect of Pemoline and Methylphenidate  
Work Unit Number: 61153N MR04101.003-6410

**Abstract:** This paper is to report the effects of two stimulants, methylphenidate and pemoline on performance stability in a choice Reaction Time (RT) task during sleep deprivation. Reported in a previous paper were the effects of the administration of either methylphenidate and pemoline on a variety of performance tasks during 64-hours of sleep deprivation. The results were included on the effects of drug intervention on mean RT and accuracy in a four-choice RT task; however, the effects of drug intervention on performance stability was not reported. This paper reports the changes in trial-to-trial variance (performance stability) in the 4-choice RT task during 64 hours of sleep deprivation and the impact of methylphenidate or pemoline on these changes. The four-choice reaction time data were selected for this analysis because the large number of trials and data contributed by the subjects during the course of sleep deprivation, provides a stable database for comparisons and conclusion.

- 98-28 Jung, T-P; S Makeig, M Westerfield, J Townsend, E Courchesne, & TJ Sejnowski  
Analysis and Visualization of Single-Trial Event-Related Potentials  
Work Unit Numbers: ONR & NPRDC Reimbursable-6429

**Abstract:** This study applies, for the first time, a new linear decomposition technique, Independent Component Analysis (ICA), to single-trial multichannel EEG data. Spatial filters are derived that blindly separate the input data into a sum of temporally independent and spatially-fixed brain electrophysiological components arising from distinct or overlapping brain or extra-brain sources. ICA was used to derive artifact-free, response-latency corrected single-trial responses to target stimuli in a visual selective attention experiment. Results show that, contrary to common supposition, variability in late positive and negative components of visual target responses is nearly entirely explained by response components consistently time-locked to motor responses. Averages of the artifact-free data corrected for response-latency better represent the brain-evoked response than conventional response averages.

- 98-29 Araneta, MRG; D Destiche, K Schlangen, R Merz, M Forrester, & GC Gray  
Birth Defects Prevalence among Infants of Persian Gulf War Veterans born  
in Hawaii, 1989-1993  
Work Unit Number: 63738D P4464.001-6423

**Abstract:** To measure the prevalence of birth defects among infants of Persian Gulf War veterans (GWVs) in Hawaii, personal identifiers of 2,271,747 military personnel (684,645 GWVs and 1,587,102 nondeployed veterans (NDVs)) and their dependents were matched against birth certificate records of 99,545 live births reported to the State of Hawaii Department of Health between 1989 and 1993. The number of infants of military personnel identified was 17,182 (3,717 GWV infants and 13,465 NDV infants). These births were matched with records from the Hawaii Birth Defects Program, and 377 infants (2.19/100 live births) were identified with one or more of 47 major birth defects diagnoses. The prevalence of the 47 birth defects were similar for GWV and NDV infants during the prewar and postwar periods, and among GWV infants who were conceived prior to and after the Gulf war. The results must be interpreted with caution because of the few case infants in each birth defects category. This study demonstrated the feasibility of measuring birth defects prevalence among military progeny through multiple data linkage. Further, it included live births to parents who had separated from the military, births in civilian hospitals, and birth defects diagnosed through the first year of life.

- 98-30 Derderian, BR & CG Blood (1999)  
Shipboard Medical Admissions during Peacetime and Combat Support Deployments  
(Center Publication, A359-357)  
Work Unit Number: 63706N M0095.005-6704

**Abstract:** Hospitalizations aboard aircraft carriers were examined to ascertain differences in illness type attributable to theater of operations and combat deployment status. Percent distributions and lengths-of-stay (LOS) statistics of major diagnostic categories are provided and compared between Vietnam combat support and peacetime modes of operations, and between Western Pacific (WESTPAC) and Mediterranean theater of operations. Respiratory disease proportions were found to be significantly higher for Vietnam combat support deployments than during subsequent peacetime deployments. For peacetime deployments, WESTPAC had higher percentages of infective, respiratory and skin disorders, while the Mediterranean had a larger proportion of total admissions comprised by accidents.

- 98-31 Hodgdon, JA; MB Beckett, T Sopchick, WK Prusaczyk, & HW Goforth Jr  
Physical Fitness Requirements for Explosive Ordnance Disposal Divers  
Work Unit Number: NEOD Reimbursable-6272

**Abstract:** This study explored relationships between performance of Explosive Ordnance Disposal (EOD) job tasks and physical fitness measures and to determine minimum physical fitness scores, to serve as standards for EOD personnel. Subjects were 37 active duty EOD personnel; mean age was  $31.8 \pm 5.8$  years; stature,  $177.4 \pm 5.8$  cm; body mass,  $81.1 \pm 10.9$  kg; and body fat content,  $17 \pm 5.3\%$ . Physical fitness attributes measured were: sit-reach distance, push ups in 2 min, curl-ups in 2 min, pull-ups, long jump, 1.5 mile run, 3.0 mile run, 500 yd pool swim, and 1000-yd ocean swim. Performance on 4 job task simulations was measured as time for task completion: (1) carrying diving equipment; (2) lifting twin 80 SCUBA tanks; (3) 500 yd bay surface swim; and (4) 100-yd rescue swim. Fat free mass significant predictor of performance on all of the job task simulations. Body mass was a significant predictor of performance on the SCUBA tank lift, bay swim time, and rescue swim time. Stature was

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related significantly to equipment carry time and bay swim time. The PRT items were, in general, poor predictors of performance on the job task simulations. The only significant prediction was push-ups for performance on the bay swim and rescue swim.

- 98-32 Vickers Jr., RR & L Hervig  
Occupational Physical Demands and Hospitalization Rates in U.S. Navy Personnel  
Work Unit Number: 63706N M0096.002-6716

**Abstract:** This study examined the health effects of performing physically demanding jobs. Hospitalization rates for 41 diseases were examined in a sample of 59 U.S. Navy entry-level enlisted occupations. As predicted, higher physical demands ratings (PDRs) were associated with higher rates of Musculoskeletal disease ( $r=.594$ ), accidental injury ( $r=.627$ ) and inguinal hernia ( $r=.594$ ). Cellulitis ( $r=.600$ ), alcohol abuse ( $r=.496$ ), and acute alcohol intoxication ( $r=.643$ ) were strong PDR correlates that were not predicted. Musculoskeletal disease, accidental injury, inguinal hernia, and cellulitis are logical consequences of physical exertion. Taking these four diseases as the health effects of occupational physical demands, a highly demanding occupation (i.e., 90th percentile) will have one more hospitalization per year for every 124 sailors at risk than will a low demand occupation (i.e., 10th percentile)

- 98-33 Vickers Jr., RR & JA Martin  
Organizational Influences on Gender Differences in Stress and Strain aboard U.S. Navy Ships  
Work Unit Number: Army Reimbursable-6611

**Abstract:** Changes in policy have resulted in more women being assigned to U>S> Navy ships in recent years than has been true historically. This study tested the general hypotheses that women would find these assignments no more stressful than men do. This hypothesis, based on a review of stress studies in civilians, was supported. The review of studies of civilians suggested that work-family conflict would be an exception to the general trend, and women did report substantial higher concern about children and child care than did men. Gender differences in depressive symptoms were trivial even though studies of civilians suggested they would be large enough to be of interest. The difference may be that the women and men in this study were matched on sociodemographic attributes that could affect depression. Occupation (rating, ship type, and deployment experience) were considered as organizational factors that might increase the size of the typical gender differences in stress and strain. None of these factors substantially influenced the size of gender differences in stress. Some specific instances of larger than average gender differences in stress and strain were noted, but these isolated trends require replication before they can be given much weight. On the whole, gender differences in stress were small and comparable to those in civilians.

- 98-34 Kujawa, K & J Hodgdon  
Comparison of Circumference- and Skin-fold based Body Fat Estimation Equations  
Work Unit Number: BuPers Reimbursable-6430

**Abstract:** This study compared the accuracy of the Navy's circumference-based equations to the accuracy of three well-known skinfold- and bioimpedance-based equations. Skinfold equations were those of Behnke and Wilmore, Durnin and Womersley, and Jackson and Pollock. Bioimpedance equations were those of Segal et al. and Lohman. The criterion for accuracy was percent body fat determined by hydrostatic weighing. There were no differences in predictive ability between the Navy equation and any of the other equations for women. The standard errors of the estimate were also similar among the equations. This held for the entire group of women as well as for Caucasians and African-Americans separately. There were also

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no significant differences between Caucasians and African-Americans for any of the techniques. For men, the Navy equation was the best predictor of body fat determined by hydrostatic weighing. The differences seem to have been primarily due to the greater predictive ability of the Navy equation for African-American men; the Navy equation was significantly better than all but the Segal et al. equation in predicting body fat from hydrostatic weighing in African-American men. The Navy's circumference method also has an advantage over skinfold equations in that measurement of circumferences is more precise than skinfold measurements and is easier to learn; and the method has an advantage over bioimpedance in cost and technical considerations. Improvements can and are being made in body fat estimation of Navy personnel, with particular emphasis on prediction of body fat for women and ethnic minorities.

- 98-35 Prusaczyk, WK; JW Stuster, HW Goforth, MB Beckett, & JA Hodgdon  
Survey of Physically Demanding Tasks of U.S. Navy Explosive Ordnance Disposal  
(EOD) Personnel  
Work Unit Number: NEOD Reimbursable-6272

**Abstract:** The two primary objectives of this study were 1) to identify physically demanding tasks performed during Explosive Ordnance Disposal (EOD) operations and to rank them according to difficult to perform, frequency of performance and importance to overall mission success, and 2) identify specific abilities that contribute to an EOD technician's success. Based on interviews, a preliminary inventory of physical tasks was developed and separated into a three-part questionnaire. Part one contained task statements which EOD technicians rated each statement from one to seven (least to most) to perform, frequency and importance to mission success. Scores were summed for each statement to obtain a composite score. Part 2 identified specific tasks that (1) required most muscular strength, (2) required most muscular endurance, (3) most physically routine demanding tasks to perform, and (4) most demanding tasks that were ever performed. A final question asked and answer, what task should all EOD members be able to perform, was partner rescues. Part 3 asked technicians to rate 24 abilities (e.g., manual dexterity, memorization, etc.) into categories of 'more important, important and less important to mission success.' 84 technicians from EOD Group One and Two completed the survey with 29 reported have 10 or more years of EOD experience. Logistics tasks appear to be among the most physically demanding and frequently performed tasks. These data provide a basis for developing job-based physical fitness standards and may be used to develop task-oriented physical training programs for EOD technicians.

- 98-36 Chao, W-H, W Askew, DE Roberts, SM Wood, & JP Perkins  
Indices of Oxidative Stress during Strenuous Cold Weather Work at Moderate Altitude  
Work Unit Number: 62233N MM33P30.002-6603

**Abstract:** Oxidative stress (OS) has been associated with many chronic diseases yet no standard methods have been established to evaluate OS reliably. A study of 75 Marines undergoing winter training at altitude measured the effect of antioxidant vitamins, given either separately or in combination. Measures of OS included lipid peroxidation and DNA alteration. The results indicated that strenuous work in cold weather at altitude was accompanied by increased OS that was not effectively controlled by conventional antioxidants given separately. The group receiving the antioxidant mixture seemed to experience less OS as indicated by lower breath pentane. A definitive relationship between biochemical markers of OS could not be ascertained, indicating the importance of including markers from more than one source (i.e., blood, urine, and breath) to assess the effect of supplemental dietary antioxidants.

- 98-37 Hodgdon, JA & MB Beckett  
Body Composition and Physical Performance: Estimation of Lifting and Carrying from Fat-free Mass  
Work Unit Number: BuPers Reimbursable-6430

**Abstract:** The most common physically demanding military tasks are lifting and carrying. Body composition variables fat-free mass (FFM) and fat mass are related to performance of materials handling. This report quantifies these relationships and suggest safe, field-deployable methods for estimating materials handling capability. Navy and Marine Corps personnel (64 men, 38 women) had measurements made of 1) strength, one-repetition maximal lifts for bench, shoulder, and leg press, arm curl, latissimus pull down, and incremental life machine; 2) aerobic capacity, maximal oxygen consumption and time for the 1.5-mile run; 3) performance on job-task simulations; box lifts to knuckle and to elbow heights, and a box carry; 4) stature and body weight; and 5) body composition (FFM percent body fat, and body weight) from two compartment analysis (underwater weighing).

Correlations between strength and performance on the lifting tasks averaged 0.82. For body composition measures, FFM had the highest correlation with lifting (average = 0.82) and carrying (0.53) performance. FFM can be used to estimate ability to perform materials handling tasks. For lifting, logistic models can determine acceptable levels of FFM for specific tasks (lifting heights and weights). For carrying, simplifying principles are needed before predictive models can be developed.

- 98-38 Gauker, ED; K Emens-Hesslink, PJ Konoske (1999)  
A Descriptive Analysis of Patient Encounter Data from the Fleet Hospital 5  
Humanitarian Relief Mission in Haiti  
(Center Publication, A359-351)  
Work Unit Number: 63706N M0095.005-6809

**Abstract:** It is important to update military medical planning tools to account for Military Operations Other Than War (MOOTW), such as humanitarian assistance, peacekeeping, and disaster relief. This report describes the patient demographics, type of medical encounter, diagnoses, and medications provided by medical personnel of Field Hospital 5 (FH5) in clinics that provided humanitarian relief to Haitian civilians, and at FH5, where US and UN military personnel were treated, during a humanitarian relief operation in Haiti. Of the clinic patients that were seen at 22 sites between April 4 and August 5, 1997, almost two-thirds (61.6%) were women, and children aged 1-10 years comprised the largest age category. Additionally, a majority of FH5 patients (81%) were men; those aged 21 to 50 years were seen most often. Medical diagnoses were the most frequent type of patient encounter, representing 92.6% of clinic visits and 92.2% of FH5 visits. Infectious and parasitic diseases were diagnosed once in every four clinic visits. At FH5, injury and poisoning diagnoses were the most frequent (23.1%).

#### TECHNICAL DOCUMENTS

Document No. (Authors/Title/Publication Data/AD#, Work Unit number)

- 98-1A Hermansen, LA (1998)  
An Overview of the Special Operations Interactive Medical Training Program (SOIMTP)  
(Center Publication, A349-300)  
Work Unit Number: 1160407BB.001-6810

**Abstract:** The Special Operations Interactive Medical Training Program (SOIMTP) was developed to assess the feasibility of using a computer-based system to provide medical

training for corpsmen and medics attached to Special Operations (SpecOps) units of the Army, Navy, Marine Corps, and Air Force. The present version of SOIMTP software has training modules in 21 different subject areas. The question-and-answer items in each of the modules were designed to cover major components of these subject areas and to reflect the special knowledge required of corpsmen and medics attached to SpecOps units. SOIMTP has been approved for Independent Duty Corpsman Continuing Education credits by the Naval Health Sciences Education and Training Command. This report describes system development and operation and it provides a brief overview of each of the modules.

98-2B Konoske, PJ; W Deniston, R Barker, R Merchant, & D Moses (1999)  
Evaluation of the Mobile Medical Monitor (M3) at Forward Levels of Care  
(Center publication, A359-350)  
Work Unit Number: 63706N M2332.001-6710

**Abstract:** The primary objective of this report is to document the evaluation of the M3(B) portable medical workstation in laboratory and field environments. Results from laboratory testing demonstrated that the M3(B) met the design criteria for hardware and software. Data from field observations showed improvements in registration and M3(B) blood pressure and pulse oximetry readings. The M3(B) was judged to increase productivity by improving patient tracking and allowing caregivers to make rapid diagnoses. Additional ruggedization of components and more efficient packaging are recommended along with additional user training and specific system enhancements.

98-3C FOR OFFICIAL USE ONLY. Prusaczyk, WK & Goldberg, GM  
An Overview of United States Special Operations Forces  
Work Unit Number: 63706N M0096.002-6801

**Abstract:** For Official Use Only. This document does not describe medical procedures or techniques that could or would be used in casualty treatment associated with military operations but gives an overview of special operations, providing an operational framework to appreciate differences between the conduct of special operations and that of conventional warfare. To request a copy of the document, contact the principal author.

98-4D Bush, RA; TC Smith, DE Gee, WK Honner, O Lekarev, ME Stroll, & GC Gray  
Active Surveillance of Birth Defects among U.S. Department of Defense Beneficiaries:  
Report of a Feasibility Study  
(1999, Center Publication)  
Work Unit Number: 63738D P4464.001-6423

**Abstract:** Birth defects remain the leading cause of infant mortality in the United States and, to date, the Department of Defense (DoD) has no comprehensive monitoring program in place to track birth defects. Having completed a feasibility study on the construction of a birth defects registry in San Diego county, the Naval Health Research Center proposes a DoD-wide, hybrid surveillance system to track birth defects among military members and their dependents.

