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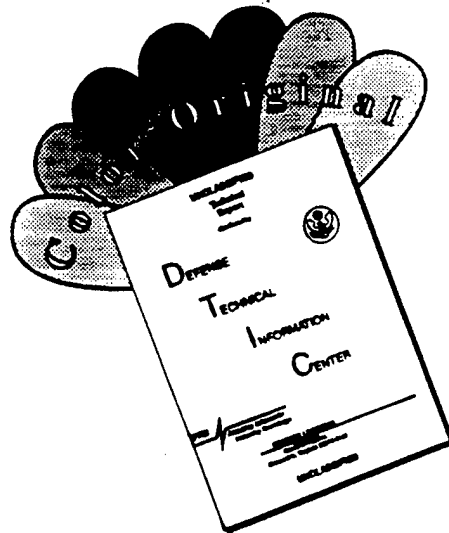
**Center of Excellence in Extremity Trauma:  
Workload and Cost Analysis in Support of Developing a  
Business Plan**

**A Graduate Management Project  
Submitted  
In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Healthcare Administration**

**by  
Major William T. Cross, MS, Army**

**San Antonio, Texas  
May 1995**

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## Acknowledgments

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## Abstract

This project was done to develop the necessary analytical information to allow preparation of an operational business plan for a newly proposed Center of Excellence in Extremity Trauma at Brooke Army Medical Center, Fort Sam Houston, Texas. Army wide extremity trauma workload available from PASBA for the five year period June 1989 to May 1994 was analyzed to develop understanding of market potential and demographics, diagnostic mix, trends and to estimate potential Average Daily Patient Load (ADPL). Additional information extracted from Medical Expense and Performance Reporting System (MEPRS) combined with staff input allowed development of a five-year operating cost estimate. A total of 14,244 extremity trauma related cases occurred, 10,338 of which had a primary diagnosis of extremity trauma, 38% were visceral complications; 27% open fractures or dislocations; 24% extremity prostheses, 8% were amputations; 2% were crushing injuries and 1% involved burns to extremities. Of these cases 42% were active duty, 18% active duty dependents, 17% retiree dependents and 16% retirees. Workload was found to be geographically focused in the South Central and South Eastern regions of the country, based upon patient residence. Texas had significantly the most cases, 300 more than any other state. The average extremity trauma patient was 36.7 years old, and 72% were males. Army wide case mix index was 1.49 while that for Medical Centers (MEDCENs) was 1.83. The Average Length of Stay (ALOS) was 17.3 days of which 9.5 days were spent in in-house acute care beds, 2.2 were convalescent bed days, 3.2 were in medical hold, 0.4 days in critical care and an additional 1.7 days in other facilities external to Army Medical Treatment Facilities (MTFs).

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## **Chapter 1. Introduction**

### **Project.**

This project provides the necessary analytical information to allow preparation of an operational business plan for a newly proposed Center of Excellence in Extremity Trauma. This information was developed through market and cost analyses, and includes: definitions of the products and services, cost estimates, and estimates of potential income. Recommendations for changes necessary to improve services at BAMC are also included.

### **Conditions that prompted the study.**

The need to develop a business plan and to perform the necessary analytical study was created by the intentions of the Commanders, Brooke Army Medical Center (BAMC) and Institute of Surgical Research (ISR) to create a Center of Excellence (COE) in Extremity Trauma (ET).

### ***Background***

The immediate desire to create this Center of Excellence in Extremity Trauma, stems from the poor publicity the Army Medical Department (AMEDD) received following Operation Desert Storm (ODS). This involved the apparent treatment of ODS amputees and the prosthetic services they received. On 15 January 1992, CBS News reported that Army ODS amputees who had lost a limb during the war, were being fitted with inferior prosthetic devices apparently due to budget constraints. During the newscast, a soldier stated that he had to go to a private benefactor to receive a "state-of-the-art" prosthetic. As a result of this publicity the AMEDD

sought to improve its services to amputees and positioned Walter Reed Army Medical Center (WRAMC) to take lead action. This resulted in WRAMC interviewing all of the identified soldier amputees from ODS (26) to determine their satisfaction with their care and prosthetic devices. As a result, five were found to be dissatisfied with their prosthetic and were subsequently refitted with lighter and better fitting devices. Additionally, the AMEDD had established a formal sharing agreement between the Veterans' Affairs (VA) and WRAMC for prosthetic services.<sup>1</sup>

More recently, and more directly instigating the BAMC and ISR initiative for this Center was the receipt of a business proposal from the University of Texas Health Science Center at San Antonio (UTHSCSA). This letter, dated 5 April 1994, was mailed directly to the Army Surgeon General and proposed the establishment of a Center of Excellence in Prosthetics to be located at the UTHSCSA. This proposal detailed an exchange of services for funding, whereby the AMEDD would provide approximately \$6.9M over a five year period in exchange for which the UTHSCSA would provide Computer Aided Designed and Computer Aided Manufactured (CAD-CAM) prosthetic sockets and devices.<sup>2</sup>

This proposal was subsequently forwarded to BAMC for consideration since the location for the UTHSCSA proposed center was within the geographical region of BAMC. BAMC performed an initial economic "make-buy" analysis of the proposal, and concluded that the AMEDD could provide the services at a substantial savings compared to the price quoted by the

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<sup>1</sup> Anonymous, Memorandum for the Secretary of the Army, Subject: Prosthesis Care for Army Amputees from Operation Desert Storm--INFORMATION BRIEFING, (WASH DC, 19 Feb 1992)

<sup>2</sup> James J. Young, Letter to Lieutenant General Alcide M. LaNoue, M.D. The Army Surgeon General, forwarding the proposal for CAD/CAM services from the UTHSCSA to the AMEDD. (San Antonio, Texas, 5 April 1992)

UTHSCSA.<sup>3</sup> This potential for savings, if performed in-house, subsequently led to the AMEDD's negative response to UTHSCSA, and BAMC's proposal to create its own Center of Excellence.

The proposal of BAMC's however, extended beyond the initial concept of simply providing improved prosthetics. It also included providing excellence in care of all extremity trauma and not just for amputees. This expanded concept resulted from the Chief, Orthopedic Surgery at BAMC re-proposing, to the Commander BAMC, an idea developed in 1987 for a Joint Military Medical Command Wound Treatment Center<sup>4</sup>. This wound treatment center would foster excellence in clinical care, investigate and develop new treatment methods through research and would train providers and ancillary health care personnel in the newly developed technologies.

On 18 August 1994, the Commander, BAMC scheduled a meeting involving representatives from the ISR and BAMC orthopedic surgery, and BAMC's Departments of Surgery, Physical Therapy, and Occupational Therapy. The author was also included. During this meeting the conceptual development of a Center of Excellence for Extremity Trauma was begun, as well as the author's tasking to prepare initial cost estimates for this Center. This tasking subsequently led to the author becoming the lead project officer for coordinating the establishment of this Center.

#### *Creation of a new Entity*

Following is a brief overview of the proposed operational concept for this Center of Excellence in Extremity Trauma, developed from conversations and interviews with senior

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<sup>3</sup> David P. Budinger, Memorandum for OTSG, Subject: Revised Cost Analysis for the U.S. Army Prosthetic Center & Network, (BAMC, San Antonio, Texas, 19 August 1994)

<sup>4</sup> Anonymous, "Joint Military Medical Command Wound Treatment Center Proposal," (Military document publisher unknown, San Antonio, Texas, 30 November 1987)

BAMC and ISR staff<sup>5</sup>. This Center proposes to support all Army beneficiaries and to provide medical care to extremity trauma victims, while performing both clinical and basic science research focused on extremity trauma. As part of this Center a research data repository would be created and maintained, collecting information concerning the patients' care and follow-on condition. Another key component of this Center is modernization of the support given to amputees and the manufacture of their prosthetics. Specifically, the use of the latest CAD-CAM technology. This reflects the history of this idea for such a Center of Excellence, by incorporating the needed service to the amputee customer and the latest technology available for that service.

Early, in the stated verbal proposal of this Center, the concept included a partnership between the Brooke Army Medical Center (BAMC) and the Institute of Surgical Research (ISR), the latter of which owns and operates the world-renowned burn care center. The stated vision is that this new center in extremity trauma would one day attain the status of the ISR burn center<sup>6</sup>.

In addition to BAMC and the ISR, other institutional players such as the Veterans' Affairs and academic research establishments were also envisioned to play a key role in the Center's operation and establishment.

### **Statement of Problem.**

This Center of Excellence in Extremity Trauma will be the first of its kind in the military. As such, clear definitions of the center's mission, scope, and purpose do not exist. Similarly, indicators that might be used to monitor success are not readily available. Systems presently

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<sup>5</sup> BG Robert Claypool, Commander BAMC, COL Jack Ryan, Orthopedic Surgeon ISR, COL Allan Bucknell, Chief Orthopedic Surgery BAMC, and COL Pruitt, Commander ISR, "Center of Excellence in Extremity Trauma," conversations and meetings with author, (San Antonio, Texas, numerous dates)

<sup>6</sup> BG Robert Claypool, "Center of Excellence in Extremity Trauma," interviewed by author, (San Antonio, Texas, 18 August 1994)

used to monitor workload and costs, namely Medical Expense and Performance Reporting System (MEPRS) and Uniform Chart of Accounts Personnel Utilization System (UCAPERS), are not organized to accommodate this Center's particular focus. Specifically, accounts and classification codes do not currently exist for this center. As a result, there is no historical data for this center, from which to extrapolate. Despite these existing conditions, however, the goal of establishing a Center of Excellence in Extremity Trauma must be attained.