3. Supporting Documents

**b. Other Journal/Proceedings Published in 1998**

| <u>Report No.</u> | <u>(Authors, title, journal)</u>                                                                                                                                                                                                                                                                                                                 | <u>AD#</u> |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 97-4              | Merrill, LL; CE Newell, JS Milner, LK Hervig, & SR Gold (1998). Prevalence of Premilitary Adult Sexual Victimization and Aggression in a Navy Recruit Sample. <u>Military Medicine</u> , 163(4), 209-212                                                                                                                                         |            |
| 97-7              | Knoke, JD; GC Gray, & FC Garland (1998). Testicular Cancer and Persian Gulf War Service. <u>Epidemiology</u> , 9(6), 648-653                                                                                                                                                                                                                     |            |
| 97-13             | Trent, LK & SL Hurtado (1998)<br>Longitudinal Trends and Gender Differences in Physical Fitness and Lifestyle Factors in Career U.S. Navy Personnel (1983-1994)<br><u>Military Medicine</u> , 163(6), 398-407                                                                                                                                    | A353-966   |
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| 96-13             | Gray, GC; DC McPhate, M Leinonen, GH Cassell, EP Deperalta, SD Putnam, JA Karcher, MH Sawyer, A Laurila & JD Connor (1998)<br>Weekly Oral Azithromycin as Prophylaxis for Agents Causing Acute Respiratory Disease. <u>Clinical Infectious Diseases</u> , 26, 103-110                                                                            | A358-296   |
| 96-21             | Trent, LK (1998)<br>Evaluation of a Four- versus Six-week Length of Stay in the Navy's Alcohol Treatment Program. <u>Journal of Studies on Alcohol</u> , 59(3), 270-279                                                                                                                                                                          | A353-985   |
| 96-26             | Brodine, SK; MA Shaffer, RA Shaffer, CB Boyer, SD Putnam, FS Wignall, RJ Thomas, B Bales, & J Schachter (1998)<br>The Prevalence of Asymptomatic Sexually Transmitted Diseases in Four Military Populations: Application of DNA Amplification Assays for Chlamydia and Gonorrhea Screening. <u>Journal of Infectious Diseases</u> , 178, 1202-04 | A358-359   |
| 96-35             | Knoke, JD & GC Gray (1998)<br>Hospitalizations for Unexplained Illnesses among U.S. Veterans of the Persian Gulf War. <u>Emerging Infectious Diseases</u> , 4, 211-219                                                                                                                                                                           | A353-979   |
| 95-36             | Gray, GC; EF Fogley & KL Albright (1998)<br>Risk Factors for Primary Pulmonary Coccidioidomycosis among United States Navy and Marine Corps Personnel, 1981 to 1994<br><u>American Journal of Tropical Medicine Hygiene</u> , 58(3), 309-312                                                                                                     | A356-435   |

## 1998 Command History-NHRC

Tech Doc (Authors, title, journal)

- 96-6F Konoske, PJ; RW Dobbins, & E Gauker (1998) A353-986  
MARC ES: A Computer Program for Estimating Medical Information Storage Requirements. Military Medicine, 163(11), 49-55
- No # KNOKE, JD & GC GRAY. Hospitalizations after the Gulf War (1998). [Letter, rely to KM Leisure et al]. Emerging Infectious Disease, 4, 709.
- No # Cowan, DN; GC GRAY & RF DeFraitcs (1998). Counterpoint: Responding to inadequate critique of birth defects paper. American Journal of Epidemiology, 148, 343-349.
- No # GRAY, GC; JD KNOKE, SW Berg, & FS Wignall, E Barrett-Connor (1998). Counterpoint: Responding to suppositions and misunderstandings. American Journal of Epidemiology, 148, 328-333.
- No # Jansen, DL; BD Meade, F Lynn, GC GRAY, & SD Putnam (1998). [Letter, reply] Evaluation of pertussis in U.S. Marine Corps Trainees. Clinical Infectious Diseases, 27, 123-2.
- No # Fryauff, DJ; MA Shoukry, HY Wassef, G GRAY, & CE Schreck (1998). Contact toxicity of permethrin-impregnated fabric to *Hyalomma anatolicum excavatum* (Acari: Ixodidae): Effects of laundering and exposure and recovery times. Journal of Medical Entomology, 35, 335-339.

### c. Other Technical Reports Published in 1998

Report No. (Authors, title, journal)

AD#

- 97-37 Reading, JE; DE Roberts & WK Prusaczyk (1998)  
Gender Differences in Finger Temperatures during Cold Air Exposure  
(Center Publication)
- 97-39 Blood, CG; JM Zouris & D Rotblatt (1998) A339-487  
Using the Ground Forces Casualty Forecasting System (FORECAS) to Project Casualty Sustainment  
(Center Publication)
- 97-40 Hourani, LL; H Yuan, W Graham, L Powers, C Simon-Arndt, & B Appleton (1998)  
The Mental Health Status of Women in the Navy and Marine Corps: Preliminary Findings from the 1995 Perceptions of Wellness and Readiness (POWR) Assessment  
(Center Publication, A339-334)

### d. Reports "in press"

- 97-1 Brodine, SK & RA Shaffer. In: Chapter II, Preparation of Deploying Troops: The Role of Preventive Medicine Health Education (in press)
- 97-5 Merrill, LL; CE Newell, SR Gold, & JS Milner. Childhood Abuse and Sexual Revictimization in a Female Navy Recruit Sample. Journal of Traumatic Stress (in press)  
(1997, Center Publication, A331-433)
- 97-19 Gray, CG; KS Kaiser, AW Hawksworth, FW Hall, & E Barrett-Connor. Increased Postwar Symptoms and Psychological Morbidity among U.S. Navy Gulf War Veterans. American Journal of Tropical Medicine & Hygiene (in press)

1998 Command History-NHRC

- 97-30 Hourani, LL; G Warrack, & P Coben. A Demographic Analysis of Suicide among U.S. Navy Personnel. Suicide & Life-threatening Behavior (in press)  
(1997 Center Publication, A335-283)
- 97-35 Gray, GC; TC Smith, JD Knoke, & JD Heller. The Postwar Hospitalization Experience among Gulf War Veterans Possibly Exposed to Iraqi Chemical Munitions Destruction at Khamisiyah, Iraq. American Journal of Epidemiology (in press)
- 97-40 Hourani, LL & H Yuan. The Mental Health Status of Women in the Navy and Marine Corps: Preliminary Findings from the Perceptions of Wellness and Readiness Assessment. Military Medicine (in press) (1998 Center Publication, A339-334)
- 96-17 Gray, GC. Respiratory Pathogens. In Kelley, PW (ed.), Military Preventive Medicine: Mobilization and Deployment. Washington, DC: Borden Institute (in press).  
(1997, Center Publication, A326-214)

**3. SUPPORTING DOCUMENTS**

Biography and Photo of Commanding Officer

**Encl (2)**

### **Biography of the Commanding Officer**

Captain Lawrence H. Frank, a native of Bellingham, Washington, received his B.A. and M.S. degrees in Psychology from Western Washington State College in 1970 and 1972, respectively, and his Ph.D. in Industrial Engineering and Operations Research (Human Factors specialty) from Virginia Polytechnic Institute and State University in 1986.

Captain Frank began his naval career in October 1974, in Aviation Officer Candidate School, Pensacola, FL., and served student tours in aviation training squadrons VT-10 and VT-86, and at the Naval Aerospace Medical Institute before being designated an Aerospace Experimental Psychologist.

Following training, he reported to the Naval Aerospace Medical Research Laboratory, Pensacola. In 1978, he was assigned as the Aeromedical Safety Officer for Commander, Naval Air Force, U.S. Pacific Fleet, San Diego, CA. From 1981 to 1984, he was assigned to the Naval Air Equipment Center, Orlando, FL.



From 1984 to 1986, Captain Frank was in out-service doctoral training at Virginia Tech. Upon completion of his degree, he received the American Psychological Association's George E. Briggs' Award for the best Ph.D. dissertation in Applied and Engineering Psychology.

Between 1986 and 1989, Captain Frank was assigned to the Pacific Missile Test Center, Point Mugu, CA, where he headed the Human Factors and Operations Analysis Branch and then served as Director of the Advanced Technology Analysis Center, Chief Scientist of the Electronic Warfare Directorate, and Command Program Manager for the A-12 aircraft.

In 1989, he was assigned as Head of the Human Factors and Protective Systems Division at the Naval Air Development Center, Warminster, PA. In 1992, he was reassigned as Deputy Director, Air Vehicle and Crew Systems Technology Department, Naval Air Warfare Center, Warminster.

In 1993, Captain Frank transferred to the Naval Aerospace and Operational Medical Institute as Head of the Operational Psychology Department. In February 1995, he was reassigned as Director, Resources Management Directorate. In August 1995, he became Executive Officer.

From July 1996 to May 1998, Captain Frank was Commanding Officer of the Naval Aerospace Medical Research Laboratory. Captain Frank assumed Command of the Naval Health Research Center in June, 1998.

Military decorations include the Legion of Merit (two awards), the Meritorious Service Medal, and the Navy Commendation Medal (two awards).

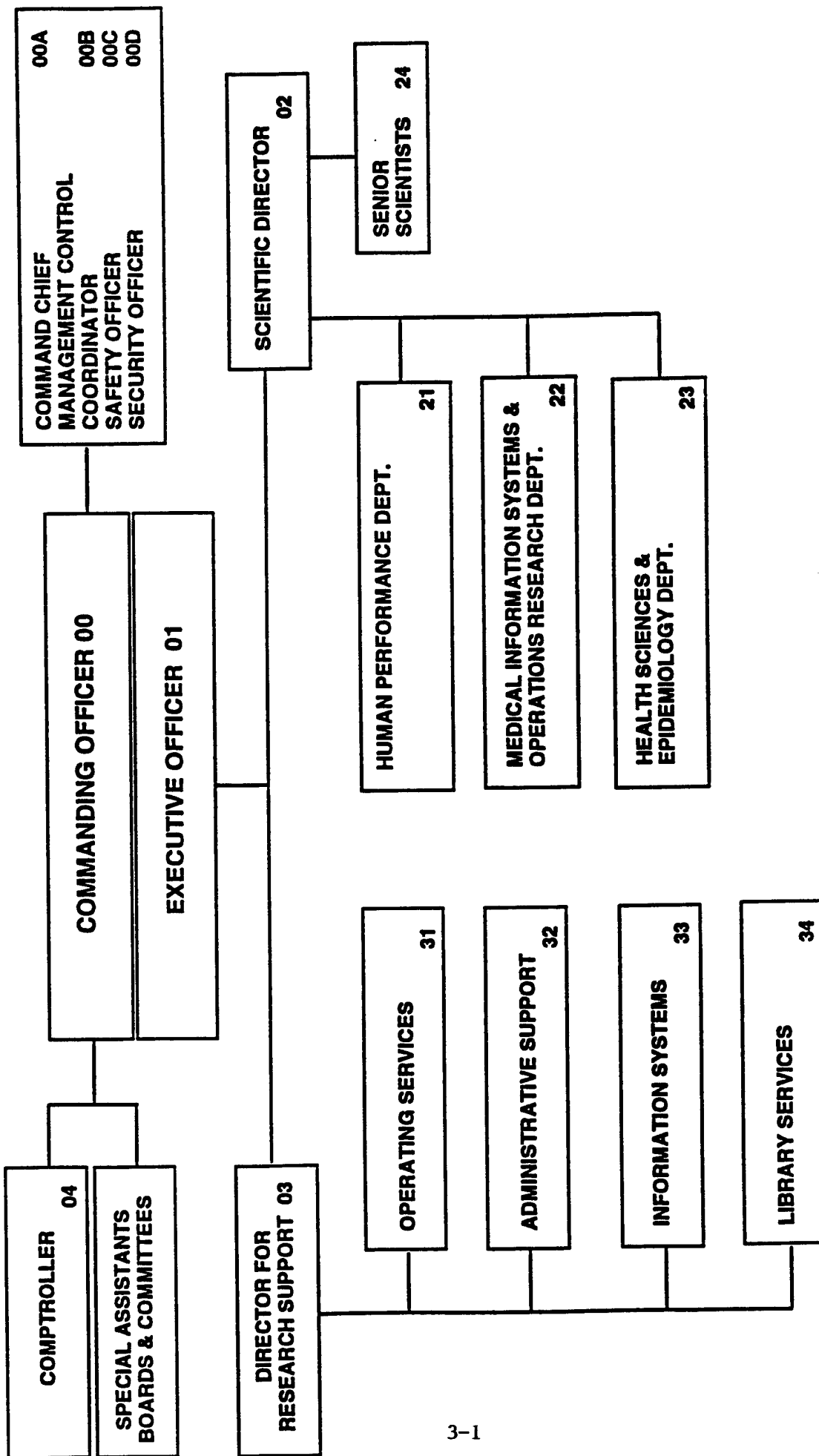
Captain Frank is married to the former Margaret Burger of Bellingham, WA.

**3. SUPPORTING DOCUMENTS**

- \* Organization Chart as of 31 December 1998
- \* Staff Directory
- \* Boards, Committees, Collateral Duties

Encl (3)

# NAVAL HEALTH RESEARCH CENTER



|                                                                                                                                                        |                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <br><b>L. H. FRANK, CAPT, MSC, USN</b><br><b>COMMANDING OFFICER</b> | <u>31 Dec 98</u><br><b>DATE</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|

PERSONNEL DIRECTORY/TELEPHONE LIST FOR

Naval Health Research Center  
P. O. Box 85122  
San Diego, CA 92186-5122

Commercial & DSN: (619) Prefix + ext.

FAX: (619) 553-9389

E-Mail: "last name@NHRC.Navy.Mil" except where otherwise noted

As of 31 Dec 98

| Code | Name | Title | Bldg | Telephone |
|------|------|-------|------|-----------|
|------|------|-------|------|-----------|

OFFICE OF THE COMMANDING OFFICER

|     |                                 |                       |           |            |
|-----|---------------------------------|-----------------------|-----------|------------|
| 00  | Lawrence H. FRANK, CAPT/MSC/USN | Commanding Officer    | 306T      |            |
|     | E-Mail: <u>CO@NHRC.Navy.Mil</u> |                       |           |            |
| 00S | Brenda M CROOKS                 | Secretary (OA, Steno) | 306T      | 553-8428/9 |
| 01  | J Travis LUZ, CDR/MSC/USN       | Executive Officer     | 306T      | 553-8420   |
|     | E-Mail: <u>XO@NHRC.Navy.Mil</u> |                       | Cellular: | 517-9048   |

SPECIAL ASSISTANTS

|     |                                |                       |      |          |
|-----|--------------------------------|-----------------------|------|----------|
| 00A | Eduardo Ortiz, HMC/USN         | Command Chief         | 310  | 553-8457 |
| 00B | Steve AHLERS, CDR MSC USN      | Fleet Liaison Officer | 328  | 553-0662 |
| 00C | William DENISTON, LT/MSC/USNR  | Safety Officer        | 331T | 553-8408 |
| 00D | Louie AREVALO, LCDR/MSC/USN    | Security Officer      | 306T | 553-8419 |
| 00E | Richard A SHAFFER, CDR/MSC/USN | Mgmt Control Officer  | 304T | 553-8528 |

MARINE CORPS LIAISON OFFICER

|        |                          |                 |                 |          |
|--------|--------------------------|-----------------|-----------------|----------|
| SPAWAR | LtCol Scott CRAMER, USMC | Liaison Officer | Old Town Office | 524-7221 |
|--------|--------------------------|-----------------|-----------------|----------|

SCIENTIFIC DIRECTOR AND DEPARTMENTS

|    |                      |                          |           |          |
|----|----------------------|--------------------------|-----------|----------|
| 02 | D Stephen NICE, PhD  | Scientific Director      | 306T      | 553-8421 |
|    |                      |                          | Cellular: | 990-7196 |
|    | James A HODGDON, PhD | Research Physiologist    | 328       | 553-0676 |
|    | Catherine CRUMP      | Uniband/Technical Editor | 306T      | 553-8423 |
|    | Michelle STOIA       | MACC/Technical Editor    | 304L      | 553-8413 |

HUMAN PERFORMANCE DEPARTMENT (CODE 21)

FAX: 553-8384 (lower) 553-0677 (upper)

|     |                                  |                       |           |          |
|-----|----------------------------------|-----------------------|-----------|----------|
| 21  | W. Keith PRUSACZYK, PhD          | Department Head       | 328       | 553-0658 |
|     | (Supv Research Physiologist)     |                       | Cellular: | 990-7191 |
| 21  | Kathleen I KUJAWA, LCDR/MSC/USNR | Asst Department Head  | 328       | 553-0645 |
|     | (Research Physiologist)          |                       |           |          |
| 21A | Marilyn MEAD                     | Editorial Asst (OA)   | 328       | 553-0643 |
|     | Stephen AHLERS, CDR/MSC/USN      | Research Physiologist | 328       | 553-0662 |
|     |                                  |                       | Pager:    | 640-8751 |
|     | Timothy A LOOMIS, LTJG MSC USNR  | Research Physiologist | 328       | 553-0668 |
|     | Suzanne L HINCKLEY, HM1/USN      | General Duty          | 328       | 553-0638 |
|     | Estella FIGUEROA, HN/USN         | General Duty          | 328       | 553-0652 |

Performance Modeling & Standards Division (Code 211)

|     |                        |                       |     |          |
|-----|------------------------|-----------------------|-----|----------|
| 211 | Ross R VICKERS Jr, PhD | Research Psychologist | 328 | 555-0633 |
| 211 | Linda K HERVIG         | Research Psychologist | 328 | 553-0641 |

**Applied Physiology Division (Code 213)**

|     |               |                       |     |          |
|-----|---------------|-----------------------|-----|----------|
| 213 | Jay HEANEY    | Research Physiologist | 328 | 553-0628 |
| 213 | James READING | Research Physiologist | 328 | 553-0606 |
|     | Don WINANT    | Research Physiologist |     | 553-     |

**Contractors:**

|  |                       |                        |     |          |
|--|-----------------------|------------------------|-----|----------|
|  | Donald E ROBERTS, PhD | GEO/Senior Scientist I | 328 | 553-0679 |
|  | Sue SOBANSKI          | GEO/Technical Writer   | 328 | 553-0656 |

**Special Operations Division (Code 214)**

|     |                          |                        |     |          |
|-----|--------------------------|------------------------|-----|----------|
| 214 | Harold W GOFORTH Jr, PhD | Head/Rsch Physiologist | 328 | 553-8379 |
| 214 | Wayne ENSIGN, PhD        | Research Psychologist  | 328 | 553-8382 |

**Contractors:**

|  |                        |                   |     |          |
|--|------------------------|-------------------|-----|----------|
|  | Kevin SCHNEIDER        | GEO/Scientist I   | 328 | 553-8380 |
|  | Karen MAXWELL-Williams | Uniband/Scientist | 328 | 553-0646 |

**MEDICAL INFORMATION SYSTEMS AND OPERATIONS RESEARCH DEPARTMENT (CODE 22)****FAX: 553-8551 (Topside) 553-8411 (Lower)**

|     |                               |                          |      |          |
|-----|-------------------------------|--------------------------|------|----------|
| 22  | William M PUGH                | Department Head          | 331T | 553-8403 |
|     | (Supv Research Psychologist)  | Cellular:                |      | 990-7187 |
| 22A | Julie HEREDIA                 | Editorial Assistant (OA) | 331T | 553-8401 |
| 22  | William DENISTON, LT/MSR/USNR | Research Psychologist    | 331T | 553-8408 |
| 22  | Scott MAKEIG, PhD             | Research Psychologist    | 331L | 553-8414 |
| 22  | Diane WILLIAMS, PhD           | Research Psychologist    | 332T | 553-9261 |

**Contractors:**

|  |                     |                            |      |          |
|--|---------------------|----------------------------|------|----------|
|  | Robert "Bob" BARKER | MTS/Project Co-ordinator   | 331T | 553-8410 |
|  | David BEADMORE      | MTS/Asst Program Manager   | 331  | 553-6179 |
|  | Karen FREEMAN       | Anteon/AIS Specialist      | 332T | 553-8785 |
|  | Wendy LIMBERT       | Uniband/Research Analyst B |      | 553-9095 |
|  | Anne Tropeano       | Anteon/Program Analyst     | 331T | 553-8401 |

**Medical Information Systems Division (Code 221)**

|     |                      |                          |      |          |
|-----|----------------------|--------------------------|------|----------|
| 221 | Gerald LARSON        | Research Psychologist    | 331T | 553-8402 |
| 221 | Ralph G BURR         | Statistician (General)   | 332T | 553-7760 |
| 221 | Dianna M PEARSALL    | Supv Computer Specialist | 331T | 553-8407 |
| 221 | Lawrence A HERMANSEN | Computer Specialist      | 331T | 553-9291 |
| 221 | Hoa LY               | Computer Specialist      | 331T | 553-8417 |
| 221 | Martin R WHITE       | Statistician (General)   | 331T | 553-9292 |

**Contractors:**

|  |                 |                          |      |          |
|--|-----------------|--------------------------|------|----------|
|  | Jennifer JAEGER | Uniband/Systems Analysis | 331T | 553-9289 |
|--|-----------------|--------------------------|------|----------|

|     |                  |                       |      |          |
|-----|------------------|-----------------------|------|----------|
| 221 | Lex MERRILL, PhD | Research Psychologist | 331L | 553-8418 |
|     | Valerie Stander  | Research Psychologist |      | 553-7174 |
| 22  | Patricia A COBEN | Computer Specialist   | 346T | 553-8452 |

**Contractors:**

|  |                       |                           |     |          |
|--|-----------------------|---------------------------|-----|----------|
|  | Cheryl OLSON          | GEO/Research Psychologist | 331 | 553-6959 |
|  | Laura Patriarca-TROYK | GEO/Scientist II          | 332 | 553-9235 |

**Operations Research Division (Code 222)**

|     |                    |                       |      |          |
|-----|--------------------|-----------------------|------|----------|
| 222 | Paula KONOSKE, PhD | Research Psychologist | 331L | 553-0730 |
| 222 | Michael GALARNEAU  | Research Psychologist | 331L | 553-8411 |
| 222 | Eleanor GAUKER     | Research Psychologist | 331L | 553-8412 |
| 222 | Gerald PANG        | Computer Specialist   | 331T | 553-8409 |

**Contractors:**

|  |                        |                              |      |          |
|--|------------------------|------------------------------|------|----------|
|  | Kristee EMENS-HESSLINK | GEO/Scientist                | 331L | 553-8416 |
|  | Darlene LOMBARDO       | MST Tech, Tech Writer/editor | 332  | 553-8467 |

**Operations Research Div (Code 222) cont.**

|              |                     |                           |      |          |
|--------------|---------------------|---------------------------|------|----------|
| 222          | Christopher G BLOOD | Research Psychologist     | 332T | 553-8386 |
| 222          | Berg DERDERIAN      | Statistician              | 332T | 553-8399 |
| 222          | James ZOURIS        | Mathematical Statistician | 332T | 553-8389 |
| Contractors: |                     |                           |      |          |
|              | Jeannine LANE PhD   | GEO/Scientist III         | 332  | 553-8391 |
|              | G. Jay WALKER       | GEO/Scientist II          | 332T | 553-8393 |

**HEALTH SCIENCES AND EPIDEMIOLOGY DEPARTMENT (CODE 23)**

|    |                              |                 |           |          |
|----|------------------------------|-----------------|-----------|----------|
| 23 | Frank C GARLAND, PhD         | Department Head | 304       | 553-8480 |
|    | (Supv Statistician (Health)) |                 | Cellular: | 787-5269 |

**Health Sciences Division (Code 231) FAX: 553-8459**

|             |                     |                          |      |          |
|-------------|---------------------|--------------------------|------|----------|
| 231         | Laurel HOURANI, PhD | Supy Rsch Psychologist   | 346T | 553-8460 |
| 231A        | F Rae JACKSON       | Editorial Assistant (OA) | 346T | 553-8470 |
|             | Susan HILTON        | Research Psychologist    | 346T | 553-8446 |
| 231         | Linda J TRENT       | Research Psychologist    | 346T | 553-8464 |
| Contractor: |                     |                          |      |          |
|             | Huixing YUAN        | Anteon/Statistician      | 332  | 553-7026 |

**Clinical Epidemiology Division (Code 232) FAX: 553-8383**

|              |                                |                               |        |          |
|--------------|--------------------------------|-------------------------------|--------|----------|
| 232          | Richard A SHAFFER, CDR/MSC/USN | Epidemiologist                | 304T   | 553-8528 |
|              |                                |                               | Pager: | 525-0283 |
| 232A         | --VACANT--                     | Secretary (OA)                | 304    | 553-8519 |
| 233          | Edward D GORHAM                | Statistician (Health)         | 304    | 553-6889 |
| 232          | Suzanne HURTADO                | Research Psychologist         | 304T   | 553-7806 |
| 232          | David H RYMAN                  | Research Psychologist         | 304T   | 553-8398 |
| 232          | Stephanie KEWLEY PhD           | Research Psychologist         | 304T   | 553-8465 |
| 232          | Daniel TRONE                   | Research Physiologist         | 304T   | 553-7022 |
| 232          | Cyrene BENJAMIN                | Office Automation Clerk       | 304T   | 553-8519 |
|              | Tamara V TRANK, LT MSC USNR    | Research Physiologist         | 304    |          |
| 232          | Julie MACEDO, HM3/USN          | General Duty                  | 304L   | 553-8396 |
| Contractors: |                                |                               |        |          |
|              | Sandra ALMEIDA, MD             | USDSU Consultant              | 328    | 553-0651 |
|              | Don HAGAN, PhD                 | UNIBAND/Rsch Physiologist III | 328    | 553-0659 |
|              | Lonna GELLES                   | Uniband/Rsch Assistant A      | 304T   | 553-8519 |
|              | Patricia GILMAN                | JF/Research Psychologist      | 304L   | 553-0466 |
|              | Stanley ITO                    | GEO/Scientist                 | 304T   | 553-8448 |
|              | Anh LE                         | MACC/Computer Programmer      | 304T   | 553-7051 |
|              | Rahn MINAGAWA, PhD             | GEO/Senior Scientist III      | 304T   | 553-7802 |
|              | Monica STARKEY                 | JF/Epi Program Coordinator    | 304T   | 553-8445 |
|              | Stephen TSCHINKEL              | GEO/Scientist II              | 304L   | 553-8089 |

**Occupational Epidemiology & HIV Studies Division (Code 233)****(FAX: (619) 553-6891)**

|              |                        |                          | Trailer | Bldg | Seaside  |
|--------------|------------------------|--------------------------|---------|------|----------|
| 233          | EK Eric GUNDERSON, PhD | (Part time) Consultant   | T636    |      | 553-6897 |
| 233          | Milan R MILLER         | Computer Specialist      | T635    |      | 553-6892 |
| Contractors: |                        |                          |         |      |          |
|              | Cedric GARLAND, PhD    | MACC/Epidemiologist      | T636    |      | 553-6888 |
|              | Michael McNALLY        | MACC/Research Assistant  | T635    |      | 553-5222 |
|              | Ann Yeng WU            | MACC/Computer Programmer | T635    |      | 553-6894 |

**Gulf War Veterans Research Team (Code 234) FAX: 553-7601**

|     |                              |                              |        |                        |
|-----|------------------------------|------------------------------|--------|------------------------|
| 234 | Gregory C GRAY, CAPT/MC/USN  | Medical Officer              | 322T   | 553-9967               |
|     |                              |                              | Pager: | 557-1056               |
| 234 | James KNOKE PhD              | Statistician (Health) (Temp) | 322T   | 553-8097               |
|     | Bonita McCLENNY, LT MSC USNR | Research Psychologist        | 322    |                        |
|     | Margaret RYAN, LCDR MC USN   | Preventive Med Ofcr          | 322    | 553-8097               |
| 234 | Jason C UNRUH, HM2/USN       | General Duty                 | 315    | 553-8470/<br>8471/0578 |

# Gulf War Veterans Research Team (Code 234) cont.

## Contractors:

|                     |                            |      |            |
|---------------------|----------------------------|------|------------|
| Happy ARANETA, PhD  | GEO/Epidemiologist         | 322L | 553-7628   |
| Christopher BARROZO | JF/Lab Tech                | 315  | 553-0576/8 |
| Elizabeth BOLIVAR   | JF/Admin Assistant         | 322T | 553-7465   |
| Ruth BUSH           | JF/Senior Investigator     | 346L | 553-7594   |
| Suzanne CLARK       | JF/Admin Assistant         | 322T | 553-8443   |
| Dan DESTICHE        | JF/Programmer              | 322T | 553-7597   |
| Victor GASTANAGA    | JF/SAS Programmer Analyst  | 322T | 553-9255   |
| Tony HAWKSWORTH     | JF/Research Assistant      | 322T | 553-7607   |
| Kathy HILIOPOULOS   | JF/Research Assistant      | 322T | 553-7522   |
| Julie HOCHWALT      | JF/Lab Tech                | 315  | 553-0576/8 |
| William HONNER      | JF/Research Assistant      | 346T | 553-0228   |
| Marie HUDSPETH      | JF/Lab Tech                | 315  | 553-0576/8 |
| Kevin KAISER        | GEO/Research Assistant     | 322T | 553-8447   |
| Debbie KAMENS       | JF/Research Assistant      | 322T | 553-8163   |
| Marietta MALASIA    | JF/Lab Tech                | 315  | 553-8770/1 |
| Colleen McDONOUGH   | GEO/Technical Editor       | 322T | 553-7595   |
| Cassandra MORN      | JF/Research Asst           | 322T | 553-7519   |
| Tuan PHAM           | JF/Lab Tech                | 315  | 553-8770/1 |
| Pamela POBLETE      | JF/Research Assistant      | 322T | 553-0755   |
| Robert REED         | JF/Research Assistant      | 322T | 553-7433   |
| Jennifer RODVOLD    | JF/Computer Specialist     | 309  | 553-8437   |
| Paul SATO MD        | JF/Senior Epidemiologist   | 322T | 553-0065   |
| Karen SCHLANGEN     | JF/SASS Programmer/Analyst | 322T | 553-7598   |
| Tyler SMITH         | JF/Biostatistician         | 322T | 553-7593   |
| Mary SORENSON       | JF/Lab Tech                | 315  | 553-8770/1 |
| Heather TAYLOR      | JF/Lab Tech                | 315  | 553-8770/1 |
| Candice VALDEZ      | JF/Admin Assistant         | 322  | 553-7027   |
| Linda WANG          | JF/SAS Programmer          | 322  | 553-7569   |
| Shawn WATSON        | JF/Admin Assistant         | 322T | 553-7027   |
| Andrew ZAU          | JF/Computer Specialist     | 322T | 553-0291   |

Jackson Foundation CRADA w/University of Alabama (UAB) working at Naval Medical Center, San Diego under CAPT Gray: **FAX: 532-8137**

|                |               |       |          |
|----------------|---------------|-------|----------|
| Parvin ASHTARI | UAB           | NMCSD | 532-9242 |
| Charles LE     | JF/Admin Asst | NMCSD | 532-9242 |
| Paul D STAMPER | Student, UAB  | NMCSD | 532-9242 |

## **DIRECTOR OF RESEARCH SUPPORT (Code 03)**

|     |                                           |        |          |
|-----|-------------------------------------------|--------|----------|
| 03  | Louie Arevalo, LCDR/MSA/USN Admin Officer | 306T   | 553-8419 |
|     | e-mail: <u>AO@NHRC.Navy.Mil</u>           | Pager: | 604-8002 |
| 03S | Gregory McCURTIS                          | 306T   | 553-8400 |
|     | Alfred FERNANDEZ                          | 306T   | 553-8422 |
|     | Clerk (OA)                                |        |          |
|     | Office Automation Clerk                   |        |          |

### Operating Services (Code 31)

**FAX: 553-0301**

|     |                                |       |          |
|-----|--------------------------------|-------|----------|
| 00A | E D ORTIZ, HMC (SW/AW/FMF)/USN | 310   | 553-8457 |
| 31  | Edgardo CORDERO                | 310   | 553-9460 |
|     | Motor Vehicle Operator         | Pager | 604-7792 |
| 31  | Travis L. McDEVITT, HM2/USN    | 310   | 553-8458 |
|     | General Duty                   | Pager | 604-7735 |
| 31  | Israel ORTIZ, HM2/USN          | 310   | 553-0463 |
|     | General Duty                   | Pager | 604-7947 |

### Administrative Support (Code 32)

|    |            |                           |     |          |
|----|------------|---------------------------|-----|----------|
| 32 | --vacant-- | (Civ) Personnel Assistant | 309 | 553-9347 |
|----|------------|---------------------------|-----|----------|

**Information Systems (Code 33)**

|     |                    |                          |     |          |
|-----|--------------------|--------------------------|-----|----------|
| 33  | Raymond P HILBERT  | Supv Computer Specialist | 309 | 553-8433 |
| 332 | Daniel AMARENTO    | Computer Operator        | 309 | 553-9920 |
| 331 | Richard F BOOTH    | Computer Scientist       | 309 | 553-8439 |
| 335 | Henry BULLOCK      | Computer Specialist      | 309 | 553-8345 |
| 33A | Christina KAMFONIK | Office Automation Clerk  | 309 | 553-8432 |
| 333 | Daniel RAHILLY     | Computer Specialist      | 309 | 553-8441 |

**Library Services (Code 34)**

|     |                |                     |      |          |
|-----|----------------|---------------------|------|----------|
| 34  | Mary ALDOUS    | Librarian (Science) | 306L | 553-8425 |
| 341 | Betty CROFT    | Library Technician  | 306L | 553-8426 |
| 342 | Bobbie WOFFORD | Library Aide        | 306L | 553-8426 |

**OFFICE FOR THE COMPTROLLER (CODE 04)**

|     |               |                         |      |          |
|-----|---------------|-------------------------|------|----------|
| 04  | James Bennett | Financial Administrator | 306T | 553-8424 |
| 041 | Joyce TOOHEY  | Financial Admin Analyst | 306T | 553-8430 |

## **NHRC Boards and Committees**

Updated 981102

Asbestos Program Manager (OPNAVINST 5100.23 D, CH 17; SECNAVINST 5112.10A  
Records Freeze)

Manager: LT W Deniston

ASEE Coordinator (NHRC ltr 3900, 7-17-96)

Dr S Kewley

Audiovisual Approval/Coordinator

HM2 I Ortiz

Automatic Data Processing/Information Systems (ADP/IS) Program (NHRCINST  
5230.4B)

ADP Security Officer: Mr R Booth

Network Security Officer: Mr H Bullock

ADP System Security Officers:

Code 21 - Ms L Hervig

Code 22 - Mr G Pang

Code 23 - Ms S Hilton

Code 33 - Mr R Hilbert

Awards Officer, Military (SECNAVINST 1650.1F)

CDR J T Luz

CDR S Ahlers

Awards Review Committee, Military (NHRCINST 1650.2; SECNAVINST 1650.1F)

Chairperson: CDR J T Luz

Coordinator: HMC E Ortiz

Members:

LCDR L J. Avrealo

HMC E Ortiz

LT W. Deniston

CDR S Ahlers

Casualty Assistance Calls Program (NMPCINST 1770.3; NHRCINST 1770.1C)

LT W Deniston

LTJG T Loomis

HMC E Ortiz

Civilian Employee Development Advisors (NHRC NOTICE 12410)

Ed Asst/Clerical/WG: Civilian Personnel

Psychology: Mr W Pugh

Physiology: Dr W Prusaczyk

Statistics: Dr F Garland  
Computer: Mr R Hilbert

Clerkship Training Program (NAVMEDCOMINST 1520.13A)  
Sponsor: CDR R Shaffer

Command Cardiac Medicinals (NHRCINST 6470.1)  
Custodian: CAPT Gray  
Primary Corpsman: HM1 S Hinckley  
Secondary Corpsman: HM3 E Figueroa

Command Career Counselor/Enlisted Training Officer (NAVMEDCOMINST 1040.1)  
HM1 S Hinckley

Command Collateral Duty Safety Officer (OPNAVINST 5100.23C)

Officer: LT W Deniston

Representatives:

Building 304: Mr D Trone  
Building 306: Ms B Croft  
Building 309: Ms T Kamfonik  
Building 310: HM2 I Ortiz  
Building 315: Ms M Malasig/POC  
Building 322: HM2 Unruh  
Building 328: HM3 E Figueroa  
Building 331: Mr M White  
Building 332: Mr J Zouris  
Building 346: Ms R Jackson  
Building 635/6: Mr E Gorham  
Building 74: Mr J Reading

Command Equal Opportunity Coordinator (OPNAVINST 5354.5; NHRCINST 5354.1B)  
Coordinator: LCDR K Kujawa

Command Management and Equal Opportunity Committee (OPNAVINST 5354.1C)

Chairperson: CDR J T Luz

Coordinator: LCDR K Kujawa

Asst Coordinator: HM1 S Hinckley

Members:

Dr J Hodgdon  
LCDR L. J. Arevalo  
Ms S Hilton  
Ms L Hervig, EEO Representative  
HMC E Ortiz  
HM2 I Ortiz

Command Training Team (CTT):

**Members:**

LTJG T Loomis  
LCDR L. J. Arevalo  
HMC E Ortiz  
HM1 S Hinckley

**Command Assessment Team (CAT): (OPNAVINST 5354.1C)**

**Coordinator:** LCDR K Kujawa

**Members:**

Code 03: LCDR L. J. Arevalo  
Code 21: Dr W Prusaczyk  
Code 21: HM1 S Hinckley  
Code 23: Ms S Hilton  
Code 31: HM2 T McDevitt  
EEO Rep: Ms L. Hervig

**Command Recreation, Athletics and Home Safety Officer (OPNAVINST 5100.25A)**

**Mr D Trone**

**Committee for the Protection of Human Subjects (NMRDCI 3900.2; NHRCINST 3900.1C; SECNAVINST 3900.39B)**

**Chairperson:** Dr R Vickers (Ser 234, 4-20-95)

**Chaplan:** LCDR Daniel Roysden, CHC USN

**Legal:** LT Kevin O'Neil, JAGC, USNR

**Alt Medical Rep:**

**Medical Rep:** CAPT G Gray, MC, USN

**Military Rep:** CDR R Shaffer, HMC E Ortiz

**Recorder:** Ms. Ms M Stoia

**Members:**

Code 03: Ms B Croft  
Code 21: Dr W Prusaczyk  
Code 21: LCDR K Kujawa  
Code 21: Dr W Ensign  
Code 22: Dr L Merrill  
Code 22: Mr M Galarneau  
Code 23: Mr E Gorham

**Competition Advocate**

**LCDR L. J. Arevalo**

**Contracting Officers Technical Representative (COTR) (NAVSUPINST 4330.6A; #N66001-93-D-0021)**

**Manager:** Ms. S Hurtado (4300, Ser 496, 12/26/95)

**Alt:** CDR R Shaffer

**Drug and Alcohol Program Advisor (DAPA)**

HM1 S Hinckley

Efficiency Review (BUMEDINST 4100.2A; NHRCINST 4100.1B, NAVFACINST 4100.8)  
HMC E Ortiz

Energy Officer in Conjunction with SPAWAR (BUMEDINST 4100.2A; NHRCINST 4100.1B, NOSC 4100.3)  
HM2 I Ortiz