The problem is therefore:

*How to define the operational concept for a proposed new Center of Excellence in Extremity Trauma in sufficient clarity and detail and with sufficient justification to ensure the Center's establishment?*

This general problem statement leads to several related questions that require answering:

- Is there a need for this proposed Center as determined by workload indicators or literature?
- What is meant by the term "extremity trauma," and can it be defined in sufficient detail to allow analysis of market potential?
- What is meant by the term "Center of Excellence" and why is the title desirable?
- Who are the intended customers of this center, and what are its main products and services?
- What are the key operational components, and what will they cost?
- What is the economic feasibility of this proposal?
- How can change be implemented to make this proposal a reality? How do we make this happen?

## Literature Review.

### *Military Need*

The evolution of the Center's purpose from prosthetics to one focusing on all extremity trauma stems from the perception of BAMC and the ISR's orthopedic surgeons that the military mission creates a need for this broader emphasis. This perception is supported by literature documenting the historical caseload arising from previous conflicts. In a study of World War II injuries, it was indicated that 66% of the casualties involved orthopedic injuries<sup>7</sup>, while in Operation Just Cause more than 70% sustained orthopedic injuries<sup>8,9</sup>. Studies of other nations' wars also agree with these general proportions of extremity injury: Bhatnagar and Smith, found 92% of the 1,373 Afghan war patients they reviewed had sustained combat injuries to their extremities<sup>10</sup>.

Numerous research studies of the casualties from ODS indicate that extremity injuries make up the majority of the casualties. Koehler et al, indicate that 65% of Persian Gulf War injuries studied were non limb-threatening orthopedic ones<sup>11</sup>. Uhorchak et al, indicate that 71% of all injuries involved extremity wounds, with 48% to the lower extremities and 23% to the upper extremities. This study further assessed that of these extremity wounds "55% were to soft

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<sup>7</sup> M. Cleveland and A Shands (eds), "Orthopedic surgery in the zone of the interior," in Surgery in World War II, (Office of the Surgeon General, Washington DC, 1970), 826.

<sup>8</sup> T.W. Parsons III, W.C. Laueran, D.B. Ethier, W. Gormley, J.E. Cain, Z. Elias, and J. Coe, "Spine injuries in combat troops--Panama, 1989," Military Medicine, (July 1993), 158(7):501-2, Taken from the MEDLINE abstract.

<sup>9</sup> John T. McBride Jr., Marjorie M. Hunt, John P. Hannon, Stephen W. Hoxie and W.G. Rodkey, Report and Medical Analyses of Personnel Injury from Operation "Just Cause", Institute Report No. 468, (Division of Military Trauma Research, Letterman Army Institute of Research, Presidio of San Francisco, CA. 1991), 12-13.

<sup>10</sup> M.K. Bhatnagar, and G.S. Smith. "Trauma in the Afghan guerrilla war: effects of lack of access to care," Surgery, (June 1989), 105(6):699-705, Taken from MEDLINE abstract.

<sup>11</sup> Richard H. Koehler, Stephen Smith and Tobias Bacaner, "Triage of American Combat Casualties: The Need for Change," Military Medicine, 159(August 1994): 541-7.

tissue alone, 39% were open and closed fractures, and 6% were intraarticular injuries excluding intraarticular fractures.”<sup>12</sup> Additionally, there were 18 traumatic amputations (9%)<sup>13</sup>. The relatively low proportion of amputations supports the broader emphasis for the Center on extremity trauma instead of only on amputations and prosthetics.

### *Defining Extremity Trauma*

Given the preceding support of focusing on extremity trauma as opposed to only amputations and prosthetics, the task is to define what is meant by the term “extremity trauma” in sufficient detail to allow gathering workload and costing data. Specifically, the task was to identify the diagnosis and procedural codes that define extremity trauma. It was subsequently determined by the author that Diagnostic Related Groups (DRGs) were too broad to concisely identify extremity trauma cases, and as a result ICD-9-CM diagnosis codes were used. The latter are considerably more detailed and as a result more numerous. Both the vagueness of DRGs and the excessive detail of ICD-9-CM codes are typical problems, also found in benchmarking medical processes<sup>14</sup>.

Utilizing an electronic listing of ICD-9-CM diagnosis and procedural codes, received from Patient Administration Services Biostatistical Analysis (PASBA), the author performed a keyword search on the code descriptions filtering any that applied to extremities, amputations,

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<sup>12</sup> John M. Uhorchak, William G. Rodkey, Marjorie M. Hunt, and Stephen W. Hoxie, Final Report Casualty Data Assessment Team Operation Desert Storm, Institute Report No. 469. (Division of Military Trauma Research, Letterman Army Institute of Research, Presidio of San Francisco, CA, January 1992) 11-12.

<sup>13</sup> Preliminary analysis, of June 1993 to May 1994 PASBA data for U.S. Army MEDCOM MTF extremity trauma cases, finds similar proportions of injuries: Amputations 8%, Open fractures or dislocations 29%, 3% for crushing and burns, and 31% for soft tissue/vascular injuries. The remaining 28% were prostheses cases (e.g. joint replacement complications) which would not be applicable to wartime injuries.

<sup>14</sup> Bruce A. Campbell, “Benchmarking: A Performance Intervention Tool,” Journal of Quality Improvement, 1994, 20(5): 225-8.

trauma, key extremity bones, etc. This list was then reviewed to identify any series of ICD-9-CM codes that seemed to apply to extremity trauma. These series were then used to identify additional potential codes. The resultant list was taken to the lead orthopedic surgeon for the Center for review of applicable ICD-9-CM codes. The refined list from this review process is available at *Appendix A • Working Definition of Extremity Trauma*. This long listing of ICD-9-CM diagnostic and procedural codes effectively defined the term “extremity trauma” as it was used in this study. This definition allowed workload data to be collected and record reviews to be performed. The author primarily utilized automated means for analysis and therefore the number of codes did not prove a deterrence to their use, rather they permitted efficiently gathering data from available databases.

This list did become unwieldy in presenting analysis results. As a result, these codes were grouped into major categories: amputations, prostheses, open fractures and dislocations, crushing injuries, burns to the extremities, and other complications (meant to capture visceral/soft tissue damage). Utilizing automated means, a look-up table of ICD-9-CM codes was flagged as being applicable to any of the aforementioned categories. This allowed the electronic listing of workload to be grouped into these categories based upon the diagnosis and procedure codes for each patient case.

### *Center's of Excellence*

The decision to use the title “Center of Excellence” stemmed from the desire to convey to the public that this “program is more than just an advertising stunt”<sup>15</sup>, although it has a marketing value<sup>16,17</sup>. It earmarks to public and staff alike that it is a “priority program.”<sup>18</sup>

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<sup>15</sup> Anonymous, “Centers of Excellence, Research Assignment No:042-001,” (Health Care Advisory Board, The Advisory Board Company, Washington, D.C., 1988), 3.

<sup>16</sup> Therese Droste, “‘Center of excellence’ name tag carries clout,” *Hospitals*, Jan 20, 1989: 54.

<sup>17</sup> Anonymous, “Centers of Excellence, Research Assignment No:042-001,” 1.

Expected results of establishing such a Center of Excellence are maintaining the level of orthopedic workload<sup>19</sup> required to maintain clinical expertise and to support research protocols that would advance extremity trauma treatment.

However, the Center must be prepared for the attention it will receive and be able to subsequently prove its claim of excellence through records of quality performance. The center must be committed to establishing and maintaining through research and education a high level of quality care<sup>20</sup>. Thus, decisions must be made and the necessary priorities set for which services and/or products this center will provide. Additionally, critical to the success of the center is not the equipment technology that may be implemented, but the expertise and availability of the staffing<sup>21,22</sup>.

Research studies performed by the Health Care Advisory Board, Washington, DC provides several insights into meaningful ways to evaluate and monitor the success of the proposed Center of Excellence:

- achieving national recognition as a COE,
- measuring the quality of service provided, and the research performed,
- providing public service including educational programs,
- providing seminars on sports injuries or arthritis,
- performing dietary studies,
- review of changes in revenue and total patient flow,
- increases in hospital usage and visibility,

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<sup>18</sup> Therese Droste.

<sup>19</sup> Anonymous, "Centers of Excellence, Research Assignment No:042-001."

<sup>20</sup> Therese Droste.

<sup>21</sup> Ibid.

<sup>22</sup> Anonymous, "Centers of Excellence, Research Assignment No:042-001, Trish Hospital" (Health Care Advisory Board, The Advisory Board Company, Washington, D.C., 1988), 2.

- adherence to research plans and meeting research goals<sup>23</sup>.

Additional studies, performed by the Health Care Advisory Board<sup>24</sup> provide an appropriate list of capabilities that define a center of excellence:

- coordinated continuum of care including prevention, treatment and rehabilitation
- comprehensive care including physical therapy, occupational therapy, dietary counseling and psychological counseling in addition to surgical and nursing care,
- services combined into a product line
- maintaining a substantial patient volume
- conducting research or act as a site for experimental technology
- devoted to state-of-the-art and superior care and technology
- teaching programs and medical school affiliations
- dedicated and identifiable space
- earmarked external funding
- depth in both clinical and related programs and services
- staff with national or regional reputation in their specialties
- being the first in the area to provide new unique services
- and community education, provided by physicians to improve the Center's image.

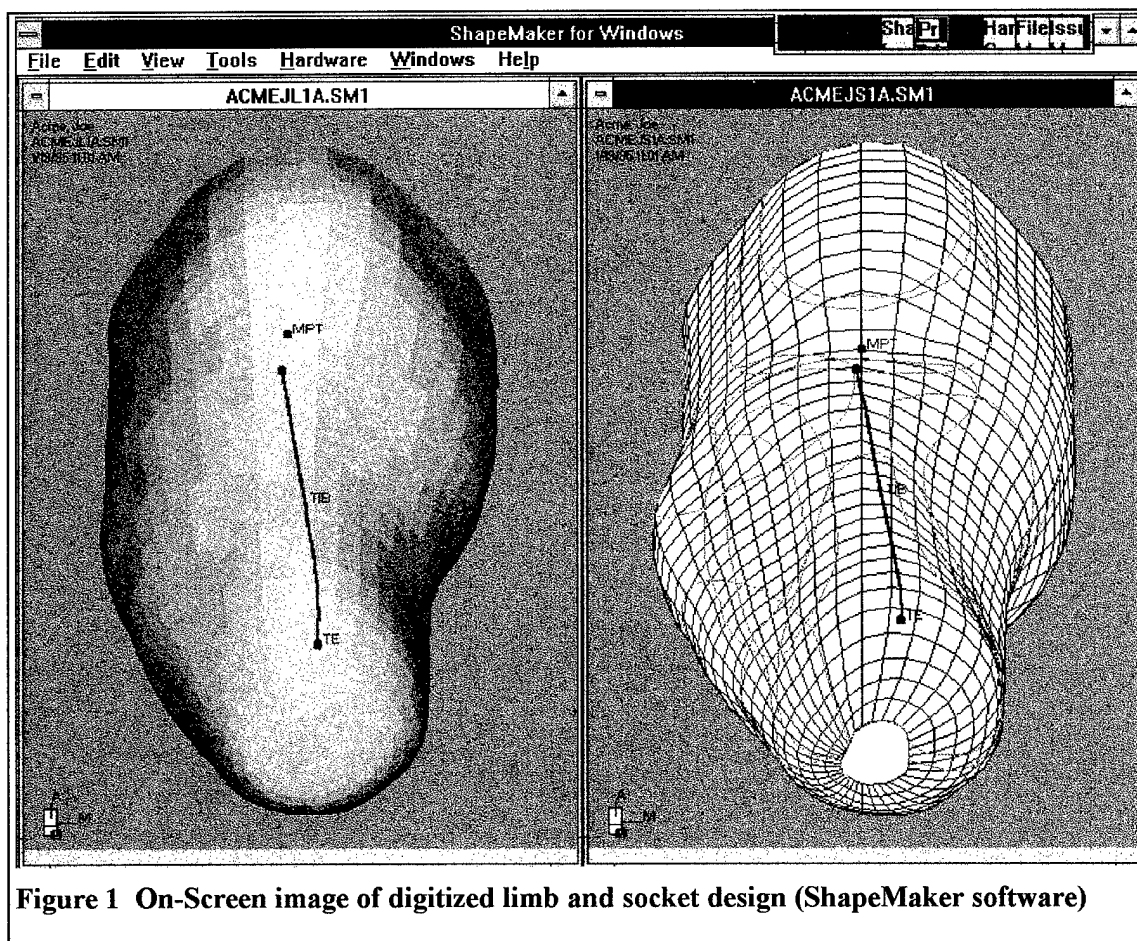
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<sup>23</sup> Ibid.

<sup>24</sup> Anonymous, "Elements of a Center of Excellence, Research Assignment No:042-004," (Health Care Advisory Board, The Advisory Board Company, Washington, D.C., 1988), 1.

### *Prosthetics and Automated Fabrication of Mobility Aids (AFMA)*

Latest trends in prosthetics includes the use of CAD/CAM technology. This is reflected by the proposal made by the UTHSCSA. The Veterans Affairs, has been a leader in the

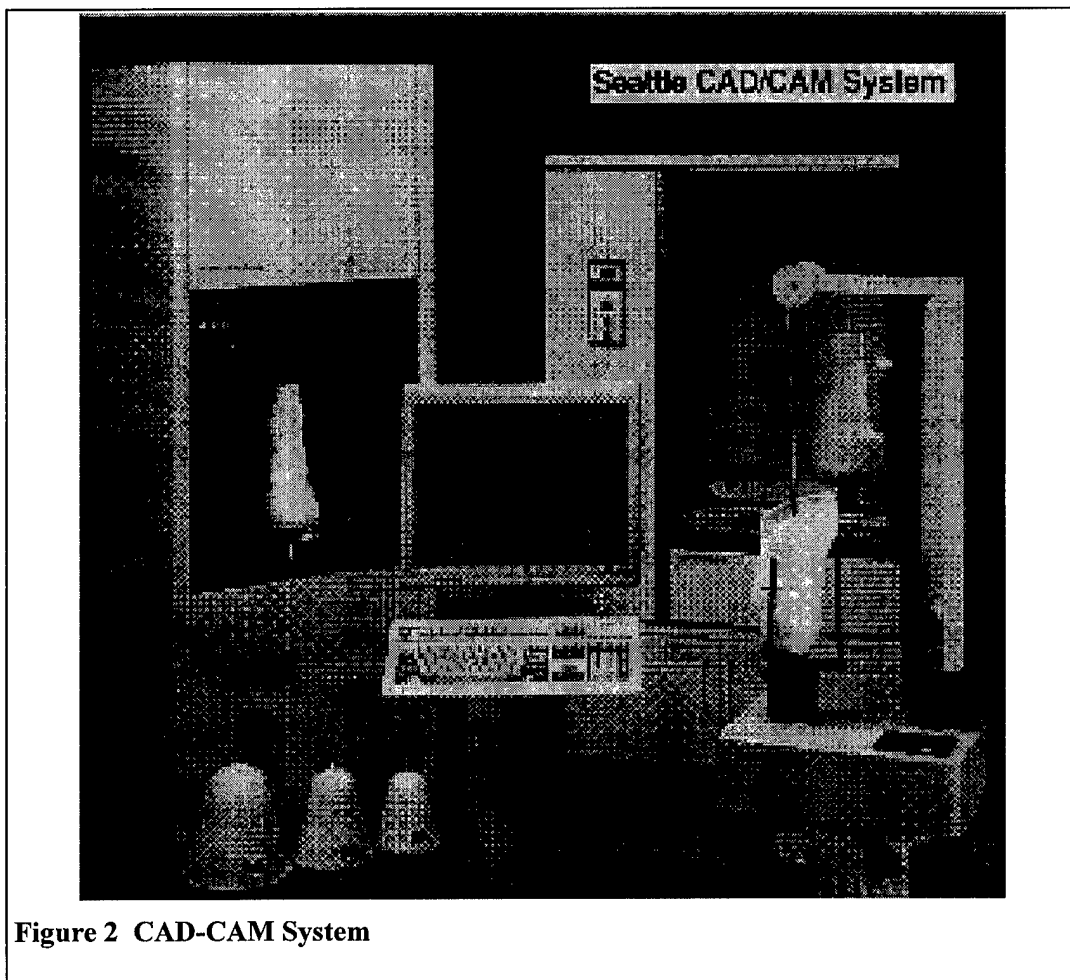


**Figure 1 On-Screen image of digitized limb and socket design (ShapeMaker software)**

development of CAD/CAM also called AFMA. They have participated with civilian universities and corporations in developing design software that is immediately familiar to prosthetists<sup>25,26</sup>

<sup>25</sup> David A. Boone, J. S. Harlan and Ernest M. Burgess, "Automated fabrication of mobility aids: Review of the AFMA process and VA/Seattle ShapeMaker software design," *Journal of Rehabilitation Research and Development*, 1994, 31(1): 42-49.

<sup>26</sup> Vern L. Houston, Ernest M. Burgess, Dudley S. Childress, Hans R. Lehneis, Carl P. Mason, Mary Anne Garbarini, Kenneth P. LaBlanc, David A. Boone, Richmond B. Chan, John H. Harlan and Michael D. Brncick, "Automated fabrication of mobility aids (AFMA): Below-knee



**Figure 2 CAD-CAM System**

plus component limb prosthetics such as the Seattle Foot®. The VA has additionally established a network of CAM centers serving their hospitals, with all hospitals having a CAD digitizing station<sup>27</sup>. These CAD hospital sites are able to take a plaster cast of the amputee's residual limb and then to create an on screen digital image of the limb by digitizing the interior

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CASD/CAM testing and evaluation program results," Journal of Rehabilitation Research and Development, 1992, 29(4): 78-124.