Equipment Manager  
HMC E Ortiz

Equal Employment Opportunity (EEO) (SECNAVINST 5350.10A)  
Federal Women's Program (SECNAVINST 12720.5A, NAVMEDCOMSDINST 12713.2; NHRC INST 12713.1)  
Representative: Ms L Hervig

Ethics Officer (SECNAVINST 5370.2J)  
LT W. Deniston

Facilities Review Board (NHRCINST 11000.1)  
Chairperson: CDR J T Luz  
Members:  
Code 02: Dr S Nice  
Code 03: CDR E Lee  
Code 04: Mr J Bennett  
Code 21: Dr. W Prusaczyk  
Code 22: Mr W Pugh  
Code 23: Dr F Garland  
Safety Ofcr: LT W Deniston

Family Advocacy Program (OPNAVINST 1752.2)  
Assistance from NAVSUBBASE  
Command Liaison: LT W Deniston

Fleet Liaison Officer  
CDR S Ahlers

Forms Management Officer (SECNAVINST 5213.10C)  
HM2 I Ortiz

Freedom of Information Act Officer  
LCDR L. J. Arevalo

Health Promotion Officer (OPNAVINST 5100.2; BUMED 6100.13)  
LTJG T Loomis

**Incentive Awards Board (NHRCINST 12451.1)**

Chairperson: CDR J T Luz

Asst:

Members:

Code 02: Dr S Nice

Code 03: LCDR L. J. Arevalo

Code 04: Mr J Bennett

Code 21: Mr R Burr

Code 22: Ms E Gauker

Code 23: Mr E Gorham

Code 33: Mr R Hilbert

**Information Systems Executive Board (ISEB) (NHRCINSTs 5230.1A/.5; OPNAVINST 5239.1A)**

Chairperson: CDR J T Luz

Research Information: Mr R Hilbert

ISEB WG Chair: Mr R Booth

Members:

Code 02: Dr S Nice

Code 03: LCDR L. J. Arevalo

Code 21: Dr W Prusaczyk

Code 22: Mr B Pugh

Code 23: Dr F Garland

**ISEB Working Group (NHRCINST 5230.1A)**

Chairperson: Mr R Booth

Members:

Code 21: Ms L Hervig

Code 22: Mr M White

Code 23: Ms S Hilton

Code 33: Mr H Bullock

**Library Committee (NHRCINST 5070.1)**

Chairperson: CDR J T Luz

Librarian: Ms M Aldous

Members:

Code 03: LCDR L. J. Arevalo

Code 21: Ms D Williams

Code 22: Mr M White

Code 23: Ms L Trent

Code 33: Mr R Booth

Code 34: Ms B Croft (non-voting member)

**Management Control Officer (SECNAVINST 5200.35B; OPNAVINST 5200.25C;  
BUMED INST 5200.13, NHRCINST 5200.1)**

CDR E Lee/ LCDR L Arevalo

Military Cash Awards Program (MILCAP) (OPNAVINST 1650.8C)  
CDR R Shaffer

Morale Welfare and Recreation Committee (Command ltr)

Chairperson: LTJG T Loomis

Secy/Treasure:

Members:

Building 304: CDR R Shaffer

Building 306: Ms B Croft

Building 310: HM2 T McDevitt

Building 322: Mr T Hawksworth

Building 331: Ms J Heredia

Building 328: HM1 S Hinckley

Building 636: Mr E Gorham

Official Mail Control Officer

Officer: LCDR L. J. Arevalo

Alt: E Cordero

PASS (Pay/Personnel Administrative Support System) Liaison Representative  
(OPNAVINST 1000.23A)

Rep: Mr G McCurtis

Alt: HM2 T McDevitt

Phlebotomy Officer (NHRCINST 6210.3)

Collateral Duty PO: HM1 S Hinckley

Physical Fitness Program (OPNAVINST 6110.1C)

LTJG T Loomis

HM2 I Ortiz

Physical Security Review Committee (PSRC) (NHRCINSTs 5530.1 & 5510.1C)

Chairperson: LCDR L. J. Arevalo

Members:

Code 02: Dr S Nice

Code 04: Mr J Bennett

Code 21: Dr W Prusaczyk

Code 21: Dr R Vickers

Code 22: Mr W Pugh

Code 23: Dr F Garland

Position Management Board (OPNAVINST 5310.17A; NHRCINST 5310.1)

Chairperson: CDR J T Luz

Members:

Code 02: Dr S Nice  
Code 03: LCDR L. J. Arevalo  
Code 04: Mr J Bennett  
Code 21: Dr W Prusaczyk  
Code 22: Mr W Pugh  
Code 23: Dr F Garland  
Code 32: Ms J Kane  
EEO Rep: L Hervig

**Postdoctoral Research Associateship Program for NRC and ONT**

Coordinator: Dr S Nice

**Advisors:**

Dr F Garland  
Dr W Prusaczyk  
CAPT G Gray  
Dr S Makeig

**Privacy Act Coordinator (SECNAVINST 5211.5C; NHRCINST 5211.1A)**  
LCDR L. J. Arevalo

**Public Affair Officer (SECNAVINST 5720.44; NHRCINST 5720.1B)**  
CDR S Ahlers

**Records Disposal Officer (SECNAVINST 5212.5C))**  
HM2 I Ortiz

**Safety Officer (NHRCINST 5100.1B)/Hazards Material Control Officer (NAVSUPINST 5100.27)**

Manager: LT W Deniston  
Asst: HM3 J Macedo  
Hazardous Materials & Waste Officer (NHRC 5100.1A)  
Collateral Duty: LT W Deniston

**Safety Policy Committee (NHRCINST 5100.23; NMRDCINST 5100.1A; BUMEDINST 5100.6A)**

Chair: CDR J T Luz

**Members:**

Code 03: Ms B Croft  
Code 21: HM3 Figueroa  
Code 21: Ms L Hervig  
Code 22: Mr M White  
Code 23: Ms R Jackson - Traffic Safety Officer  
Code 23: Mr E Gorham (Seaside)  
Manager: LT W Deniston  
Asst: HM3 J Macedo

Sailor of the Quarter Committee (NHRCINST 1700.1C)

Chairperson: CDR J T Luz

Members:

HMC E Ortiz

Officer Selected Quarterly

Saving Bond Officer (SECNAVINST 5120.3G)

HM2 J Unruh

Scientific Planning and Review Committee (SPRC) (NHRCINST 3900.2)

Chairperson: Dr S Nice

Members:

Code 21: Dr W Prusaczyk

Code 21: Dr S Ahlers

Code 22: Mr W Pugh

Code 22:

Code 23: Dr F Garland

Code 23: Dr L Hourani

Security Manager (NHRCINST 5510.1C; OPNAVINST 5510.1G) /Security Officer  
(NHRCINST 5530.1; OPNAVINST 5530.14A)

CDR E Lee/ LCDR Arevalo

Sponsor Program Coordinator

HMC E Ortiz

Substance Abuse Screening Coordinator (OPNAVINST 5350.4A)

HM2 T McDevitt

Training Officer (NAVMEDCOM 4651.1)

LT T Loomis

Technology Transfer Officer (NHRCINST 5700.1A; NAVMATINST 5700.2A)

CDR R Shaffer

Total Quality Leadership Program

Coordinator: Dr. Paula Konoske, TQLC

Command Executive Planning Committee (CEPC):

LCDR L. J. Arevalo

Dr S Nice

CDR J T Luz

Dr W Prusaczyk

Dr F Garland

Mr W Pugh

HMC E Ortiz

Voting Officer (NHRC File 1741)  
HMC E Ortiz  
Asst: HM2 J Unruh

### **3. SUPPORTING DOCUMENTS**

- \* Presentations at Major Conferences

**Encl (4)**

**Formal Reports of Research finding  
reported during 1998 at**

**NATIONAL, INTERNATIONAL, AND REGIONAL MEETINGS  
OF SCIENTIFIC AND MEDICAL SOCIETIES**

**American College of Sports Medicine, Orlando, FL, 2-6 Jun 98**

- Almeida, Sandy A: [Poster] "Gender Differences in Musculoskeletal Injury Rates: A Function of Symptom Reporting" (with DW Trone, D Leone, RA Shaffer, SL Patheal, K Long)
- Ensign, Wayne: [Poster] "Effects of Creatine Supplementation on Short-term Anaerobic Exercise Performance of U.S. Navy SEALs" (with I Jacobs, WK Prusaczyk, HW Goforth, PG Law, KE Schneider)
- Goforth, Hal W: [Poster] "Effectiveness of Two Carbohydrate Loading Protocols to Achieve and Maintain Elevated Muscle Glycogen" (with KE Schneider, WK Prusaczyk, D Laurant, GI Shulman)
- Heaney, Jay H: [Poster] "The Technical Error of Measurement for Selected Skin-fold and Circumference Measurements" (with JA Hodgdon, M Beckett, J Carter)
- Hodgdon, James A: [Mini-Symposium] "Classification of Physical Abilities."
- Kujawa, Kathleen: [Poster] "I Comparison of Circumference and Skin-fold-Based Body Fat Estimation Equations" (with JA Hodgdon)
- Law, Patty G: [Poster] "Assessment of Stress Fractures Associated with High-Intensity Training using a Bone Resorption Marker" (with WK Prusaczyk, J Hanzlik, HW Goforth)
- Maxwell-Williams, Karen: [Poster] "Performance of a Shock-Absorbing Insole in the Laboratory is not Associated with a Reduction of lower Extremity Musculo-skeletal Injuries" (with SA Almeida, D Leone, JT Luz, RA Shaffer, J Hagy)
- Prusaczyk, W Keith: [Poster] "Caffeine has No Effect on Muscle Glycogen use during Exercise after Carbohydrate Loading" (with KE Schneider, D Laurant, HW Goforth, KF Peterson, GI Shulman)
- Reading, James E: [Poster] "Lean Body Weight Loss during Military Training at an Altitude of 2700 M" (with DE Roberts, EW Askew, KE Schneider)
- Schneider, Kevin E: [Poster] "Use of Supplements by U.S. Navy SEALs" (with L Hervig, WY Ensign, WK Prusaczyk, HW Goforth)
- Shaffer, Richard A: [Poster] "Validation of Self-Report Measures of Physical Fitness and Activity using a Field Fitness Test" (with IS Ito, SA Almeida, K Maxwell-Williams, TJ Luz, SK Brodine)

**American College of Obstetricians and Gynecologists and Association of Women's Health, Obstetrics, and Neonatal Nurses Armed Forces district Annual Meeting, Kissimmee, FL, 18-21 Oct 98**

- Berzins, Mara P: "Military Pregnancy Outcomes: Active vs Dependent Women"  
(with PD Stamper, KM Schlangen, GC Gray, LB Duffy, M McNamara, MA Rivera, GH Cassell)

**Enclosure 4**

**American College of Obstetricians and Gynecologists and Association of Women's Health, Obstetrics, and Neonatal Nurses Armed Forces district Annual Meeting (cont),**

Schlangen, Karen M: "Prenatal Prevalence of Sexually Transmitted Pathogens among Military Beneficiaries" (with MP Berzins, PD Stamper, LB Duffy, GC Gray, MA Rivera, GH Cassell)

**American Psychological Association; Annual Convention, San Francisco, CA, 17-21 Aug 98**

Symposium: "Correlates of Maltreatment Histories of U.S. Navy Personnel" - Chair: Dr. Lex Merrill

Briere, John: "Histories of Violence and Self-reported Trauma Symptomatology in female Navy Recruits"

Merrill, Dr. Lex: "Behavioral and Health-Care Correlates of U.S. Navy Personnel" (with Dr. Cheryl Olson (presenter))

Milner, Joel S: "Childhood Abuse and Premilitary Sexual Assault in a Male Navy Recruit Sample" (with LL Merrill)

White, Jacquelyn W: "Health-care Correlates of Maltreatment Histories of U.S. Navy Women" (with LL Merrill)

**American Society for Microbiology; 98<sup>th</sup> General Meeting of the, Atlanta, GA, 17-21 May 98**

Goswami, Pulak R: "An Epidemic of Adenovirus Infections among Military Recruits" (with AW Hawksworth, C McDonough, CB Morn, ME Mullen, MAK Ryan, GC Gray)

**American Society of Tropical Medicine and Hygiene, San Juan, PR, 18-22 Oct 98**

Gray, Gregory C: "National Department of Defense Surveillance for Emerging Respiratory Pathogens" (with AW Hawksworth, PR Goswami, MK Hudspeth, MC Malasig, JM Hochwalt, PW Kelley)

**1998 Asia Pacific Military Medicine Conference VIII, Auckland, New Zealand, 8 May 98**

Nice, D. Stephen: "Behavioral Science and the Road to Prevention in Today's Military"

**Associated Professional Sleep Societies, New Orleans, LA, Jun 98**

Makeig, Scott: "Dynamics of Drowsiness and their EEG Correlates"

**Human Factors and Ergonomics Society Annual Meeting, Chicago, IL, 5-9, Oct 98**

Van Orden, Karl: "Eye Activity Correlates of Fatigue during Visual Tracking" (with T-P Jung, S Makeig)

**Human Performance in Complex Systems, San Diego, CA, 27-28 Mar 98**

Van Orden, Karl F: "Workload Assessment and Management in Next Generation Naval Watchstations: Eye Activity Correlates of Fatigue and Task overload"

Prusaczyk, Keith: "Human Factors Research of the Naval Health Research Center"

**International Conference on Emerging Infectious Disease, Atlanta, GA, 8-11 Mar 98**

Gray, Gregory C: (Poster) "No Serologic Evidence that Gulf War Veterans are Suffering Postwar Morbidity from *Mycoplasma Fermentans*" (with KS Kaiser, DR Kamens, HL Watson)

**Japanese Brain Science Institute, Tokyo, Japan, Nov 98**

Makeig, Scott: "Aspects of Event-related Brain Dynamics"

**Medical Science and Technology Initiatives Game (VANGUARD 99), Washington, DC, 1-4 Dec 98**

Nice, D Stephen & Prusaczyk, W Keith: Participated in the VANGUARD 99 War Game to identify emergent biomedical capabilities to be developed to enable the Navy Medical Department to support the Marine Corps vision of Operational Maneuver from the Sea (OMFTS).

**Repatriated Prisoner of War Health Study Conference on the Long-Term Effects of Captivity and Torture Among Vietnam-Era POWs, Washington, DC, 31 Mar - 2 Apr 98**

Nice, D Stephen: "Psychiatric, Psychological, and Medical Effects of Captivity and Torture"

**Royal Society of Medicine, Gulf Health Research Meeting, London, England, 9-10 Dec 98**

Gray, Gregory C: "DoD Epidemiology Research Programme"

**Society for Neuroscience Meeting, Los Angeles, CA, Nov 98**

Makeig, Scott: (Abstract) "Multiple Coherent Oscillatory Components of the Human Electroencephalogram (EEG) Differentially Modulated by Cognitive Events" (with T-P Jung, TJ Sejnowski)

Makeig, Scott: (Abstract) "Identifying and Visualizing Independent Components in Artifact-Free Single-Trial Event-Related Potentials" (with T-P Jung, TJ Sejnowski)

Makeig, Scott: "Independent Components of the late Positive Event-Related Potential in a Visual spatial Attention Task: Normal and Clinical Subject differences" (with M Westerfield, J Townsend, J Covington, TJ Sejnowski, E Courchesne)

**Society for Psychophysiological Research, Denver, CO, Sep 98**

Makeig, Scott: "Independent Components of Event-Related Brain Dynamics"  
(with T-P Jung, TJ Sejnowski)

**Western Users of SAS Software; 6th<sup>th</sup> Annual Conference, Oakland, CA,  
14-16, Oct 98**

Barbour, Jason D: "Use of Binary Address Variable to Select Maternal Date of Birth  
Information from Several Sources"

Smith, Tyler C: "The Capabilities of Pro-Factor to Conduct an Exploratory Factor Analysis"  
(He won the Best Contributed Paper Award. He demonstrated that symptom factors were similar  
between Gulf War veterans and nondeployed veterans of the same era.)

**World AIDS Conference; The 12<sup>th</sup>, Geneva, Switzerland, 28 Jun-3 Jul 98**

Brodine, Stephanie K: "The Association of Epidemiological Risk Factors and HIV-1 Subtype  
in Recent Military Seroconverters" (with RA Shaffer, MJ Starkey, JL Gilcrest, FE McCutchen,  
TC Van Cott, SA Tasker, JR Mascola)

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MILITARY SPONSORED MEETINGS

**American Telemedicine Association (ATA)-Dept of Defense (DoD) Joint Meeting,
Orlando, FL, 6-8 Apr 98**

Bill Pugh & Gerry Larson - Participated in the telemedicine advanced concept technical
demonstration (ACTD) planning meeting.

**Association of Military Surgeons of the U.S., Annual Conference, San Antonio,
TX, 9-13 Nov 98**

Prusaczyk, Keith: "Operational Readiness"

**Conference on Federally Sponsored Gulf War Veterans' Illness Research,
Arlington, VA, 17-19 Jun 98**

Araneta, Maria RG: "Reproductive and Perinatal Outcomes among Conceptions and
Pregnancies during the Persian Gulf War" (with DR Kamens, VM Gastanaga, AC Zau, KM
Schlangen, KM Hiliopoulos, GC Gray)

Bush, RA: "Naval Birth Defects Registry Feasibility Study" (with EA Haas, WK Honner, ME
Strohl, GC Gray)

Destiche, Daniel A: "Deterministic Linkage to Identify Births to Military Personnel, using
Hawaii Birth Certificate and Military Personnel Records" (MRG Araneta, KM Schlangen, BY
Horiuchi, AT Onaka, GC Gray)

Gastanaga, Victor M: "Endogenous Predictors in Multiple Regression: birth weight and
gestational age among Gulf War Exposed Pregnancies" (with MRG Araneta, KM Hiliopoulos,
DR Kamens, KM Schlangen, AC Zau)

Conference on Federally Sponsored Gulf War Veterans' Illness Research (cont)

- Gray, Gregory C: "No Serologic Evidence that Gulf War Veterans are Suffering Postwar Morbidity from *Mycoplasma Fermentans*" (with KS Kaiser, DR Kamens, HL Watson)
- Kaiser, Kevin S: "A Comparison of Birth Defect Rates in Arizona before the Persian Gulf War, 1989-1991" (with MRG Araneta, DA Destiche, KM Schlangen, AC Zau, GC Gray)
- Kamens, Deborah R: "The Gulf War Pregnancies Study. A Comparison of Participation between Study Cohorts" (with VM Gastanaga, KM Hilipoulos, KM Schlangen, AC Zau, MRG Araneta)
- Knoke, James D: "Factor Analysis of Self-reported Symptoms. Does it identify a Gulf War Syndrome?" (with TC Smith, GC Gray, KS Kaiser, AW Hawksworth)
- Knoke, James D: "Lack of Association between Testicular Cancer and Persian Gulf War Service" (with GC Gray, FC Garland)
- Poblete, Pamela P: "National Study on Reproductive Outcomes: A Reliability of Self-administered Survey vs. Telephone Interview" (with MRG Araneta, PA Sato, KM Hilipoulos, DR Kames, CB Morn, AC Zau, GC Gray)
- Reed, Robert J: "The Seabee Health Study: Progress after 9 Months of Data Collection" (with VM Gastanaga, KS Kaiser, NA Hamid, GC Gray)
- Sato, Paul A: "The National Study on Reproductive Outcomes Initial Findings" (KM Hilipoulos, JD Barbour, DR Kamesn, CB Morn, PP Poblete, AC Zau, GC Gray)
- Schlangen, Karen M: "Evaluation Birth Defects among Infants born to Persian Gulf War Veterans" (with MRG Araneta, DA Destiche, AC Zau, KS Kaiser, GC Gray)
- Smith, Tyler C: "Hospitalization Risk of Gulf War Veterans for Lupus Erythematosus, Amyotrophic Lateral Sclerosis, and Fibromyalgia" (with GC Gray, JD Knoke)
- Smith, Tyler C: "The Postwar Non-federal Hospitalization Experience of U.S. Veterans of the Persian Gulf War" (with GC Gray, JD Knoke)
- Zau, Andrew C: "The National Study on Reproductive Outcomes: A Demographic Comparison of Survey Response types" (with PA Sato, JD Barbour, K Hilipoulos, DR Kamens, CG Morn, PP Poblete, GC Gray)

41st Joint DoD HFE-TAG, Waltham, MA, 16-19 Nov 98

Deniston, William LT: "Mobile Medical Monitor to the Biomedical Technologies and Telemedicine Sub-TAG"

Military Operational Medicine (MOM) Consolidation Meeting, (Host: NHRC), San Diego, CA, 24-15 Jul 98 Attendees:

CAPT Mark T. Wooster, MSC, USN, Commanding Officer, Naval Submarine Medical Research Laboratory, Groton, CT

CAPT Curtis G. Armstrong Jr., MSC, USN, Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, FL

Military Operational Medicine (MOM) Consolidation Meeting (cont).

CAPT David L. Still, MSC, USN, Officer in Charge, NMRI Toxicology Detachment, Wright Patterson AFB, OH

CDR Melvin J. Ely Jr., MSC, USN, Officer in Charge, NMRI EMR Det, Brooks AFB, TX

66th MORS (Military Operations Research Symposium), Naval Post Graduate School, Monterey, CA, 23-25 Jun 98

Galarneau, Mike: "Reducing the Logistical Footprint of Forward Medical Units using a Patient-Driven Model of Clinical Events" (with P Konoske, G Pang, K Emens-Hesslink D Lowe, G Bowling)

Walker, Jay: "Analysis of Inter-Echelon Patient Flow"

Blood, Chris: "Projections of Ground Casualties and Shipboard Casualties During Military Operations"

Blood, Chris: Chairperson, Battlefield Performance, Casualty Sustainment, and Medical Planning Working Group

Navy Occupational Health and Preventative Medicine Workshop; Thirty-Ninth (NEHC), San Diego, CA, 26 Mar-3 Apr 98

Heaney, Jay: "The Development of an Automated Wet Bulb Globe Temperature (WBGT) System"

Hermansen, Larry: "Development of a Shipboard Survey Planning System"

Trent, Linda K: "Hospitalization Events and Lifestyle Factors in a Longitudinal Cohort"

Smith, Tyler: "The Postwar Hospitalization Experience of Gulf War Veterans Possibly Exposed to the Chemical Munitions Destruction at Khamisiyah, Iraq." (First place winner in the Operational Research Competition)

Navy Occupational Safety and Health Professional Development Conference, 7th Annual (NEHC), Double Tree Hotel, San Diego, CA, 30 Nov-4 Dec 98

Jay Heaney: "Heat Stress"

Special Warfare, Submarine and Diving Medicine Meeting, Naval Medical Research Institute, Bethesda, MD, 6-7 Apr 98

Dr. Keith Prusaczyk & CDR Stephen Ahlers - participated in an information and research planning meeting on Special Warfare, Submarine and Diving Medicine with representatives of Army and Navy laboratories.

1998 Surgeon General's Conference, Norfolk Waterside Marriott, Norfolk, VA, 20-25 Sep 98

Gray, GC: "Etiology and incidence of Respiratory Disease Infections Among Midshipmen at the United States Naval Academy" (with R Schultz, G Gackstetter, & R Thomas)

1998 Surgeon General's Conference (cont).

Gray, GC: "National Department of Defense Surveillance for Emerging Respiratory Pathogens" (with AW Hawksworth, PR Goswami, M Hudspeth, M Malasig, J Hochwalt, & P Kelley)

Heaney, Jay: [Poster] "An Automated Heat Stress Monitoring System for the Smartship Platform"

Kujawa, Kathleen: "Comparison of Circumference- and Skin-fold-based Body Fat Estimation Equations" (with J. Hodgdon)

Nice, D. S.: "Findings from Women's Health Research Studies"

Roberts, Don: "Effects of Vitamin Supplementation on Indices of Oxidative Stress During Winter Training at Altitude" (with E W Askew, W Chao, and WK Prusaczyk)

Schneider, Kevin E: "Use of Supplements by U. S. Navy Seals" (with L Hervig, WY Ensign, WK Prusaczyk, & HW Goforth)

Vickers, Ross: "Quantifying the Health Effects of Job Physical Demands: Hospitalization Criteria" (with L Hervig)

Goal Champion for Force Health Protection: Dr Stephanie Kewley, CAPT Gregory Gray, and LCDR Kathleen Kujawa

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COLLOQUIA, MEDICAL COLLEGES, COLLEGES, AND UNIVERSITIES

UCSD Cognitive Psychophysiology Seminar, San Diego, CA, Jan 98

Makeig, Scott: "Independent Components of the Late Positive Complex in a Visual Selection Task" (with T-P Jung, TJ Sejnowski)

Salk Institute, San Diego, CA, Mar 98

Makeig, Scott: "Decomposing the Human P300 by ICA" (with T-P Jung, TJ Sejnowski)

University of Oregon, Department of Psychology, Eugene, OR, May 98

Makeig, Scott: "Independent Components of Cognitive ERPs" (with T-P Jung, TJ Sejnowski)

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OTHER CONGRESSES, CENTERS, LOCAL COMMUNITY AND/OR MEDIA

Pacific Medical Technology Symposium, Hawaii, Aug 98

Konoske, Paula: "Evaluation of the Mobile Medical Monitor in a Field Environment" (with W Deniston, R Barker & D Moses)

Prevention 98, San Francisco, CA, 2-5 Apr 98

- Hawksworth, Anthony W: "National Department of Defense Surveillance for Emerging Respiratory Pathogens" (with PR Goswami, GC Gray)
- McDonough, Colleen: "Blacks Older Personnel, and Southeast United States Residents at Highest Risk for Sarcoidosis Hospitalization" (with GC Gray)
- Morn, Cassandra: "Effects of the Persian Gulf War on Human Reproduction" (with KM Hiliopoulos, PA Sato, GC Gray, D Kamens, J Major, P Poblete, A Zau)
- Poblete, Pamela: "Pre-term Delivery and Low Birth Weight among Black and White Women in the Military" (with J Major, K Hiliopoulos, D Kamens, C Morn, A Zau, P Sato, GC Gray)
- Zau, Andrew: "Reproductive and Perinatal Outcomes among Conceptions and Pregnancies of Female Military Personnel" (with D Kamens, K Hiliopoulos, K Schlangen, H Araneta, GC Gray)

San Diego Biostatistics and Epidemiology Research Exchange, UCSD, San Diego, CA, 1 May 98

- Aranda, JL: "Outbreak of Severe Acute Respiratory Disease in Tijuana, BC. (with G Lopez, PA Sato, JG Bustamante, DR Kamens, PP Poblete, GC Gray)
- Bosworth, Abha: "Long-Term Outcome Associated with Lower Extremity Stress Fractures in Recruit Training" (with SL Hurtado, RA Shaffer)
- Bush, Ruth: "A Creating a San Diego County Naval Birth Defects Registry" (with EA Haas, WK Honner, ME Strohl, GC Gray)
- Kamens, Deborah R: "The Gulf War Pregnancies Study- A Comparison of Response Rates" (with VM Gastanaga, KM Schlangen, AC Zau, H Araneta)

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Command In-house 1998 Presentations ('Brown Bag' held at noon, Bldg 335 Conference Room)

- (Jun) Makeig, Scott: "Independent Component Analysis: A New approach to Multidimensional Data Analysis," (with T-P Jung)

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3. SUPPORTING DOCUMENTS

1998 CIVILIAN HONORS, AWARDS AND OTHER INFORMATION

Degrees/Academic

May Dr. Jerry Larson received his Ph.D. in Experimental Psychology from University of California San Diego in

Special Achievement Award

- Aug On the 4th, Richard (Dick) Booth, Computer Scientist of the Information Systems Division/Administration, took his seventh and final test to become a Microsoft Certified Engineer.
- Nov At the Annual Awards Dinner of the San Diego Track Club held in Pacific Beach, Hal Goforth was awarded Outstanding Master in the men's category of 700 members. The award is based on service to the community as well as running performance. Hal won his age division (50-59 years) in the 1998 Boston Marathon. Dan Trone was presented with the President's Award for outstanding service, and second overall in the Open Men's Category of the Grand Prix Series.
- Dec Dr. H. W. Goforth, Jr., received the 1998 Achievement Award- U.S. Navy Representative to The Technical Cooperation Program, Technical Panel HUM- G8, "Physical Performance Enhancement for Special Operations."

Length of Service

30 years, Mary Aldous, Joyce Toohey, and Hal W. Goforth, Jr.
25 Years, Dan Rahilly and Larry Hermansen
20 Years, Linda Trent

Letters of Appreciation

- To: Dr. James Hodgdon
From: Director, Navy Drug and Alcohol, Fitness, Education and Partnerships Div (PERS-60), Bureau of Naval Personnel, Washington DC
For: Support of Navy's Physical Readiness Testing (PRT) Program by program briefs to VADM Oliver and CAPT Tim Cepak, a study requested directly by CNO.
- To: Dr. Hourani, Lawrence Hermansen, Suzanne Hurtado (ltr dtd 22 Jun 98)
Larry Hermansen, Martin White, Dr. Stephanie Kewley (9 Jun 98)
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd
For: Participation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98
- To: Paul Goswami, Anthony Hawksworth, Ruth Bush, Elizabeth Haas, Donald Gee,
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd 14 Jul 98
For: Poster participation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

Letters of Appreciation (cont):

To: Stephanie Kewley, Ph.D.
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd 9 Jun 98
For: Participation and presentation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

To: Lawrence Hermansen
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd 9 Jun 98
For: Participation and presentation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

To: Jay Heaney
From: Commanding Officer, Naval Occupational Safety and Health, and Environmental Training Center, Norfolk
For: Presentation in their 7th annual Navy Occupational Safety and Health Professional Development Conference held in San Diego, 30 Nov-4 Dec 98

Letters of Commendation

To: Judy Kane, Personnel Assistant
From: Commanding Officer, Naval Health Research Center, San Diego, dtd 15 Sep 98
For: Exemplary performance of duty while serving at this command from Jan 92 to Oct 98

Certificates of Appreciation

To: Jay H. Heaney
From: CAPT T. R. Defibaugh, MSC, USN, Commanding Officer, Naval Medical Logistics Command; Champion, Technology Integration Strategic Goal
For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA

To: Dr. Frank Garland, Mr. Ed Gorham, Dr. Donald Roberts
From: CAPT C. E. Spann, DC, USN, Champion, People Strategic Goal
For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA

To: Dr. Ross Vickers
From: CAPT D. Arthur, MC, USN, Assistant Chief, Healthcare Management and Plans; Champion, Health Benefit Strategic Goal
For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA

To: Dr. Stephanie Kewley
From: RADM J Engel, NC, USN, Assistant Chief, Operational Medicine/Fleet Support; Champion, Force Medical Protection Strategic Goal

Certificate

For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA

Personal Letter dtd 19 Oct 98

For: Goal Champion for Force Health Protection.

3. Supporting Documents

1998 MILITARY HONORS, AWARDS AND OTHER INFORMATION

NHRC'S Sailor of the Year: No selection.

Sailors of the Quarter: No selections

Commissioning/ Promotions:

1 Jun 98 CDR Steve Ahlers, MSC, USN
8 Jun 98 HM2 Israel Ortiz (frocked)
8 Jul 98 HM3 Estella Figueroa (frocked)

Legion of Merit

6 Mar To: CAPT Larry M. Dean, MSC USN
For: Exceptionally meritorious conduct in the performance of outstanding service as Commanding Officer, from May 1994 to June 1998.

Navy and Marine Corps Commendation Medal

5 Nov To: LCDR Luisito Arevalo, MSC USN (Gold Star in lieu of 3rd Award)
For: Serving as Administrative Officer at USN Medical Research Unit 3, Cairo, Egypt, from Apr 97 to Sep 98.

Navy and Marine Corps Achievement Medal

12 Jan To: HM2 Travis McDevitt, USN (award #2)

25 Feb To: LTJG Timothy Loomis, MSC. USN (award #1)
For: Specific achievement in the superior performance of his duties while serving as an investigator on the research effort examining neck and back pain in airborne early warning personnel at NHRC from Oct 97 to Feb 98.

Special Achievements/Nominations

Apr To: LTJG Timothy A. Loomis, MSC USNR
From: Navy Environmental Health Center, Norfolk, VA
For: Received Certificates of Accreditation and Training (for attendance at Navy's Health Promotion Director and Marine Corps Semper Fit Coordinator Training, and Certification Course) at Club Coronado Conference Center, Naval Amphibious Base Coronado, San Diego, 6-10 Apr

Nov To: LTJG Timothy Loomis, MSC, USN
For: At the Annual Awards Dinner of the San Diego Track Club held in Pacific Beach, LTJG Loomis was awarded the Outstanding Athlete in the Open Men category. This award is based on service to the community as well as running performance. LTJG Loomis also won the San Diego Track Club's 32nd Mission Bay 25km (15.5 miles) run. He ran 1 hour 34 min 53 sec (6 min 6 sec per mile) in a field of 240 runners.

Special Achievements/Nominations (cont).

Dec To: CAPT Gregory C. Gray, MSC, USN
For: Epidemiological work among Gulf War Veterans. He received the Brooke Visiting Professorship from the Epidemiology and Public Health Medicine Section of the Royal Society of Medicine, London

Other

a. Transfers: Active Duty

outgoing:

24 Feb LT Barry Cohen, MSC USNR, to Monterrey

30 Apr CAPT J. T. Coyne, MSC USN, to Field Medical Service School as CO, Camp Pendleton

22 Jun HM1 Athea Williams, USN to Japan

1 Oct LCDR Karl Van Orden MSC, USN, Research Psychologist, to SPAWAR

incoming:

15 Oct LCDR Margaret Ryan, MC, USN, Preventive Medicine Officer to CAPT Gray's Division
16 Oct LCDR Luisito Arevalo, MSC USN, Administrative Officer
10 Nov LT Tamara V. Trank, MSC, USNR, Research Physiologist, to CDR Shaffer's Division
23 Nov LT Bonita McClenny, MSC USNR, Research Psychologist, to CDR Shaffer's Division

b. Training

20-21 Jan LTJG Timothy Loomis, MSC USNR and LT William Deniston, MSC, USNR, Casualty Assistance Calls Officer Training

Retirements/Discharges

1 Apr CAPT Stephanie Brodine, MC, USN

30 Apr HM3 Joseph Willinger, USN, Discharged

12 Jun CAPT Larry M. Dean, MSC, USN, Commanding Officer, retired having served 30 years with the U.S. Navy.

1 Oct CDR Eddie Lee, MSC, USN, Administrative Officer, retired having served 38 years with the U. S. Navy. His Enlisted service began as a Steward pm 14 Nov 60 and culminated as a Senior Chief Hospital Corpsman. He was commissioned on 4 Sep 73 as a MSC Officer.

Letters of Appreciation

To: CAPT J T Coyne
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd 5 Jun 98
For: Participation and presentation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

1998 Command History

Letters of Appreciation (cont):

To: HM1 (FMF) Athea D. Williams & HM2 (FMF) Travis C. McDevitt
From: Dr. Paula Konoske dtd 9 Jun 98
For: Assisting in training and testing of the Mobile Medical Monitor (M3) during May 98 [presented 6-18-98 @ command Hospital Corps Cake cutting ceremony]

To: CAPT J T Coyne
From: Commanding Officer, Navy Environmental Health Center, Norfolk dtd 9 Jun 98
For: Participation and presentation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

To: CAPT J T Coyne & CDR Richard Shaffer
From: Commanding Officer, Navy Environmental & Preventive Medicine Unit No. 5, San Diego, dtd 17 Jun 98
For: Participation on 10 Jun 98 as instructor for their Operational Preventive Medicine Course [Coyne, topic: Joint Operations and Government Organizations; Shaffer, topic: Musculoskeletal Injuries]

To: HM2 Israel Ortiz & HN Estella Figueroa
From: Commanding Officer, Navy Personnel Research & Development Command, San Diego, dtd 23 Jun 98
For: Participation in the retirement ceremony for DCCS (SW) Michael A. Mortellaro on 11 Jun 98 [Ortiz, bellringer and Figueroa as sideboy/Gate Watch]

To: LT William Deniston, MSC USN
From: Commanding Officer, 1st Medical Battalion, 1st Force Service Support Group, FMFPac, Box 555657, Camp Pendleton, CA (no date)
For: Presentation and demonstration of M3 at the Professional Military Education session on the history and capabilities of 1st Medical Battalion

To: CAPT Greg Gray
From: Commanding Officer, Navy Environmental Health Center, Norfolk, VA dtd 8 Jul 98
For: Poster participation in their 39th Navy Occupational Health and Preventive Medicine Workshop held in San Diego, 25 Mar-3 Apr 98

Certificates of Appreciation

To: LT William Deniston, MSC, USN
From: CAPT T. R. Defibaugh, MSC, USN, Commanding Officer, Naval Medical Logistics Command; Champion, Technology Integration Strategic Goal
For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA

To: CAPT Greg Gray, MC, USN and LCDR Kathleen Kujawa, MSC, USN
From: RADM J Engel, NC, USN, Assistant Chief, Operational Medicine/Fleet Support; Champion, Force Medical Protection Strategic Goal
Certificate
For: Supporting Navy Medicine's Strategic Goals, Exhibits and Demonstrations, 1998 Surgeon General's Conference, 20-25 Sep 98, Norfolk, VA
Personal Letter dtd 19 Oct 98
For: Goal Champion for Force Health Protection.