<sup>27</sup> Ed Nowak, Deputy Director, Prosthetics and Sensory Aid Services, Veterans Affairs Central Office, Washington D.C., "CAD/CAM services at the VA," phone conversation with the author on 21 Oct 1994.

of the cast. Then through the use of the VA developed software, ShapeMaker, the prosthetist can apply his or her knowledge of prosthetic socket design to shape the image, see *Figure 1 On-Screen image of digitized limb and socket design (ShapeMaker software)*. The resultant socket design can then be electronically transmitted to any of the VA CAM sites. Each CAM site then creates a positive mold from the image by using a computer controlled carver that is similar to a wood lathe (see *Figure 2 CAD-CAM System*). This positive mold is then transferred to a vacuum oven, where a plastic socket form is heated and drawn over the mold, to create a prosthetic socket that fits like a glove<sup>28</sup>.

### *Popular Literature*

While articles in medical journals have presented new prosthetic services for amputees such as rubberized knee sleeves to improve the suspension of the prosthesis, compression leafs in the prosthetic foot for more natural walking capability, and even special prosthetics aimed at the sports enthusiast such as prosthetic arms directly connected to golf-clubs or ski-poles, or the development of mono-skis allowing the amputee to sit on a ski<sup>29</sup>, they do not have the major impact on popular opinion as does media aimed at the general public. Popular news sources serve to heighten customer expectations as to medical services.

One example is an Army Times article<sup>30</sup> that discusses a young soldier who is a double amputee and yet continues to skydive with the Golden Knights parachuting team. The photo (see *Figure 3*), included with the article, clearly displays his two hydraulic prosthetics. Another

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<sup>28</sup> Manufacturer's literature for the Seattle CAD/CAM System, (M+IND Seattle Medical Systems Group, Seattle, WA).

<sup>29</sup> John W. Michael, Robert S. Gailey and John H. Bowker, "New Developments in Recreational Prostheses and Adaptive Devices for the Amputee," *Clinical Orthopaedics and Related Research*, 1990, 256(7): 64-75.

<sup>30</sup> Jon R. Anderson, "Loss of legs doesn't stop this parachutist," *Army Times*, (Springfield VA., Jan 16, 1995), 2.

example is a Wall Street Journal (WSJ) article titled “Disabled Athletes Begin to Enter Arena of Paid Endorsement”<sup>31</sup>. These articles present to the non-medical masses the latest technologies in prosthetic limbs for amputees, to include titanium hydraulic knees, the kinetic-energy-storing, carbon-fiber Flex-Foot, and the Total Knee with its geometric locking system. All of these latest “leading-edge” technologies, become the “state-of-the-art” once the non-medical layperson reads about it. As a result, they also become the required level of care that the medical system has to provide. These type of articles also serve to change peoples’ opinions about the capabilities of amputees by showing them performing beyond the typical person’s abilities.



**Figure 3 Army Amputee Parachutist**

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<sup>31</sup> Tom Dunkel, “Disabled Athletes Begin to Enter Arena of Paid Endorsement,” Wall Street Journal, (Jan 23, 1995): A1, A7.

### ***Info-Technology***

BAMC is becoming an Army leader in applying tele-information technology to its business practices. One of these initiatives includes the use of telemedicine to support consults and medical education between itself and the subordinate Army hospital located at Killeen over 100 miles away. This willingness to utilize new technology where practical led to the Center's inclusion of a remotely accessible trauma repository. This repository would support research efforts by storing clinical data about patient treatments to include research protocols and the long-term outcomes.

The initiative to acquire and implement a central CAM site for the Army was also supported by the concept of telemedicine and the willingness to utilize telecommunications where effective. It was further proposed that the repository of research data would also include the digital CAD files from each of the referred prosthetic socket designs, thus creating a superb quantitative database for amputee residual limb studies<sup>32</sup>.

### ***Method of Presentation - The Business Plan***

The establishment of this proposed Center requires several actions to take place, not least of which is the documentation of the proposal in sufficient detail that others can understand it, and support it with funding. In order for this proposal to attain reality it must be funded, and in order to be funded the proposal must make reasonable business sense, and be supported by a market need. All of these goals are met through the development of a business plan. Literature identifies the purpose of a business plan as presenting a proposal in sufficient detail to financial sources such that funding support is attained<sup>33,34,35</sup>.

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<sup>32</sup> BG Robert Claypool, et al.

<sup>33</sup> Susan N. Futterman, "Touring the Venture Capital," CompuServe Magazine, 1994, 13(3): 34-36.

The plan should contain a description of the business venture and purpose, an analysis of the industry and the intended market, production and personnel plans, descriptions of the physical plant with equipment, start-up steps and finally the costs<sup>36,37</sup>. Additionally, the business plan should propose some means that might be used to measure and manage the success of this new business proposal. These latter items would follow from decisions made as to the core services and products being offered.

### *Literature Summary*

The military need for a Center of Excellence is supported by the literature and workload data from previous wars. The terminology "extremity trauma" was defined in sufficient detail to allow further analysis of available workload data stored in PASBA and Defense Medical Information Systems (DMIS) information systems. Through literature review and discussions with the Commander, BAMC and other key staff, determinations as to the key services, and operational components were made. Finally, literature indicated a format and method, namely the business plan model, as the means for organizing the necessary analysis required to implement the objective of creating a Center of Excellence in Extremity Trauma.

### **Purpose.**

This study will perform analysis in support of developing an operational business plan for a newly proposed Center of Excellence in Extremity Trauma. This analysis will include:

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<sup>34</sup> Joyce E. Johnson, David G. Sparks and Carl Humphreys, "Writing a Winning Business Plan," Journal of Nursing Administration, 1988, 18(10): 15-19.

<sup>35</sup> Joyce E. Johnson, "Developing an Effective Business Plan," Nursing Economics, 1990, 8(3): 152-4.

<sup>36</sup> Ben Stafford and Thomas Ryba. "The Building Blocks of a Quality Day Treatment Program: The Business Plan," International Journal of Partial Hospitalization. 1992, 8(2): 127-34.

<sup>37</sup> Susan N. Futterman

- market analysis of potential customer base utilizing available workload databases from PASBA
- trend analysis of workload over the past five years
- definition of the major products and services, and operational components of this Center based upon interviews and meetings
- estimation of the Center's size in terms of beds and staff required to support the expected caseload and to drive cost estimates
- estimation of the center's costs over the first five years of its operation, with estimation of potential incomes based upon market mix and DRG reimbursements
- analysis of BAMC extremity trauma workload in comparison with its Army Medical Center (MEDCEN) peers to determine potential areas of improvement in operations.

### *Hypotheses for Workload Analysis*

Initial theories for analysis of workload, based upon preliminary study of the data, are: that BAMC has the necessary experience, as indicated by current workload, to provide the care required by the proposed Center; that BAMC is able to provide such care more effectively than its Army peer hospitals; and as such, is the best site for such a proposed Center. Hypotheses that would be tested are:

BAMC is best suited for the site of this proposed Center, as supported by:

- H<sub>1</sub> BAMC having a higher caseload than the other sites:

$$n_{Cases} = f(\text{BAMC membership})$$

- H<sub>01</sub> Number of cases is independent of group membership (BAMC vs. Non-BAMC).
- H<sub>2</sub> BAMC's location at the geographic center of cases, to be tested graphically using geographic mapping software.

- H<sub>3</sub> Assuming that sicker patients make better opportunities for education and research, BAMC's patients are sicker, measured by Case Mix Index (CMI):

$$CMI_{Patients} = f(\text{BAMC membership})$$

- H<sub>03</sub> The patient CMI is independent of group membership (BAMC vs. Non-BAMC).
- H<sub>4</sub> BAMC is the more efficient at treating extremity trauma as measured by lengths of stay. When controlled for patient clinical reasons (CMI and age), length of stay is lower at BAMC.

$$ALOS_{Patients \{controlled\ for\ CMI\}} = f(\text{BAMC membership})$$

- H<sub>04</sub> Lengths of stay, once controlled for CMI and age, is independent of group membership (BAMC vs. Non-BAMC).

Additionally, preliminary analysis of initial data received from PASBA has led to the following observations, and as a result the stated hypotheses:

*Observation: BAMC uses less convalescent and medical hold beds measured as a percentage of the total bed days.*

- H<sub>5</sub> Reasons for differences are related to patient clinical reasons e.g. case mix index (CMI), patient's age, and non-active duty status (which effects ability to use medical hold).
- H<sub>05</sub> Reasons for this difference are not due to patient clinical reasons.

This null hypothesis would be supported by testing for convalescent and medical hold bed usage as a function of group membership, i.e. BAMC vs. Non-BAMC.

- H<sub>051</sub> Use of convalescent and medical hold beds is related to group membership defined as being either at BAMC or not.
- H<sub>050</sub> Use of convalescent beds and medical hold beds is independent of group membership.