3. SUPPORTING DOCUMENTS

Logistic Support

The Center, a shore (field) activity, is a tenant command of Space and Naval Warfare Systems Center, San Diego (SPAWARSYSCEN SAN DIEGO) in an active operating status under a Commanding Officer, and under the command and support of the Chief, Bureau of Medicine and Surgery exercised through the Director, Navy Medical Research, Bureau of Medicine and Surgery, Code 26. The Center is under the area coordination authority of CINCPACFLT and regional coordination of the Commander, Naval Base, San Diego, California.

The logistic support is as follows:

- a. SPAWARSYSCEN SAN DIEGO provides direct logistic support to NHRC for functions of public works coordination for exterior areas, plant security and fire protection, civilian food service, safety program, and routine preventive maintenance for plant facilities.
- b. Defense Automated Printing Service (DAPS), Point Loma, provides printing services on a reimbursable basis.
- c. Naval Medical Center, San Diego (NMCSO), or Naval Training Center Branch Clinic of NMCSO, provide medical treatment for active duty personnel.
- d. Naval Dental Clinic of the Naval Submarine Base provides dental treatment.
- e. Naval Submarine Base provides berthing and military food service for military personnel.
- f. Naval Supply Center, Charleston, South Carolina, provides civilian payroll services and authorization accounting activity services.
- g. Human Resource Service Center, San Diego, provides and administers civilian personnel functions and EEO programs through the Human Resource Office at NMCSO.
- h. Personnel Support Activity Detachment, Point Loma, provides disbursing, travel, and military personnel procedures.
- i. Public Works Center provides maintenance and public works functions, transportation, and building custodial services on a reimbursable basis.
- j. Naval Legal Service Office, San Diego, provides command legal assistance.

Enclosure (7)

VISITORS*

<u>Date</u>	<u>Name, Command</u>	<u>(NHRC POC)</u>
7 Jan	CAPT D. H. Freer, MC, USN, IMEF, Camp Pendleton	
26 Jan	Steve Walters, Anteon Representative	
4 Feb	Brian J. Earley, San Diego Chamber of Commerce	
24 Feb	Col Roberts, USMC (CDR Shaffer)	
9 Mar	CAPT McBride, CDR E Marsinek, CDR Ely (OCO)	
30 Mar	CAPT Frank, Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, FL (Command)	
31 Mar	CAPT H. James Beecham III, MC, USN, and CAPT Ben Mitchell, MC, USN, Navy Environmental Preventive Medicine Unit 6, Pearl Harbor, Hawaii	
31 Mar	CAPT Richard Buck, MC USN, CAPT Joel Escamillo, MSC, USN, HMCM(SW) J D Brenen, Navy Environmental Health Center, Norfolk, VA	
31 Mar	LTC Charles Enga, MC, USA, Dept of Psychiatry, Uniformed Services University, Bethesda, MD	
2 Apr	CDR Melvin J. Ely, MSC, USN, NMRI Detachment, Brooks AFB, TX	
6 Apr	CAPT Michael Kilpatrick, MC, USN, Special Assistant to Dr. Bernard Roisker on Gulf War Veterans Illnesses (Dr. Gray)	
13 Apr	CDR Forcino (B. Pugh)	
13-15 Apr	CDR Michael Sashin, MSC, USN, Medical Readiness, J4, Joint Staff, The Pentagon, Washington DC (B. Pugh)	
13 May	RADM Joan M Engel, NC, USN, Bureau of Medicine & Surgery, MED-02 and Jennifer L. Town, BuMed OONCA	
3 Jun	LT Ken Sausen (LCDR Van Orden)	
23 Jun	Visitors, Australian Defense Force Health Capability Study Team (LTC Les Haines, Australian Army; CMDR Terry Lennard, Royal Australian Navy; LTC Randy Reynolds, USAF [Exchange Officer] (Ahlers)	
9 Jul	LtCol Dunckhorst, Mr. Cruz Martinez, and MGySgt Hawkins, Personnel and Family Readiness Division, HQMC Drug/Alcohol/Health Affairs Branch [Clinical Epidemiology Division to review progress and determine future directions for the HQMC sponsored work unit (Ms.Hurtado)	

*Any omissions purely unintentional.

1998 Command History-NHRC

- 16 Jul A group of 8-10 health professionals from the Regional Military Hospital, and the Naval Hospital, Ensenada, Baja California, Mexico visited NHRC. The purpose of their visit is to continue informal scientific discussions on the possibilities of extending existing DoD acute respiratory infections surveillance and research activities, run by the Emerging Illness Division (Code 234), into Baja California, Mexico. POC for the Mexican military health system, Celia G. Diaz, Executive Director, Binational Emergency Medical Care Committee, Chula Vista, CA (P. Sato) (See "Special Topics," page 5)
- 21 Jul Visitors, Ron Peltaer & Bill Dalessio, Uniband Contract Representatives (Dr. Nice)
- 7 Aug * Visitors, Dr. Larry Dean and Dr. Robert Gaugler, GEO Contract Representatives (OCO)
 * Visitors, Ron Peltaer & Bill Dalessio, Uniband Contract Representatives (OCO)
- 18 Aug Visitor, GAO, Assistant Director, Military Operations and Capabilities Issues, to discuss Gulf War illness research (CO, Dr. Gray) (See page C-7)
- 10 Sep Visitors, Headquarters, US Marine Corps (CDR Shaffer & Ms. Hurtado)
- 7 Oct CAPT Marsha Schoelberg and LT Mike Schwerin (CO)
- 8 Oct CAPT James S. Snyder, USN, OPNAV N7, Congressional Committee, Arlington, VA
- 23 Oct Visitor, RADM(Sel) James A Johnson, Medical Officer of the Marine Corps (Command)
- 26 Oct * Visitor, Dr. Anna Johnson-Weinger, Office of Naval Research, ONR 34 (Command)
 * Visitors all week, Price-Waterhouse-Cooper (Command)
- Nov CAPT Sue Davis, Global (Dr. Gray)
- 16 Nov Visitors, GEO Centers Contractor, Ann Street, President and Dr. Rusty Warren (OCO)
- 19 Nov Visitor, CAPT Schyler (CDR Luz)
- 2 Dec Visitor, CAPT Walters, MIMIC, Bethesda (OCO)
- 14 Dec Visitors, CAPT Walter et al, for meeting (OCO)
- 15 Dec CAPT J. R. DeVoll, MC USN, Bureau of Medicine & Surgery (MED-23)

3. SUPPORTING DOCUMENTS

Miscellaneous Items

- A. OPNAV NOTICE 5450 Ser 09B22/8U509407 dtd 7 Jan 98; Subj: Disestablishment of Naval Medical Research and Development Command (NAVMEDRSCHDEVCOM), Bethesda, MD and Change in Delegation of Authority for NAVMEDRSCHDEVCOM Subordinate Activities and Detachments
- B. Thank you letter from RADM J. M. Engel, NC, USN dtd 22 May 98
- C. Thank you letter from Anna Johnson-Winegar, Ph.D., dtd 3 Nov 98
- D. Dr. Sue Bailey, The Assistance Secretary of Defense (Health Affairs) ltr dtd 17 Nov 98, re designating NHRC as DoD's Center for Surveillance of Birth Defects
- E. Quarterly NHRC Updates: January, No. 8; April, No. 9; and July, No. 10



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20380-2000

Canc frp: Jan 99

IN REPLY REFER TO

OPNAVNOTE 5450

Ser 09B22/8U509407

7 January 1998

OPNAV NOTICE 5450

From: Chief of Naval Operations

Subj: DISESTABLISHMENT OF NAVAL MEDICAL RESEARCH AND
DEVELOPMENT COMMAND (NAVMEDRSCHDEVCOM), BETHESDA, MD AND
CHANGE IN DELEGATION OF AUTHORITY FOR NAVMEDRSCHDEVCOM
SUBORDINATE ACTIVITIES AND DETACHMENTS

Ref: (a) OPNAVINST 5450.169D
(b) SNDL, Part 2

1. Purpose. To implement Secretary of the Navy approval to disestablish subject management headquarters shore activity and to approve realignment of subordinate activities and detachments assigned to Chief, Bureau of Medicine and Surgery for command and support per reference (a).

2. Background. The claimant has determined that financial constraints prohibit continued operation. Realignment of the reporting activities and detachments will maintain uninterrupted command and support.

3. Organizational Change. Disestablish Naval Medical Research and Development Command, Bethesda, MD and modify reporting procedures for subordinate activities and detachments effective immediately. The following applies:

a. DisestablishmentEffective Date

Commanding Officer
Naval Medical Research and
Development Command
Building 1 Tower 12
Bethesda MD 20889-5606

Immediately

(SNDL: FH19)

(PLA: NAVMEDRSCHDEVCOM BETHESDA MD)

(Activity Code: 4185-200)

(UIC: 00075)

OPNAVNOTE 5450

b. Revised Delegation of Authority. Chief, Bureau of Medicine and Surgery (CHBUMED) to be delegated through:

EchelonCommand and Support

3	Commanding Officer, Naval Health Research Center, San Diego, CA (Officer in Charge, Naval Medical Research Institute Detachment (Toxicology) Wright Patterson AFB, OH)
4	(Officer in Charge, Naval Medical Research Institute Detachment Brooks AFB, San Antonio, Texas)
4	Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, FL
4	Commanding Officer, Naval Submarine Medical Research Laboratory, New London, Groton, CT
3	Commanding Officer, Naval Medical Research Institute, Bethesda, MD (Officer in Charge, U.S. Naval Research Medical Institute Detachment Lima, Peru)
4	Commanding Officer, Naval Dental Research Institute, Great Lakes, IL
4	Commanding Officer, U.S. Naval Medical Research Unit No. 2, Jakarta, Indonesia
4	Commanding Officer, U.S. Naval Medical Research Unit No. 3, Cairo, Arab Republic of Egypt

4. Action

a. CHBUMED will take action to disestablish subject shore activity.

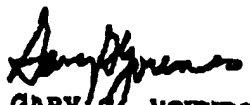
b. Commands, bureaus and offices concerned are directed to take appropriate action to execute redelegation.

OPNAVNOTE 5450

c. NAVCSRF, Honolulu, HI will delete the Plain Language Address (PLA) to the Common Source Route File immediately unless otherwise directed via official correspondence. Correspondence concerning the PLA should be forwarded to NAVCOMTELSTA (Code N353) Washington, DC 20374-1435.

d. N09B22 will revise reference (b).

5. Cancellation Contingency. This notice may be retained for reference purposes. The organization action will remain effective until changed by N09B.


GARY C. YODANIS
By direction

Distribution:

SNDL A1	(Immediate Office of the Secretary)
A2A	(Department of the Navy Staff Offices) (CHINFO (3), DONPIC, OLA, Auditor General of the Navy, CNR, only)
A5	(CHNAVPERS) (11)
B2A	(Special Agencies, Staffs, Boards and Committees) (DFAS Cleveland, only)
B2E	(NIMA) (Reston (Code COTN) and Bethesda (Code GIMM), only)
B2F	(MIL POSTAL SVC AGCY/JT MIL POSTAL AGCY) (Alexandria, only)
21A1	(CINCLANTFLT)
25B3	(COMNAVSURFREPFOR) (Code N1)
C4CC	(DON CAF)
FF18	(NAVTACSUPPACT) (Code 57)
FG1	(COMNAVCOMTELCOM) (Code N112)
FG2	(NAVCOMTELSTA)
FG6	(NCTAMS)
PH1	(BUMED) (Code MED-312)
FH19	(NAVMEDRSCHDEVCOM)
FH24	(NAVMEDJNFMGTCCN)
FJA8	(NAVRESPERSSEN) (Code 30)
FJA9	(EPMAC)
FJA10	(NAVMAC) (Code 545)
PKA1	(Systems Command) (5)
PKM10	(NAVMTO)
PKN1	(FACENGCOMDIV)
PKN2	(CBC) (CBC Port Hueneme (Code 1823), only)

OPNAV Principal Officials
N09B22 (2), N122, N02 (10), N931



Director Navy Nurse Corps and
Assistant Chief for Operational Medicine and Fleet Support
Bureau of Medicine and Surgery
2300 E Street NW
Washington DC 20372-5300

22 May 1998

Dear Captain Dean,

Many thanks for your part and that of your staff in coordinating our recent visit to NHRC. It is always energizing to get a "first-hand" look at the outstanding work that is being accomplished by our talented leadership and personnel. The briefs by Dr. Nice, Dr. Prusaczyk, LCDR Van Orden, Dr. Garland, CAPT Gray and CDR Shaffer, in addition to the time spent in the various project areas gave me an invaluable picture of the world class research that is supporting our people and missions. My special thanks to LT Deniston for meeting us and driving us to the various locations--a truly professional Naval officer. Please pass my thanks, also, to those in the respective project areas who provided overviews of their work. It is obvious they take great pride in their work and see the value it adds and will add in supporting our many missions. Without a doubt, your command and its people reflect excellence in the workplace

Again, my sincere appreciation to all those involved with this visit. Thank you for your outstanding support of our Navy-Marine Corps healthcare mission. My best to you and your staff.

*Thank you a
job well done -
a class act!*

Sincerely,

JOAN M. ENGEL
Rear Admiral, Nurse Corps
United States Navy

Captain Larry Dean, MSC, USN
Commanding Officer
Naval Health Research Center
PO Box 85122
San Diego, CA 92186-5122

B.



3 November 1998

Dear Larry:

Thank you for your hospitality last week during my visit to NHRC. I found the briefing very informative and the visits to the labs identified many outstanding capabilities. Please express my appreciation to all your staff for their assistance.

Sincerely,

Anna Johnson-Winegar, Ph.D.
Head, Human System S&T Department
Office of Naval Research

Captain Larry Frank
Commanding Officer
Naval Health Research Center
San Diego, CA 92152



THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

NOV 17 1998

HEALTH AFFAIRS

MEMORANDUM FOR SURGEON GENERAL OF THE ARMY
SURGEON GENERAL OF THE NAVY
SURGEON GENERAL OF THE AIR FORCE

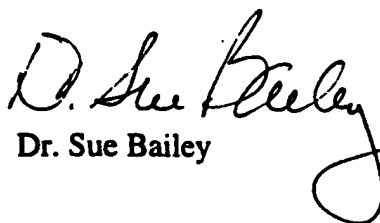
SUBJECT: Policy for National Surveillance for Birth Defects Among Department of Defense (DoD) Health Care Beneficiaries

The Department of Defense shall conduct surveillance for major birth defects among DoD beneficiary infants born in both military and civilian medical facilities and provide incidence rates of newly diagnosed cases for births and fetal demises. This will be accomplished by establishing surveillance for birth defects among DoD health care beneficiaries through a scientifically sound, cost-effective hybrid birth defects registry. This surveillance system will:

- Determine those birth defects that are most common within this population;
- Provide information regarding increases, if any, in the incidence of specific malformations;
- Compare rates stratified by beneficiary status (military or dependent) and among active-duty personnel, by occupation;
- Identify geographical or military service-related areas of reproductive concern for cluster analysis;
- Identify any correlation of rates of defects with changing trends in cultural, social, and environmental factors; and
- Provide a data repository that future investigators and policy makers might use to study militarily important birth defects hypotheses.

The Naval Health Research Center, San Diego will continue to maintain the surveillance database, provide professional guidance and direction, and will issue periodic and special reports to the ASD(HA). The TRICARE Management Activity will provide funds for FY 99 and FY 00 and OSD(HA) will include this mission in the annual Medical Program Guidance issued for the Navy for out-years funding in the FY 01 - 05 POM submission.

This policy is effective immediately.


Dr. Sue Bailey

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D.

NHRC UPDATE

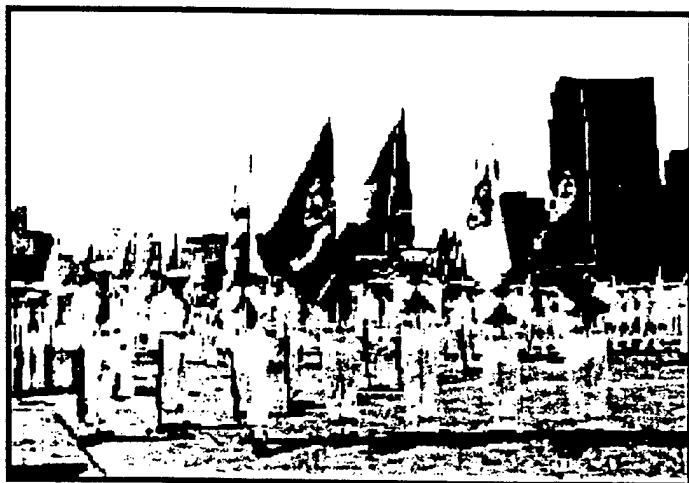
January 1998**Issue No. 8**

This update is published quarterly to highlight NHRC contributions to the Navy and Marine Corps as well as the scientific community.

NHRC Scientists Discover Positive Personality Changes During Basic Training

Military basic training is a major transition period for most recruits, and it occurs at a time when the typical 17-to-20 year old recruit is in an important personality development phase. Therefore, attitudes and behaviors instilled during this transition from civilian to sailor or marine may influence the individual's behavior during his or her military service and in civilian society after leaving the service. Given that more than 100,000 young people go through military basic training every year

prone to negative emotions, such as depression and anger, and less susceptible to stress. Graduating recruits are more conscientious, more likely to set high standards, and more likely to strive for high achievement levels. In addition, graduating recruits are more organized when attacking tasks and have greater persistence in the face of difficulties. While the authors conclude that such changes are a normal part of development in late adolescence and early adulthood, development during basic training is much more rapid than would be expected. Other research linking personality to job performance and citizenship in military and civilian populations indicates that the personality attributes that change the most during basic training are precisely those which will contribute most to improving job performance and lowering the risk of delinquent behaviors (e.g., drug use, absenteeism, etc.). During military service, the personality effects of basic training will make the recruits more effective sailors who perform better and are less prone to being administrative nuisances. After military service, the personality effects of basic training should make the service members better, more productive citizens.



Recruit Training Command, Great Lakes
graduation ceremony

(even with recent downsizing trends for the military services), any effect of basic training on personality development has substantial implications for both the military and society.

In a study supported by the Office of Naval Research, Dr. Vickers, Ms. Hervig, and Ms. Paxton of the Naval Health Research Center, in collaboration with researchers at the University of Minnesota, assessed the impact of basic training on personality. In general, these researchers found that basic training changes personality in a positive direction. Compared to entering Navy recruits, graduating recruits are less

NHRC Researchers Track Suicide Risk in the Navy and Marine Corps

Suicide is the third leading cause of death among 17- to 24-year-olds in the United States, and in the military only accidents and homicide surpass it. Suicide is also the third leading cause of death among sailors and second among marines. Across services from 1980 - 1992, the Navy had the lowest annual rates for both men and women (11.74 and 4.82

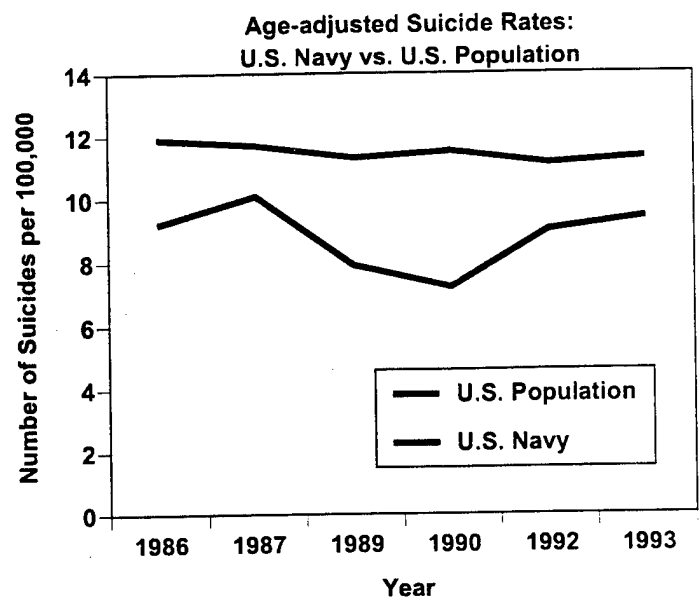
per 100,00, respectively) while the Marine Corps had the highest (13.93 and 11.48 per 100,000, respectively). Among suicides that occur in the workplace, men in military service appear at highest risk. Military occupations with access to firearms also have a significant risk of suicide when compared to other military occupations.

Suicide is a statistically rare event that is exceedingly difficult to predict or prevent. Although studies of suicide among active-duty military personnel of all branches have generally shown that suicide rates in the military are lower than rates for the U.S. population, suicide remains an important issue because of its devastating consequences for families and shipmates alike. Recent interest in Navy suicides has stemmed in part from media attention surrounding the suicide of Admiral Boorda in May of 1996; "clustered" events (e.g., three suicides on one ship within one 6-month deployment); an imitative pattern of suicidal behavior in a naval school, and from preliminary reports of increasing rates within the Navy that may not be experienced by the other services.

Laurel Hourani, Ph.D., M.P.H and her colleagues at the Naval Health Research Center have recently compared active-duty suicide rates to employed civilian rates. In her research, Dr. Hourani reasoned that since unemployed men have higher suicide rates than employed men, a more appropriate comparison group for active-duty personnel should be drawn from employed U.S. civilians. When properly compared to employed civilian rates, Navy and Marine Corps suicide rates may be higher, thus identifying a potential problem. Further, not all previous studies considered that suicide rates vary greatly according to demographic variables such as age, gender, and race, and that the percentage distribution of the U.S. Navy across these groupings is very different from that of the population in general. In a series of recent studies, Dr. Hourani, Ms. Coben, and Dr. Giles Warrack of North Carolina A&T State University examined adjusted standardized mortality rates, demographic distributions, trends, and potential clustering of suicides in the Navy and Marine Corps from 1990 to the present. Over the period from 1990 to 1996, there were 213 suicides in the Marine Corps. In the period from 1990 to 1995, there were 360 suicides in the Navy. Expected numbers if the services had the same suicide rate as the U.S. population, (adjusting for age, sex, race, and

employment) were 225 for the Marine Corps and 537 for the Navy, both higher than observed rates. However, important differences within demographic groups were found. As might be expected, males predominantly committed the suicides in each service, but the number of female suicides exceeded the expected number. Fewer than expected suicides were committed by Caucasians and African Americans but more than expected by Hispanics and other ethnic group males. The Marines showed a higher rate of handgun use in suicide than the general population, and the Navy a lower rate. The suicide rate in the Navy had increased in recent years but not in the Marine Corps.

Continuing studies at NHRC are focusing on risk factors for suicide. Although most studies have found that risk factors for suicide in the military mirror those of the general population, i.e., interpersonal



loss, depression, substance abuse, and work problems. at least one study has noted that interpersonal separation was more often the precipitating event of the suicide among young military personnel than among civilian suicides. NHRC will begin a new study to corroborate high risk groups identified from its current studies and examine a wide range of risk factors among suicide attemptors (personnel hospitalized with a suicide attempt diagnosis) and among contemplators (personnel who self-report contemplating suicide within the last 2 years). These studies will be conducted with existing databases also resident at NHRC - the automated hospitalization records of all Navy and Marine Corps personnel and population-based

survey data from approximately 10,000 Navy and Marine Corps personnel worldwide. These new data will help develop a profile of Navy and Marine Corps personnel at suicide risk and enhance detection capability. Future research plans include intervention studies based on these data to improve prevention strategies.

MOBILE MEDICAL MONITOR (M3): A Workstation for Clinical And Medical Information Support

Military personnel perform in a broad range of operations that require medical support in remote and austere environments where proper diagnosis, treatment, and triage decisions increase returns to duty and can mean the difference between life and death. New miniaturized, lightweight, compact, rugged medical technologies allow more advanced medical care to be delivered in deployed settings. Under an FY97 congressionally sponsored conference committee addition, named the Mobile Medical Monitor (M3), the U.S. Navy has initiated a program for assembling, deploying, and implementing microelectronic monitoring devices and medical information technology capabilities into a modular mobile medical unit for field use.

The M3 team, headed by NHRC's Bill Pugh, consists of personnel from Navy Medical Information Management Center, Science Applications International Corporation (SAIC), MTS Technologies, Inc., and SPAWAR. NHRC, along with NMIMC, are responsible for program management, SAIC for system development and integration, MTS for management support and independent M3 test and evaluation, and SPAWAR for development of theater medical information software.

The M3 program uses existing technologies to the greatest degree possible, while leaving room for the integration of emerging technologies to meet the user requirements. Science Applications International Corporation (SAIC) developed the prototype system, M3 (A), which included clinical applications such as automatic blood pressure, pulse oximetry, ECG monitoring, and imaging capability. These pro-

totype units utilized a standard U.S. Military battle-field personal computer and featured a flexible architecture with data capture and display capability that could be expanded to incorporate new devices and interface with existing military communications systems.



M3 system in the field

NHRC, in coordination with SAIC, worked with medical personnel from the 1st Medical Battalion and 1st Force Service Support Group to develop the functionality for the next generation prototype of the Mobile Medical Monitor (M3), the M3 (B). In addition, NHRC researcher, LT William Deniston, evaluated the M3 (A) at Kernel Blitz '97, Camp Pendleton. Those results now form the basis for M3 (B) currently under development by SAIC and their subcontractor, Litton Data Systems. The M3 (B) will consist of additional clinical capabilities, ultrasound with doppler and nasopharyngeal scope. Along with clinical and clinical support functions, the M3 (B) will host the SPAWAR Theater Medical Core Services software and forward data within the framework of Theater Medical Information Program-Maritime (TMIP-M). These M3 (B) units will be configured and field-tested during calendar year 1998. Data will be collected during field exercises and will be used to identify the optimal suite of tools that maximizes clinical assessment capability and minimizes weight and footprint.

NHRC's Relationships With Universities And Academic Institutions Enhance Navy Biomedical Research

Researchers at the Naval Health Research Center (NHRC) maintain close collaborative research relationships with leading universities to further our mission of service to the fleet through biomedical research, development, test and evaluation. With support from the **Office of Naval Research**, this practice of leveraging the best national talent available ensures the application and transition of cutting edge science and technology to biomedical requirements for Navy and Marine Corps personnel in operational settings. Some of our current collaborations include:

- **Naval Postgraduate School:** Identify the primary causes of injury during Special Ops small boat unit operations and develop countermeasures.
- **University of California, Los Angeles, School of Public Health:** Evaluate the effectiveness and potential contraindications of photorefractive keratectomy (PRK). Postoperative changes in visual acuity, contrast sensitivity, light scatter, and marksmanship are being monitored to determine the appropriateness of this procedure for operational forces.
- **Yale University, School of Medicine:** Assist in the use of magnetic resonance imaging (MRI) as a noninvasive procedure to document muscle damage via soft tissue markers.
- **NASA Ames Research Center:** Assist in analyzing and evaluating electrophysiological eye movement data and electrocortical activity data collected from Marine Force Reconnaissance personnel. These measures are combined with performance and survey data to assess alertness in near- real time and to determine the possible development of sleep countermeasures training modules for special operations personnel.
- **Northern Illinois University:** Provide additional expertise in family violence and sexual assault research to determine the effect of maltreatment histories on Naval personnel and to determine the effect of a recently developed sexual assault intervention on subsequent attitude, beliefs, and behaviors concerning sexual assault.
- **Salk Institute for Biological Sciences:** Assist in the development of algorithms and methods to analyze complex EEG and functional magnetic resonance imaging (fMRI) signals in order to detect fatigue and drowsiness in real-time.
- **University of Washington; University of California, San Diego, School of Medicine; Department of Veterans Affairs Medical Center, San Diego; and San Diego State University:** Assist in the development of an intervention to reduce heavy alcohol use among Marine Corps personnel.
- **University of California, San Diego, School of Medicine, Department of Family and Preventive Medicine:** Provide additional epidemiologic expertise for Gulf War Illness Studies, Shipboard Health Studies, and other epidemiologic research projects.
- **Johns Hopkins University (Applied Physics Laboratory):** Assistance with bone densitometry and anthropometry studies and a stress fracture assessment in Navy women in training. Objectives include: (1) determine the impact of musculoskeletal injury in operational forces, (2) establish risk factors for injury susceptibility, and (3) develop interventions to reduce the impact of injuries.
- **University of Alabama:** Support of research on identification of risk factors for chorioamnion infection and adverse pregnancy outcome among active-duty military women and dependents. Additional collaborations include protein serotyping of pathogens and immunoblot assays of the capsular polysaccharide of *Streptococcus pneumoniae* isolates to determine the serotype in association with Emerging Infectious Diseases Studies.
- **San Diego State Foundation:** Provides student assistance for data collection and analysis support to all NHRC departments.

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NHRC UPDATE

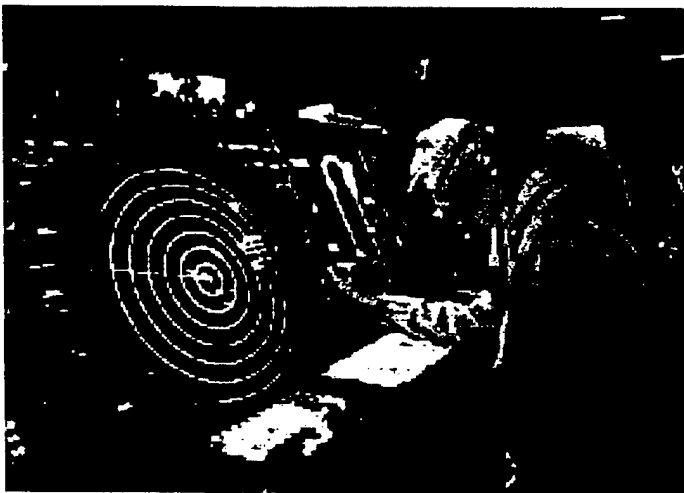
April 1998

Issue No. 9

This update is published quarterly to highlight NHRC contributions to the Navy and Marine Corps as well as the scientific community.

NHRC Develops Human-System Integration for the Next Generation Naval Watchstations

To meet mission requirements with fewer ship-board personnel, the Navy's next generation command and control watchstations will use automated processes and decision aiding tools as never before. Human operators will simultaneously perform



multiple tasks from a variety of supervisory levels, from high-level monitoring of automated processes to direct interaction with tactical data and communication with other combat information center (CIC) personnel. The prototype Multimodal Watchstation (MMWS), under development at SPAWAR Systems Center, San Diego, will have, at its core, a Task Manager, an intelligent software agent continuously assessing tasks to be accomplished and modulating task priorities, changing watchstation parameters, and re-allocating workload across the CIC as needs dictate. An important component of the MMWS will be the Workload Assessment and Management Module, a system that assesses the cognitive state and operator workload and provides input to the Task Manager regarding the workload status of the operator.

The workload module is being developed at the Naval Health Research Center (NHRC) under the

direction of LCDR Karl Van Orden. The system will obtain workload estimates from three sources: (1) nominal workload estimates associated with subtasks that appear on the Task Manager list and intelligent-system assessments of the tactical picture, (2) operator's use of the console (frequency of function usage), and (3) operator state measures (e.g., eye activity, voice stress analysis). The system is being designed to detect the onset of drowsiness and the onset of task overload—two very real concerns for minimally staffed CICs of the future. To date, much of the work has focused on using eye activity measures (blink duration and frequency, fixation dwell time and frequency, pupil diameter) to model real-time fluctuations in drowsiness and task-driven workload.

Recently, Dr. Van Orden, with Dr. Scott Makeig of NHRC and Dr. Tzyy-Ping Jung of the Salk Institute, completed a study of the eye activity correlates of fatigue during a visual-tracking task. The tracking task required the participant to keep a disk inside of a circular target ring by using a trackball, while the disk was continuously perturbed by random "wind" forces. Participants demonstrated considerable variations in tracking performance within two 53-minute testing sessions. For each participant, eye data from one session were used to train an artificial neural network to produce moving estimates of changes in mean tracking performance during the same session. When applied to eye tracking data from a second session, the same network produced estimates of tracking performance that were highly correlated with actual performance changes (see Figure 1). The results demonstrated that information from multiple eye measures might be combined to produce accurate estimates of subminute scale changes in alertness.

Current efforts are focused on the study of eye

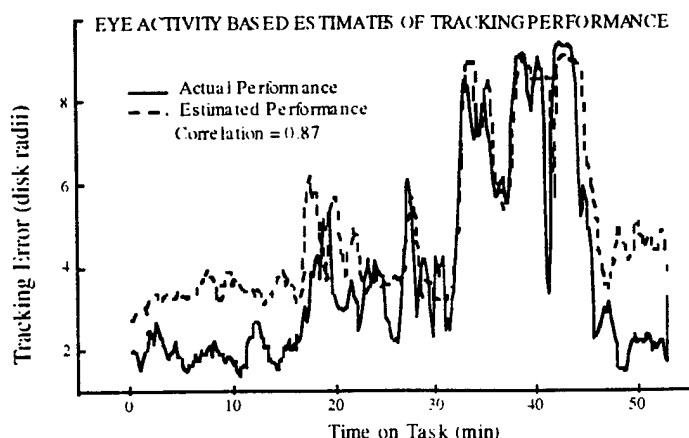


Figure 1

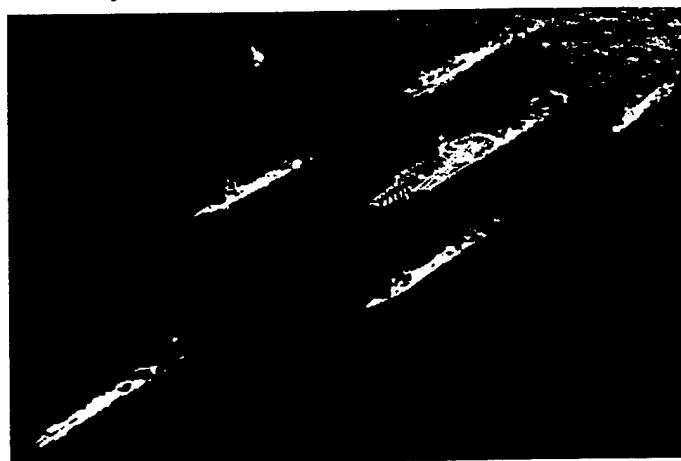
activity correlates of high task workload. In a study just completed, 24 Navy Operations Specialists and Fire Control Technicians completed a dynamic 35-minute anti-air-warfare scenario. Workload, manipulated by the frequency of commands issued to the operator, began at a moderate level and increased to near overload levels at the midpoint of the scenario. Early results from the high workload studies are promising with respect to modeling high workload states with eye measures.

The research program will evaluate the relative contribution and feasibility of each workload assessment technique in the process of developing a suite of tools that can be specified for future command and control consoles. Despite reduced manning, future shipboard combat system performance may be significantly improved with the appropriate integration of human operators. Such integration can only succeed through the cogent application of cognitive neuroscience, biomedical performance, and traditional human-engineering approaches.

Transition of a Successful Skills-Building STD/HIV Intervention to the Fleet

Because sexually transmitted diseases (STDs) and HIV/AIDS are transmitted through risky behaviors, they can be prevented through appropriate behavioral changes. Military personnel, as a population of predominately young men, are at high risk for STDs, particularly when deployed to foreign countries. Since 1994, the Naval Health Research

Center (NHRC) has conducted research designed to prevent STDs and HIV/AIDS among military personnel. In the first NHRC project ("Military-Based Intervention for the Prevention of STDs/HIV"), an intervention called the STD/HIV Intervention Program (SHIP) was developed and tested among a group of Marines on Western Pacific Deployment. This project was a collaborative effort between NHRC and the University of California, San Francisco (UCSF). The Principal Investigator was CAPT Stephanie Brodine; other researchers on the project included CDR Richard Shaffer, Mr. Stanley Ito, Ms. Debra Yniquez, and Ms. Dana Benas from NHRC, and Dr. Cherrie Boyer and Dr. Mary-Ann Shafer from UCSF.



SHIP is a multifaceted skills-building intervention, designed in partnership with the Marine Corps, to modify behaviors associated with the acquisition of STDs/HIV. The intervention uses a variety of media (e.g., videos, slides) to present information about STDs/HIV, and it includes many small group discussions and other interactive group activities, such as role-playing and educational games. The intervention is aimed at enhancing service members' knowledge about STDs/HIV, heightening their motivation to engage in safe behaviors and refrain from unsafe behaviors, and strengthening their behavioral and decision-making skills. Two videotapes, "HIV Legacy" and "Liberty Brief," were produced specifically for this program.

The evaluation of SHIP during a deployment to the Western Pacific indicated that it was successful in leading to a significant reduction in risky sexual behaviors. It also resulted in a reduction of alcohol use in the intervention group (Marines who were exposed to SHIP) compared with the control group (similar Marines who were not exposed to SHIP). There-

fore, it seemed feasible to transition SHIP to other military populations.

NHRC is currently conducting a new STD/HIV project, "Transition of a Successful Skills-Building STD/HIV Intervention." This project team, led by Dr. Stephanie Booth-Kewley, includes CDR Rick Shaffer, Ms. Patricia Gilman, Dr. Rahn Minagawa, and CAPT Stephanie Brodine from NHRC, and Dr. Cherrie Boyer from UCSF. Two of the goals of this project are to modify and transition SHIP in two new military populations: Preventive Medicine Technicians (PMTs) and Marine Security Guards (MSGs).