*Observation: BAMC treats fewer active duty, more females, and older patients*

- $H_6$  The active duty status, patient age and gender correlates to being treated at BAMC.
- $H_{06}$  The patient demographics do not vary significantly between BAMC and its peers.

## Chapter 2. Methods

This study utilized available data stored within Department of Defense databases such as PASBA, DMIS, MEPRS, and UCAPERS. BAMC did not have Composite Health Care System (CHCS) in place at the time of this study. Additionally, interviews with staff were used to provide detailed supplemental information not available through these systems.

### **What was Measured**

The study analyzed extremity trauma workload, occurring at stateside fixed Army Medical Treatment Facilities (MTFs) for the period June 1, 1989 through May 31, 1994. This information was retrieved from the central PASBA database. This workload database consists of a single record for each treatment case. This workload was further refined to eliminate duplicate or referral cases using patient social security numbers and dates of dispositions to ensure that each record represented a new case.

Analysis included quantity of workload, its distribution among MTFs providing the care, the stated residence of the patient as defined by the zip-code field, patient demographics, and details about each patient diagnosis as contained in the other fields of the database, (refer to *Appendix B • Workload Database Data Structures* for a complete listing of the data fields available).

In addition to analysis of the workload, MEPRS and DMIS databases were used in conjunction with staff interviews to estimate costs for the projected Center's operation.

## Data Set

Refer to *Appendix B • Workload Database Data Structures* for a description of the fields contained in the data set. Additionally, several other tables (data files) were received from PASBA to allow translation of the various codes contained in the base workload data file. These include: MTF codes, diagnosis codes (based upon the latest ICD-9-CM texts), procedural codes (based upon the latest ICD-9-CM texts), DRG codes (based upon the latest ICD-9-CM texts), catchment area codes, patient category codes, admission sources, trauma and disposition types, cause of injury and facility treatment site.

Additional variables studied included costs based upon operational considerations, workload, staffing and equipment requirements. These costs were based upon data available in MEPRS and from current literature (equipment catalogues).

## Analysis Methods

### *Data Retrieval/Collection*

#### *Existing Databases*

Utilizing the ICD-9-CM listing of diagnostics and procedural codes defining extremity trauma, records for each extremity trauma case treated at an Army stateside MTF during June 1, 1989 to May 31, 1994 were retrieved from the central PASBA database. This was collected, through PASBA staff statisticians utilizing PASBA II software. The extracted data was in ASCII format, fixed field length, without any delimiters. This information was subsequently imported into a dBASE III+ file format, where the majority of the analysis was performed.

Current cost data for BAMC orthopedic ward, and the ISR ward were extracted from MEPRS based upon account codes, and through the assistance of the BAMC MEPRS staff.

DMIS files for the period, June 1993 to May 1994, containing historical CHAMPUS billing information were utilized to establish cost averages for applicable DRGs and to estimate potential cost avoidance and income. DRGs applicable to extremity trauma were utilized for performing the extract. All Army CHAMPUS billed information was summed and averaged by DRG. The CHAMPUS cost data was retrieved by DMIS staff, and provided to the author on floppy disk in ASCII file format. This was subsequently imported into a dBASE III+ file format for analysis.

The author subsequently modified the DRG look-up table to include the latest CHAMPUS beneficiary cost-share per diem rates under the CHAMPUS DRG-based payment system<sup>38</sup>. These latter rates consist of weights given to each DRG, which when combined with the individual MTF Adjusted Standardized Amounts (ASA) weight yield the allowable billable amount that the MTF may charge for a DRG treatment. Adjusted Standardized Amounts (ASA) rates, were provided by BAMC third party collections and were manually keyed into database form by the author. These modifications allowed automated calculations of allowable CHAMPUS billings for each treatment case.

### *Staff Interviews*

Additional interviews and meetings with senior BAMC and ISR staff were used to gather information defining the critical processes that must be analyzed for the development of the business plan, and the development of cost estimates.

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<sup>38</sup> Anonymous, "Civilian Health and Medical Program of the Uniformed Services (CHAMPUS): FY95 DRG Updates," DOD Federal Register, 13 October 1994, 59(197): 51947-51957

## *Analysis Procedures*

### *Sample Refinement*

The main file of data was refined to consist of only cases where extremity trauma was the primary diagnosis. This was done to improve the reliability of applying any results to future extremity trauma cases. This refinement reduced the total number of cases from 14,244 to 10,338. A further refinement was done when comparing BAMC against its peer MEDCENS. The primary diagnosis file was filtered to allow analysis of only extremity trauma that did not have burns as the primary diagnosis, and only for those cases treated at an Army MEDCEN. The former condition was applied because BAMC is unique in its role of caring for burn patients due to its collocation with the ISR burn center. Since burns have significantly higher Case Mix Index  $F(1,10334)= 381.25, p = 0.000, (r^2=0.04)$ , and ALOS  $F(1,10334)= 8.823, p = 0.003, (r^2=0.0009)$ <sup>39</sup>, their influence was controlled by eliminating them from the data set being analyzed.

Utilizing automation tools, specifically MAPLinX™, dBASE™, R&R Report Writer™, SPC, Microstat™, SPSS™, Lotus™ 123 and custom written programs utilizing the CA-Clipper™ xBase programming language, analysis of the available workload collected from PASBA was performed from several perspectives as follows:

### *Market Analysis*

Market analysis was first performed to gain a better understanding of the existing workload already occurring, and to develop insight as to future potential workload. This would

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<sup>39</sup> Statistics result of performing a regression analysis and ANOVA utilizing one binary variable representing group membership as being a primary diagnosis of burns, regressed against the HCFA CMI and the total bed days respectively.

allow determination by orthopedic staff as to the feasibility of supporting the training and research goals of the center based upon this potential market base. This analysis consisted of:

- graphic analysis (pie charts) to determine total workload by major diagnostic categories, both in number of cases and by bed days; by source of trauma, e.g. due to maneuvers, training or off-duty; and by bed type mix.
- graphic analysis (pie charts) of patient customer demographics such as age, beneficiary status, etc.
- mapping by patient residential zipcode to determine geographic concentration of caseloads, and to test hypothesis that BAMC is positioned in the best site for a proposed Center of Excellence.
- graphic Pareto analysis to determine dominant MTF treating facilities.
- trend analysis of the workload over the five year period in question.

The above analyses were each performed for all the stateside MTFs (here after referred to as MEDCOM), for BAMC by itself, the aggregate of all MEDCENs excluding BAMC, and for the non-MEDCEN MTFs (here after referred to as MEDDACs). This additional analysis, allowed a comparison of operations between BAMC and its peer Army MEDCENs and with other community level facilities.

### *Business Analysis*

The available workload was further analyzed from a business perspective to arrive at an expected level of operation (in terms of beds occupied). This was combined with information from CHAMPUS and MEPRS to develop cost estimates for budget purposes.

Graphical analyses (pie charts, bar graphs, line charts comparisons) were performed on available workload data, to determine average lengths of stay (ALOS); distributions by medical categories, patient age, beneficiary status; acuity of bed stays, etc., so as to arrive at estimates of workload for the proposed Center.

Cost averages, in terms of dollars per occupied bed day (OBD), were derived from MEPRS for BAMC's orthopedic and the ISR's wards. These averages were utilized to develop estimated operating costs for the expected level of patient census. CHAMPUS billing and third party collection information were used to estimate potential income and costs avoidance.

Estimating the operating costs entailed the following process:

**Estimating the nursing ward's Average Daily Patient Load (ADPL)**

Based upon staff discussions, it was assumed that one ward of the new hospital<sup>40</sup> would be utilized for the Center once it became fully operational. The new hospital's floor plans indicate an available 30 beds for the typical acute care ward. Given the emphasis on rehabilitation and holistic care, it was decided that one four bed room would ultimately be converted into a physical and occupational therapy exercise area<sup>41</sup>. This proposal results in 26 beds being available for acute care. Based upon interviews with orthopedic staff, a ratio for critical care time to acute care of 20% was utilized to estimate ADPL. The commander, ISR had agreed to provide critical care beds in support of the Center. A planning factor of 75%<sup>42</sup> efficiency was also utilized to allow for bed management flexibility. An average length of stay (ALOS) was determined based upon historical workload. These factors allowed estimating the maximum number of cases that the 26 bed ward could support, with an estimated requirement of approximately 4 to 10 critical care beds.

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<sup>40</sup> BAMC is about to occupy a new replacement structure, providing 450 beds at over 1.0 Million square feet. Each acute care ward in the new facility is a triangular design, intended to normally operate at 30 beds each. These wards consist of private, semi-private and four-bed rooms.

<sup>41</sup> This type of arrangement is available in BAMC's current facility layout.

<sup>42</sup> Anonymous, Department Of Defense Space Planning Criteria, (Defense Medical Facilities Office, Washington DC), 10 Feb 1989.

*Estimating nursing ward's operating costs*

ADPL information was utilized by BAMC nursing services to develop nursing staff cost estimates based upon utilizing either in-house civilians or contract personnel to operate the ward.