Preventive Medicine Technicians are Navy corpsmen who have obtained additional training in sanitation, epidemiology, industrial hygiene, and occupational health and are often used to train other Navy and Marine Corps personnel. To become PMTs, Navy corpsmen must complete PMT school in San Diego. MSGs are assigned to guard and protect embassies all over the world, including those in Third World countries. All prospective MSGs must graduate from the MSG school in Quantico, Virginia, before being assigned to an embassy. New versions of SHIP were designed for the PMT and MSG schools. Delivery of the SHIP curriculum began in the PMT school in December 1996 and in the MSG school in February 1998. NHRC is currently conducting an evaluation of the impact of this intervention in both the MSG and PMT populations.

A third goal of the current project is to support and evaluate an STD/HIV prevention module for the U.S. Marine Corps Semper Fit Program. The 1-hour module is composed of two videos developed for SHIP and didactic discussion about the key points addressed in the videos. This module has been packaged by Headquarters, Marine Corps (Code MHH) and is currently being distributed to Semper Fit Coordinators throughout the Marine Corps. A process and efficacy evaluation of this module is planned.

NHRC Develops Automated Environmental Heat Monitoring System for SMART SHIP

Chronic exposure to heat stress environments during sustained operations can adversely affect the safety, health, and performance of

personnel who must work in high heat or humid work areas. Temperatures in engineering, steam catapult, galley, scullery, laundry and auxiliary equipment workspaces routinely exceed 100°F and 50% relative humidity (RH). The Navy has developed a successful heat stress prevention program, OPNAVINST 5100.19C, which identifies safe Physiological Heat Exposure Limits (PHEL stay times). However, to determine PHEL stay times, the thermal condition of the workspaces must be measured by conducting a Wet Bulb Globe Temperature (WBGT) survey.

Conducting periodic WBGT surveys at each workstation within each "high heat" workspace requires using a portable, hand-held heat stress meter, which is very labor intensive. The procedure for com-



pleting a WBGT survey in a workspace consisting of 5 workstations would take at least 30 minutes: walk to the workspace (5 min), allow the meter to equilibrate in the workspace (5 min), allow 3 min to equilibrate per workstation (5) (15 min), and complete the form (5 min). Conducting a complete WBGT survey in all required shipboard workspaces can take approximately 3 to 5 hours, depending on the size of the ship and the number of affected workspaces. The number of man-hours spent performing WBGT surveys per year has been conservatively estimated at 2.475 to 3.712 hours per ship, for a destroyer versus a carrier, respectively.

With support from the Office of Naval Research, Mr. Jay Heaney of the Naval Health Research Center (NHRC), developed a software program to reduce this workload by automatically scanning and integrating data from a dry bulb (DB) sensor, a globe

temperature sensor, and an RH sensor. This software program was an extension of Mr. Heaney's design of a system to monitor and record on-line climatic chamber data acquisition systems in the Human Performance laboratory at NHRC. Wet bulb temperature is determined from an iterative calculation using RH and DB to derive a WBGT value. The software program measures the WBGT information, displays the appropriate PHEL stay times for personnel, stores the data in a spreadsheet file, and prints the required information on a heat stress form. Using this system, completing the WBGT survey, storing the data, and printing out the form can be accomplished within minutes instead of hours. Mr. Elias Aboujaoude, of Deban Enterprises, Inc., built the hardware, including the sensors, microchips, and electric circuitry system. Together, Mr. Heaney and Mr. Aboujaoude have developed an automated system that can be integrated either within the SMART SHIP operational platform or by using a desktop computer to operate the system aboard more conventional ships.

In August 1997, a research team consisting of Mr. Heaney, LCDR David Horn (NAVSEA), and LCDR Michael Sokolowski (AIRPAC) traveled to the Persian Gulf to assess shipboard heat stress conditions aboard the aircraft carrier, USS CONSTELLATION (CV-64). During the 3-week visit, they conducted a pilot test of the automated WBGT data acquisition system. The prototype on-line system was favorably reviewed, and personnel from various SMART SHIP and NAVSEA ship design commands asked Mr. Heaney to collaborate with an ongoing project to transform USS RUSHMORE (LPD-47) into the "SMART SHIP of the Pacific Fleet." A similar project resulted in the USS YORKTOWN (CG-48) becoming the "SMART SHIP of the Atlantic Fleet." Working with Mr. Vincent Vizzard of Naval Surface Warfare Center-Cardero Division-Ships Engineering Station (NAWC-CD-SSSES), two automated WBGT sensors were installed in the engineering spaces on the USS RUSHMORE (LPD-47).

Interest in this technology has spread throughout the Fleet, and the automated WBGT system has been incorporated into the contract for the new DDG, LHD, and LPD ship construction plans. USS MAHAN (DDG-72) will be the first ship to have the automated WBGT sensors installed in all high-heat workspaces (September 1998) and USS BONHOMME RICHARD (LHD-6) plans to install this system in its laundry workspace (July 1998).

The 2,400 to 3,700 man-hours saved by automatically conducting WBGT surveys can now be used to perform other required shipboard tasks. As the number of crewmembers is reduced, the development of systems to automate the numerous labor-intensive shipboard functions allow the crew to focus on more complex operations.

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U.S. Navy Suicide Rates Decline Dramatically in 1996, 1997

In the last edition of the "Update," we reported that the suicide rate had increased in the Navy in recent years. While this was true in 1995 (the last year of the study), it is not true today. The Bureau of Naval Personnel (BUPERS) reported that suicide rates dramatically declined in 1996 and 1997. The rate of suicides reported by BUPERS for 1996 and 1997 was 10.7 per 100,000 for the Navy, much lower than the peak rate of 17.5 in 1995.

For all Navy personnel combined, suicide is the third leading cause of death, with motor vehicle accidents and natural causes being the first and second, respectively. The number of cases of suicide occurring among U.S. Navy women each year is usually fewer than 3, making it difficult to compare rates between Navy women and Navy men. We hope this information clarifies the material we presented in the previous "Update."

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NHRC UPDATE

July 1998

Issue No. 10

This update is published quarterly to highlight NHRC contributions to the Navy and Marine Corps as well as the scientific community.

NHRC Researchers Examine the Use of Nutritional Supplements

There is a common belief among many athletes and military personnel that nutritional supplements enhance performance. Several studies have reported a high frequency of nutritional supplement use among athletes, and some nutritional



Over-the-counter nutritional supplements

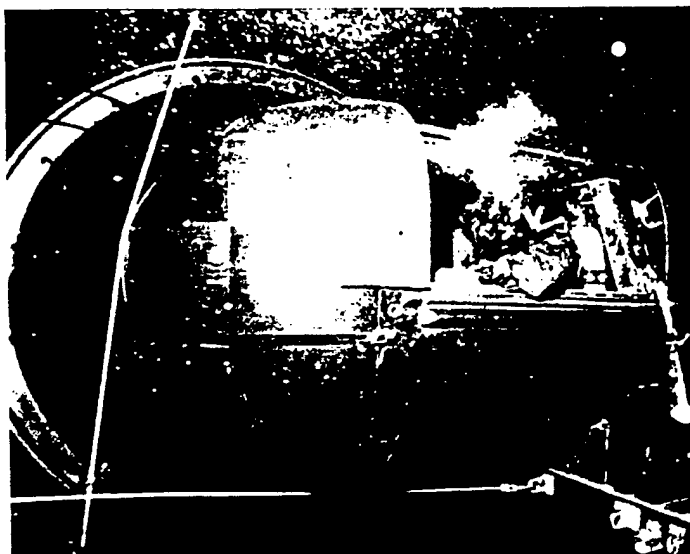
supplements have been shown to increase various components of fitness and athletic performance. Unfortunately, there is little scientific evidence that many of the currently popular nutritional supplements do enhance physical performance, and, as with nearly any substance, misuse of these products can have deleterious effects. In many cases, the long-term effects of nutritional supplement use are unknown.

The Food and Drug Administration (FDA) does not evaluate the safety of nutritional supplements in the same way it evaluates drugs, except when adverse effects are reported. Such is the case with ephedrine, a supplement derived from the herb *Ephedra equisetina* or Ma-huang. Recently, in response to several cases of serious illness (e.g., seizures, heart attacks, and strokes) and death associated with use of this product, the FDA proposed new guidelines for ephedrine use. The proposal would limit the amount of ephedrine in supplements, the

number of servings per day, and require a label warning not to use the product for more than 7 days. The FDA also has proposed a ban on the combination of ephedrine with substances that have similar effects, such as caffeine. Recently, a Navy Master Diver suffered a stroke after consuming two doses of a nutritional supplement containing both ephedrine and caffeine. Attending physicians believed that product played a major role in the occurrence of the stroke.

U.S. Navy Sea-Air-Land (SEAL) personnel are often compared with competitive athletes because of the rigorous physical training regimens in which they engage. As Dr. Prusaczyk and his colleagues at NHRC noted in a recent publication titled "Physical Demands of U.S. Navy Sea-Air-Land (SEAL) Operations" SEALs seek any competitive advantage to achieve the high level of fitness needed to meet their demanding mission requirements. Anecdotal evidence suggests that nutritional supplement use by SEALs is very common. In 1997, a team of NHRC researchers, including Ms. Kevin Schneider, Ms. Linda Hervig, and Dr. Hal Goforth, constructed and administered the most comprehensive survey conducted to date documenting supplement use among military personnel. The survey was designed to assess the type and frequency of supplement use, expected benefits, adverse effects experienced, cost, and satisfaction of use among West Coast SEALs. For the purpose of the survey, a nutritional supplement was defined as anything consumed that is not (1) a food that is part of the regular diet; (2) medications for the treatment of an illness, disease, or injury; or (3) alcohol, coffee, or tea. The data collected during this survey were reported at the 1998 Annual Meeting of the American College of Sports Medicine in Orlando, FL.

Seventy-eight percent of the SEALs in the study reported taking at least one nutritional supplement during the past year. The majority reported



SEAL Delivery Vehicle disembarking Dry Deck Shelter

taking supplements purported to increase muscle mass, strength, and/or power, and provide a source of energy. Multiple supplement use was common, with 66% using three or more supplements. Of the individuals who used supplements, 44% reported spending at least \$25 each month for them.

Only 57% of the individuals taking supplements to enhance muscle mass and power reported experiencing these effects, and most were only "slightly satisfied" with these supplements. In addition to the purported benefits for a given supplement, there were other negative effects such as nausea, diarrhea, stomach cramps, and other gastrointestinal problems. Because many supplements contain a combination of ingredients and many respondents take more than one supplement, it is possible they are unable to distinguish which of the components produced the noted effect.

These adverse effects have been reported to be associated with high consumption of protein powders, amino acids, and steroid alternatives. In this survey, only 6% of the SEALs reported taking a supplement containing ephedrine and 14% reported using at least one product containing a combination of ephedrine and caffeine.

One of the more revealing findings of the study was related to product information. When asked for their sources of information on supplements, these SEALs reported getting information from friends (79%), team members (63%), and magazines (49%). Only 24% reported receiving information about supplements from a health care provider. This finding suggests that the Navy medical community should take a proactive role in providing accurate scientific information on the risks and benefits that can occur with nutritional supplement use. Therefore, NHRC researchers are actively involved in developing educational and training modules designed to further educate the medical community as well as sailors and marines on the use of nutritional supplements.

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NHRC Scientists Assess Physical Disability Separations and Workers' Compensation Costs

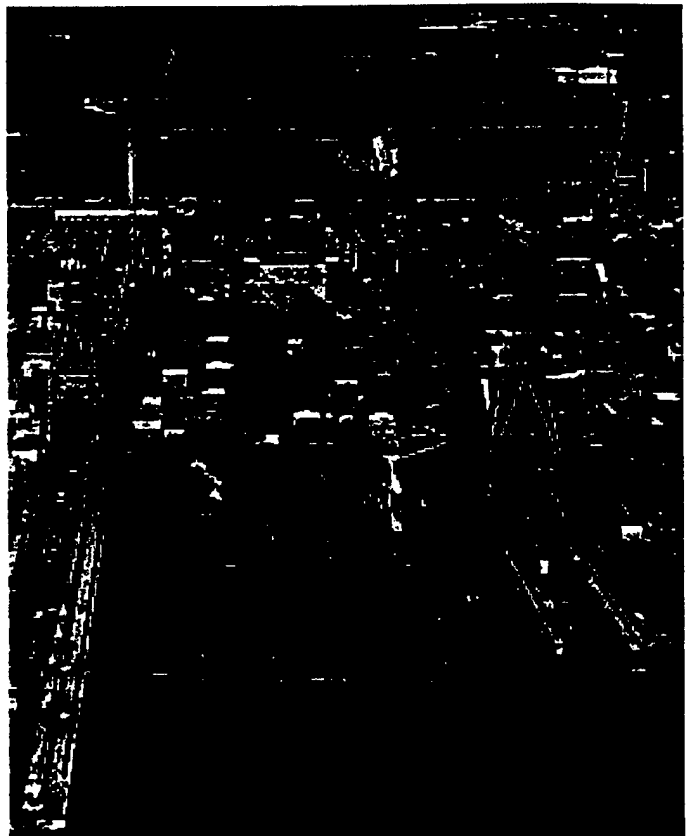
Between 1989 and 1995 the cost of physical disability separations from the Marine Corps increased from \$10 million to \$28 million. This increase of nearly 300% prompted the Marine Corps to request the assistance of NHRC researchers to identify physical disabilities leading to severance pay separations within the Marine Corps and to propose solutions to reduce potential disabilities. In response to this request, Dr. Frank Garland, in collaboration with Ms. Sharon Tossey, initiated a complex integration of data to identify trends in severance pay separations and provide policy recommendations. These data were retrieved from the Physical Evaluation Tracking System (maintained by the Navy Physical Evaluation Board), the Career History Archival Medical and Personnel System (maintained by NHRC), and the Defense Eligibility Enrollment Reporting System (maintained by DoD). During the study time frame of 1993 to 1996, these investigators identified 7,040 Marine Corps personnel and 8,417 Navy personnel who had received a physical disability separation.

The overall incidence rate of physical disability separation per 100,000 person-years was 1,622, or about 2% of all personnel per year. However, there was a statistically significant decline in severance pay separations between FY94 and FY96. The leading causes of physical disability separation were primarily musculoskeletal problems, such as joint pain (leg or ankle), lower back pain, arthritis, and asthma. The highest rate of severance pay separations was among ages 17 to 24, and Marine Corps personnel serving in their first year were at greater risk of separating compared with all other lengths of service. The greatest risk of severance pay separation was in the most junior enlisted paygrade (E1), and in one of the most senior officer ranks (O6). Although the rate of women separating with severance pay was much higher than men, women represented a relatively small percentage of all severance pay separations in the study. In addition, the gender-specific rate was more than double for both men and women Marines in comparison with Navy personnel.

Another area of high cost for the Navy involves workers' compensation for lost time due to occupational illness or injury. The majority of the lost time of the Navy civilian work force is due to injuries. In a previous study supported by the Office of Naval Research and published in the *Journal of Occupational and Environmental Medicine*, NHRC researchers Dr. Steve Shepherd and Ms. Bonnie LaFleur found that there were more than 11,000 injury-related lost-time claims among Navy civilians each year. Interestingly, these researchers found that a disproportionately high percentage of claims for sprains and strains were filed on Mondays, while the number of other injuries, such as contusions, fractures, and lacerations, was evenly distributed across all days of the work week. These Monday claims exceeded the number from other days of the week by 22%, and they were believed to include many injuries that were suffered on the weekend but were claimed by employees as work-related. In addition, persons filing claims for Monday-occurring sprains and strains were, in some respects, significantly different from claimants whose injuries occurred later in the week. In general, claimants for Monday-occurring sprains and strains were more

likely to be a supervisor, to report an injury in the back or trunk, and not a college graduate.

It is estimated that the average cost to the Navy for a lost-time injury accepted for coverage by the Office of Workers' Compensation Program is approximately \$22,000. The authors concluded that if 22% of the Monday claims were unwarranted, then claims unrelated to safety conditions at Navy facilities gen-



Navy industrial facility

erated costs and future liabilities in excess of \$38 million during the 5-year sampling period of this study. Based on these data, the authors developed criteria to assist claims adjusters in conducting a more stringent review of those claims that are possibly fraudulent.

As the Navy and Marine Corps continue to meet expanding operational requirements with limited personnel and resources, it becomes increasingly necessary to identify and eliminate inefficiencies. The research capabilities at NHRC represent an important component in the strategy to optimize resources in a period of fiscal constraint.

NHRC Researchers Explore Shipboard Telemedicine Opportunities

Generally defined, telemedicine is the use of communications technologies to support medical care at a remote location. These technologies can be used to provide immediate and expert health care of the highest quality to an individual anywhere in the world. Given its global mission, it is



not surprising that the U.S. military is a widely acknowledged leader in many aspects of telemedicine. In 1983, Dr. Steve Nice of NHRC conducted a 9-month study of all U.S. Navy surface ships, Pacific Fleet submarines, and all ships of the Military Sealift Command to determine the need for telemedicine capabilities aboard ship. This study showed that in 28% of all medical evacuations (medevacs), there was a significant probability that the medevac could have been prevented if the ship had had the capability to transmit medical data via telecommunications. Fourteen years later, in 1997, this estimate (28%) was replicated in an independent study by the Center for Naval Analysis, Alexandria, VA.

In recent years, the Navy has implemented telemedicine aboard several aircraft carriers, and researchers at NHRC are executing a planned series of studies to determine whether telecommunications

between shipboard health care providers and shore-based medical consultants and specialists were effective in supporting diagnosis and treatment during medical visits. Dr. Jerry Larson of NHRC is examining the telemedicine process aboard the aircraft carriers USS GEORGE WASHINGTON (CVN-73), USS ENTERPRISE (CVN-65), and USS THEODORE ROOSEVELT (CVN-71), as well as McMurdo Station, Antarctica, to determine the impact of telemedicine on the initial diagnosis, treatment plan, and disposition of the patient. The NHRC telemedicine research team also includes Mr. Ralph Burr, Ms. Dee Pearsall, and, until recently, Dr. John Silva. Preliminary results suggest that the primary impact of telemedicine aboard aircraft carriers will be on the development of treatment plans rather than on diagnosis or patient disposition. The most frequent type of data or information transmissions involved still images, followed by conversation, and live images (televideo). Dermatology, orthopedics, radiology, ear/nose/throat, and urology were the five leading specialist groups consulted, and the majority of the consultations (84%) were rated as very effective.

Currently, NHRC is leading the test and evaluation component of a proposed joint-service Advanced Concepts Technology Demonstration (ACTD). The ACTD will demonstrate and evaluate new information technologies (including telemedicine) during planning and execution of joint medical operations. Dr. Larson and Mr. William Pugh are working with representatives from other Navy commands and the other services to define measures of effectiveness so that the costs and benefits of theatre telemedicine capabilities can be quantified. Thus, the ACTD will provide an opportunity to combine current work on shipboard telemedicine with research in the context of joint Army, Navy, Marine Corps, and Air Force medical operations.

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