The next component to determine for ward operating costs was the other variable costs plus an overhead allowance for the ward. MEPRS data was utilized to estimate these costs. The two accounts for the ISR and Orthopedics ward were utilized. For the orthopedic ward all "D" accounts costs were included. "A" accounts which normally include the ward manpower were taken as a baseline from which the current ward personnel and contract nursing costs were subtracted out. Ward personnel costs were subtracted out since the figures from the above nursing estimate would be used instead of current levels. The total of these "D" and "A" costs, minus personnel, represent the total variable costs for the orthopedic ward. These costs include the stepped-down impact upon all the clinical and ancillary support functions.

Overhead step-down costs were not addressed since these costs are already in existence, and because administrative overhead for the Center as an entity would be addressed subsequently in a detailed cost estimate.

The ISR account costs of the "D" accounts were all included. To this figure additional variable "E" accounts cost line items for purchase and material services, clinical support, biomedical maintenance and linen and laundry were all added.

For each of the above total variable costs, the number of occupied bed days (OBD) and total dispositions for each unit (orthopedics and ISR) were retrieved from MEPRS for the same period of June 1993 to May 1994. This allowed a cost factor, measured as a ratio of dollars per OBD or dollars per disposition, to be determined. The nursing staff cost estimates were added to this variable cost factor to arrive at a ward cost stated as dollar per OBD. This format provided maximum flexibility for cost estimating.

**Estimating the total operating costs**

A detailed cost estimate for each year of the Center's proposed operation was determined based upon staff interviews concerning expected requirements. These interviews included statements from effected clinics as to additional staffing and equipment impacts. Equipment procurement cost estimates were derived utilizing manufactures literature or pricing schedules. Research costs were based upon ISR research staff estimates as to future needs.

**Estimating potential income due to CHAMPUS recapture**

As part of the Center's operation it was assumed that some of the current CHAMPUS workload would be recaptured and sent to BAMC saving not only the CHAMPUS reimbursable but also potentially allowing billing to any third party insurers.

DMIS information concerning historical CHAMPUS charges by DRG were used for this estimation process. DMIS data indicated an annual maximum referred caseload of 176 cases presently going out onto CHAMPUS. This was analyzed by major extremity trauma category. For each of these cases and categories an estimated maximum reimbursement was calculated based upon the CHAMPUS per-diem and the ASA. Based upon staff interviews conservative capture rates for each trauma diagnostic category were applied, along with an assumed reimbursable insurance rate of 30%.

**Estimating Potential Income due to Third Party Reimbursement**

Third party reimbursement estimates were performed for the additional caseload that would have to be referred from other Army MTFs to BAMC in order to maintain the anticipated average daily patient load. For each of these cases and categories an estimated maximum reimbursement was calculated based upon the CHAMPUS per-diem and the ASA. It was assumed that since BAMC is the leading MTF in third party collections that it would

successfully collect new moneys from at least 30% of those referred. Again, as in CHAMPUS above, staff interviews were utilized to determine estimates of capture rates by extremity trauma diagnostic category.

### ***Business Case Analysis Summary***

A business case summary was performed from the perspective of identifying “new” costs or income to the Army MEDCOM overall. This perspective was assumed since MEDCOM is the funding source for the business plan.

For each major line item of the five year cost budget, the total variable costs and total fixed costs were determined. Potentially transferable costs were identified, targeting the need to reallocate funds from other MTFs to the Center. CHAMPUS recapture costs avoidance, and new third party reimbursements were identified as potential new income. The potential new income was then displayed as a line against the total variable cost and fixed cost after realignment of funds.

### ***Statistical Analysis***

Statistical analysis was performed to test each hypothesis and to better support BAMC’s position as being the preferred site for the Center of Excellence. The first task of the statistical analysis was determining the size of the sample required to support the desired level of accuracy.

### ***Determining Size of Sample***

Determining the size of a survey sample is a multistep process that is based upon the level of precision required by the investigator, the expected dispersion of population responses, and any adjustments due to the size of the sample compared to the population itself<sup>43</sup>.

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<sup>43</sup> William C. Emory and Donald R. Cooper, Business Research Methods, (Irwin, Boston MA, 1991), 259-262

### *Defining how to measure precision*

The first step was to determine how to measure the precision desired. This was done by determining the critical questions/issues that must be answered to have valuable results. For this study, they are:

- How long will an extremity trauma patient typically stay (what is the to be expected ALOS)?
- What will be the ALOS based upon various patient case demographics -> CMI, ICD-9-CM code, age, treating facility?

The desired measure of precision was recognized as being a single bed day.

### *Quantifying precision*

The second step was to quantify the above precision in terms of the interval size and how confident we want to be of this estimate (the  $\alpha$ ). Since each additional day of the length of stay will become expensive in planning terms, the author wanted to minimize type I error. The  $\alpha$  was set for 0.01, providing a confidence level of three standard deviations.

### *Expected dispersion*

Based upon descriptive statistics performed on a preliminary one year sample of data gathered from PASBA, the expected dispersion for the key data elements is based upon the standard deviation of the ALOS across all patient cases: 58.8875 days.

### *Finite Population Adjustment*

The sample size may be adjusted downward if it originally represents a large percentage of the population itself, approximately 5% or more according to Emory and Cooper<sup>44</sup>. The intention of this study was to analyze a five year period of available workload in extremity trauma. At the

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<sup>44</sup> Ibid.

initial stage however, until an operational definition of extremity trauma was fully defined, a one year period of data was collected.

- Workload data of all Army MTFs was collected, from the PASBA database file, representing extremity trauma as defined in *Appendix A • Working Definition of Extremity Trauma*, for the period June 1993 through May 1994,
- This data are comprised of a single record for each patient seen at all U.S. Army CONUS based hospitals, and contains a data structure as shown at Data Structure,
- This data was expected to represent roughly one-fifth of the expected aggregate workload for the final five-year period of the study. The one-year sample extract totaled 2,332 records/cases. The estimated population of workload in extremity trauma for the desired five-year period was then approximately 11,650 cases.

#### Sample Size Calculation

Utilizing the above decisions and estimates, the sample size was calculated to be a minimum of 8,570 cases being required. A spreadsheet was used to perform the sample size estimate. This sample size was determined from the following formula<sup>45</sup>, where N is the estimated population,  $\Sigma$  is the Standard Error of the Means (calculated by dividing the interval of precision by the confidence level in standard deviations), and  $\sigma$  is the standard deviation of the sample used as an estimate of the population dispersion:

$$\frac{(\sigma^2 \times N) - (\Sigma^2 \times N) - \Sigma^2}{\sigma^2 + (\Sigma^2 \times N) - \Sigma^2}$$

The number of cases analyzed however was not the above sample size but rather the entire five year period's available workload data.

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<sup>45</sup> Based upon Emory and Cooper 1991, but condensed for spreadsheet purposes.

### *$\alpha$ level*

Probability results less than the set  $\alpha$  of 0.01 were considered to be statistically significant. However, results with probabilities less than 0.05 were considered clinically significant. This level of confidence, while maintaining the same estimates of population deviation and standard error of the mean, provides a level of precision less than one bed day, adequately meeting the level of precision required for planning.

### *Validity and Reliability*

Reliability of results was strengthened through use of information contained in established databases presently used for business management by the Army. To additionally support reliability, all workload meeting the data screen was analyzed. This effectively increased the sample size to its maximum (population) for the five year period. Validity of data elements and selection of data was supported through consult with senior orthopedic surgeon staff, and statistical personnel of PASBA.

### *Analysis Methods*

Descriptive statistics were performed on select data elements in support of testing the seven hypotheses stated in the above section entitled: "Hypotheses for Workload Analysis," page 17.

- To test hypothesis one ( $H_1$ ) ANOVA regression was performed to determine the variance in total cases seen during the five year period as a function of group membership, where membership was defined as being treated at BAMC, or treated elsewhere.
- Hypothesis two ( $H_2$ ) was tested graphically utilizing mapping software.

- Hypothesis three ( $H_3$ ) was also tested using a students' t test. This was performed by comparing the group means of the HCFA CMI between BAMC and all other MTFs and BAMC versus Army MEDCENS. The latter comparison utilized the non-burn MEDCEN only data extract for analysis.
- Hypotheses four ( $H_4$ ) and five ( $H_5$ ) were each tested by performing ANOCOVA, utilizing multifactorial ANOVA, while holding certain variable's influences constant as the covariates. These comparisons of BAMC to its peers was done utilizing the non-burn MEDCEN only data extract for analysis.
  - $H_4$  compared BAMC's total ALOS to other MEDCENS, while holding the HCFA CMI (as an indicator of acuity) and the patient's age constant by declaring them as covariates. This test sought to determine if there was any group membership influence on the ALOS, after accounting for these two clinical reasons.
  - $H_5$  compared BAMC's use of convalescent and medical hold beds, stated as a ratio to the patient's total length of stay, to other MEDCENS. This was performed while holding the HCFA CMI (as an indicator of acuity), the patient's age and their active duty status (which effects ability to use medical hold beds) constant by declaring them as covariates. This test sought to determine if there was any group membership influence on the bed-mix use, after accounting for these clinical and patient reasons.
- Hypothesis six ( $H_6$ ) was tested using a students' t test. This was performed by comparing the group means of the patient's active duty status, age, and gender variables between BAMC and all other MTFs and BAMC versus Army MEDCENS. The latter comparison utilized the non-burn MEDCEN only data extract for analysis.

## **Ethical Considerations**

Although workload retrieved from PASBA did contain patient sensitive information and their social security number, this information has subsequently been deleted from the file format. Recognizing that the privacy act requires that such personal data not be revealed, the author has ensured that each individual's privacy was protected.

## Chapter 3. Results

### Market Analysis

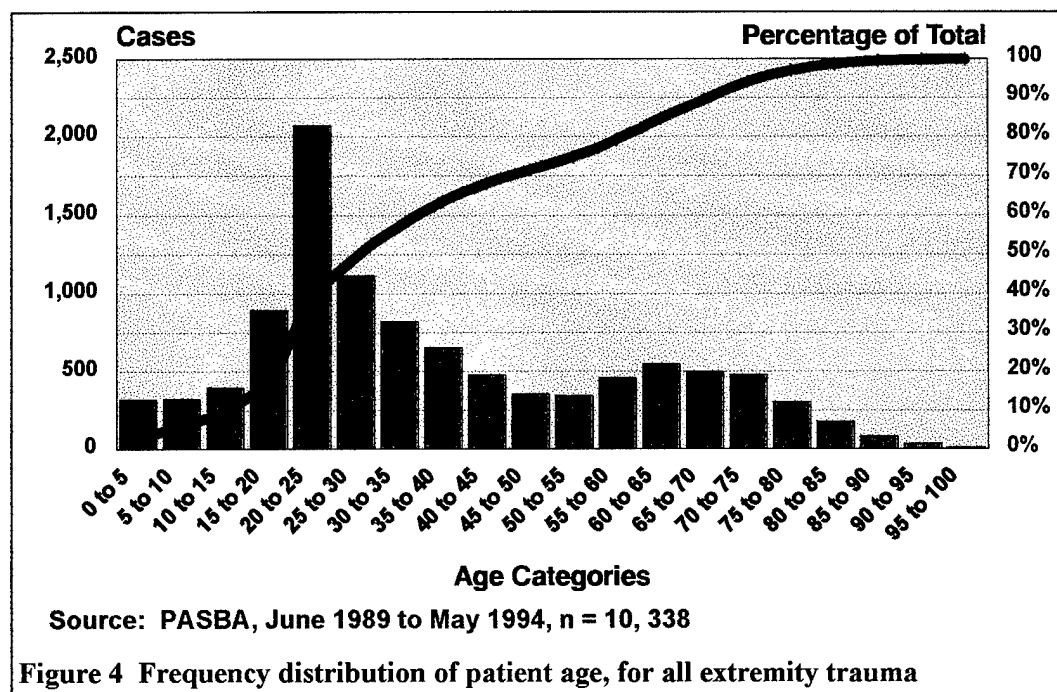
#### *Available Base Workload*

Total number of cases involving extremity trauma and occurring within the five year period of June 1989 to May 1994 and treated by Army fixed MTFs in the United States was 14,244. Of this total, 10,338 cases had a primary diagnosis that was extremity trauma. This subset of workload was distributed among the main diagnostic categories as follows: amputations 819; extremity crushing injuries 168; open fractures and/or dislocations 2,796; severe burns to extremities 126; and visceral complications 3,905. Army MEDDACs saw 5,256 cases while Army MEDCENs saw 5,082 with BAMC seeing 1,167 of those. Graphical distributions of the category of workload for each group of Army MTFs are shown at *Appendix C • Market Base*.

The total bed days used by all the Army MTFs in the care of extremity trauma (primary diagnosis) was 178,278 bed days. These bed days were distributed among the main diagnostic categories as follows: amputations 22,861; extremity crushing injuries 2,715; open fractures and/or dislocations 61,921; severe burns to extremities 4,276; and visceral complications 51,015. Beds used at Army MEDDACs totaled 75,151, while 103,128 were used by Army MEDCENs. BAMC utilized 20,029 bed days in support of extremity trauma.

### *Population*

Extremity trauma workload for the entire Army consisted of 61% active duty or their dependents (42% of the total was active duty), 32% retirees or their dependents, with 3% due to civilian emergencies, and the remainder consisting of other federal, military or DOD designees. These Army wide percentages compare to MEDDACs whose extremity trauma patients were



75% active duty including dependents and 20% retirees and their dependents. BAMC's case load is 31% active duty and their dependents, 52% retirees and their dependents and another 11% due to civilian emergencies. The other Army MEDCENs saw 49% active duty with dependents, 43% retirees with dependents and 2% each from civilian emergencies and VA eligible patients. Graphical distributions of these case loads by patient beneficiary category for each group of Army MTFs are shown at *Appendix E • Population, Beneficiary Category*.

Distribution of extremity trauma patients by their age resulted in the chart shown in **Figure 4 Frequency distribution of patient age, for all extremity trauma**. The modal category was from age 20 to 25, at 2,068 cases seen, with 74% (7,629) of the patients seen being between the ages 17 and 65 inclusive.<sup>46</sup>

Geographical mapping of the extremity trauma workload by the patients' residential zipcode indicates a concentration of cases in the South Central and South Eastern regions of the country, with Texas having the most cases. The thematic mapping of this workload is shown at **Figure 22 All extremity trauma thematic map of cases by patient residence zipcode**. **Figure 23** shows this same workload mapped to simultaneously indicate the major MEDCEN providing the treatment.

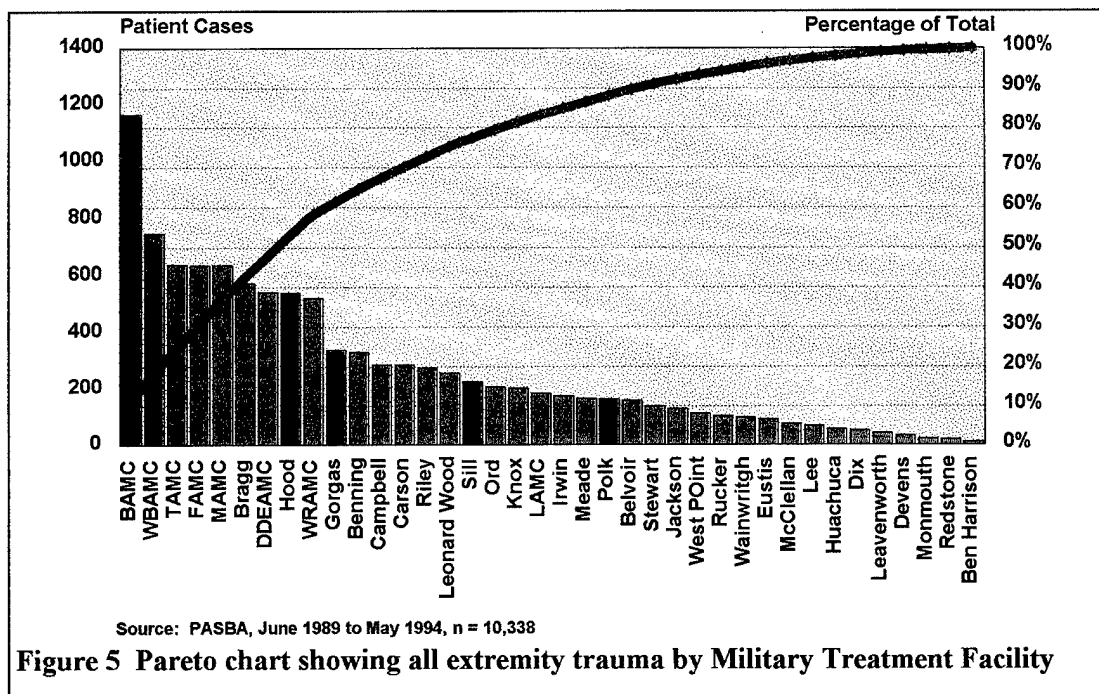
#### ***Workload Distribution***

Distribution of extremity workload among the Army MTFs within the United States was analyzed for each diagnosis category and for all extremity trauma. The Pareto charts of these analyses are at **Appendix F • Workload Distribution by MTF, Categories by MTF (Pareto Analysis)**. In each chart BAMC and the MTFs comprising its Health Service Support Area (HSSA) are coded as red/shaded bars.

These charts show BAMC as the overall leader in the care of extremity trauma patients (see **Figure 5 Pareto chart showing all extremity trauma by Military Treatment Facility**), while also being the leader in open fractures and dislocations, amputations, visceral complications and burns. BAMC was second in the number of prostheses treated. The only category where BAMC is a minor player is crushing injuries, however Fort Hood's MTF, a member of BAMC's HSSA, is the leader in care of extremity crushing injuries.

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<sup>46</sup> Age 17 through 65 represents the range from induction into the military to eligibility for MEDICARE.



### *Trend Analysis*

A graphical trend analysis of total case load and case load by diagnostic category for each year of the five year period was performed. This analysis was done for all Army MTFs, and for each MTF category: MEDDACs, MEDCENs (excluding BAMC), and BAMC. Results of these analyses are at *Appendix G • Trend Analysis*, in *Figure 30* through *Figure 33*. These charts show an overall downward trend in extremity trauma cases for the MEDCOM as a whole (an overall decline of 12% from 2,225 cases to 1,949), and for the MEDDACs (24% decline). Workload at MEDCENs, excluding BAMC, has remained the same although there was a large peak in total cases during the years 1991 and 1992. BAMC however has an overall increase in extremity trauma workload during the five year period, rising 16% from 229 cases to 265. Overall, all diagnostic categories have declined except for prostheses case load, which increased for all facility groups. BAMC's open fractures and dislocation case load has also increased in addition to its prostheses case load.

### ***BAMC Peer Comparisons***

Several graphical analyses were performed to allow comparisons among the major groups of MTFs in their use of bed assets to care for extremity trauma. This included bar graphs of the ALOS for each bed category in each diagnostic category, and also the bed mix in terms of total bed days displayed as a pie chart by bed type. These graphs are shown at *Appendix H • BAMC to PEER Comparison*, in *Figure 34* through *Figure 41*.

The ALOS overall for the Army was 17.25 days, while for MEDDACs it was 14.3 days, MEDCENs, excluding BAMC, had an ALOS of 21.23; and BAMC's overall ALOS was 17.16 days.

Overall the Army utilized a bed mix of 55% in-house acute care beds, 2% ICU, 13% convalescent and 19% medical hold beds to care for extremity trauma patients. Army MEDDACs had a bed mix of 43% acute care, 2% ICU, 20% convalescent and 21% medical hold, while Army MEDCENs, excluding BAMC, used a bed mix of 61% acute care, 2% ICU, 9% convalescent and 18% medical hold. This compares to BAMC at 76% in-house acute care beds, 5% ICU, 3% convalescent and 12% medical hold.

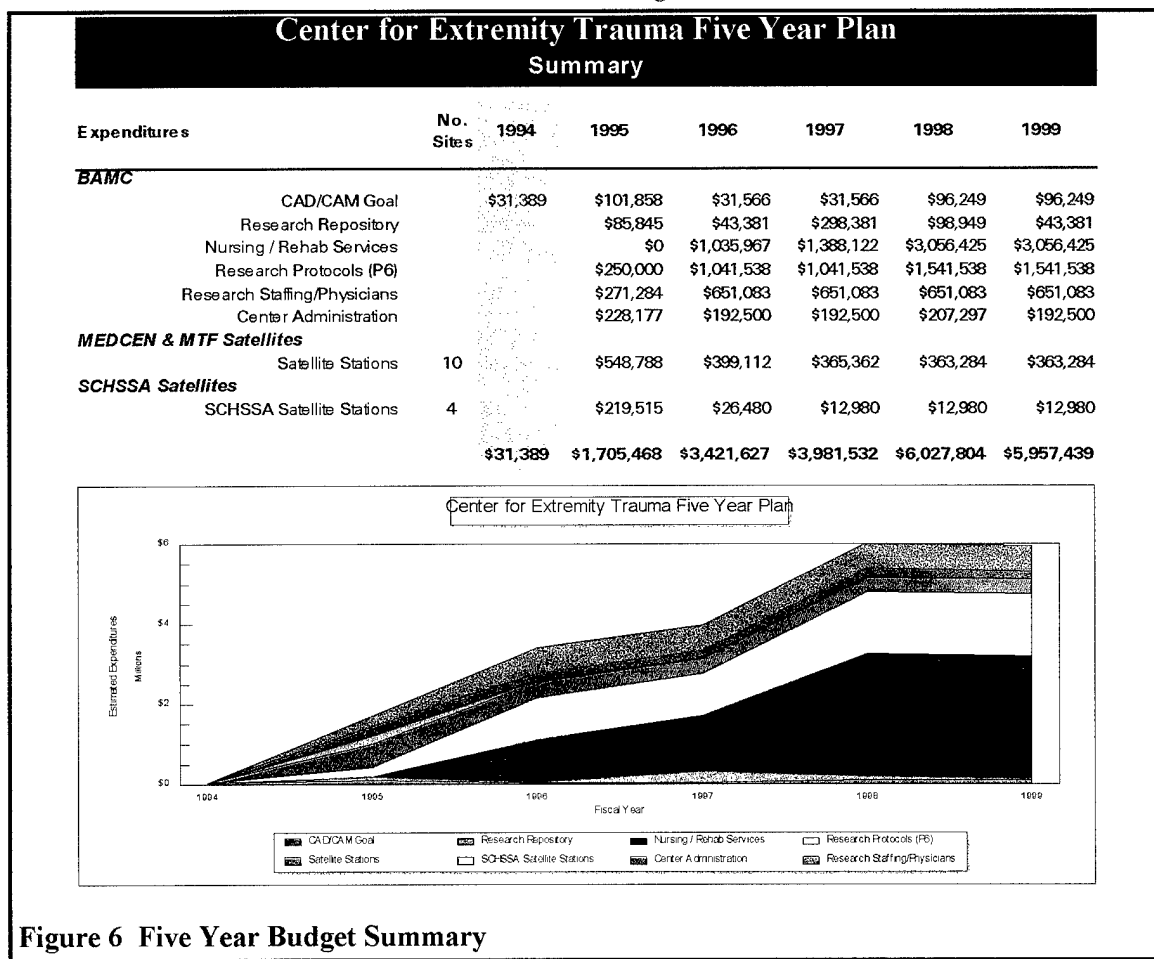
## **Business Analysis Results**

### ***Cost Estimates***

Cost estimates totaled \$1.7M in 1995, \$3.4M in 1996, \$3.98M in 1997, \$6.0M in 1998 and \$6.0M in 1999, with a projected steady state of \$6.0M per year (all in FY95 dollars). These estimates support the establishment of a research repository that will initially be accessible via modem, but which would be upgraded to become accessible via the Internet on an open-architecture UNIX system. In support of the repository are line items providing computer data entry stations with research assistants for each MEDCEN. Also included in the estimate is the establishment of a CAD/CAM AFMA manufacturing site located at BAMC and CAD digitizing

stations for each Army MEDCEN and another seven MTF sites including those within BAMC's HSSA. Nursing staff, administrative support, and physician staff are also included in the costs in addition to providing approximately \$1.5M of research funds in each year after the third year, (\$250K in year one and \$1.0M each in years two and three). The cost summary for each of the five years, showing major line item costs and an area graph of the total costs is shown in *Figure 6 Five Year Budget Summary*. A detailed cost estimate for the five year period is at *Appendix I • Five Year Cost Budget* beginning on page 104.

**Five Year Budget**



**Figure 6 Five Year Budget Summary**

### ***Potential income***

#### ***CHAMPUS recapture***

Estimated income and cost avoidance from CHAMPUS recapture is \$915, 992 annually, of which \$771K was saved from CHAMPUS allowable charges and \$145K was from potential reimbursement by third party insurers. Although not included as income to the Army, there is an additional \$972K that would not be charged to beneficiaries (this is the difference between the CHAMPUS billable and the CHAMPUS allowable figures). This is the result of capturing 68 of the projected 176 annual cases that would otherwise be cared for on CHAMPUS. Details of these estimates are available at *Appendix I • Five Year Cost Budget, Figure 42 Income/Cost avoidance due to CHAMPUS recapture* at page 118.

#### ***Third Party Collections (TPC)***

Estimated income from TPC are \$102K in the second and third years where 48 cases are referred to the Center from elsewhere in the Army, and \$437K in the last two years and thereafter based upon 205 cases being referred. Details of these estimates are available *Appendix I • Five Year Cost Budget, Figure 43 Potential income due to effective third party collections* at page 118.

### ***Business Case Analysis***

The business case analysis is shown in *Figure 7 Business case analysis summary showing projected cash flow* on page 42. This Center would provide a number of new infrastructure items that are currently not budgeted by the MEDCOM. These include:

- the CAD/CAM AFMA system and network
- the research repository and its required support
- the administrative overhead of the center

- new research protocols that are assumed to not be currently budgeted elsewhere.

These above items represent the major fixed costs of the proposed Center, additionally there would be the variable costs attributed directly to the cases being treated, and the prosthetics being manufactured. These cases (273 in the final projected state) would come from either CHAMPUS recapture (68 assumed) or from other Army MTFs (205).

The annual fixed cost for this center of \$3.4M plus the variable costs of \$2.5M are partially offset by transferring or realigning budget amounts of approximately \$2.04M, to BAMC and the ISR; and by new income/avoided costs of \$1.35M. However, the Center still represents a new cost to the Army MEDCOM of \$2.6M annually (of which \$1.4M is research funds).

## **Statistical Results**

Based upon descriptive statistics BAMC was found to treat 11% of the extremity trauma in the Army, while 49% are treated at the MEDCEN level (includes BAMC). Patients have an Army wide average age of 37, while 72% are males. The average patient age increases to 44 at the MEDCEN level, while 36% of the MEDCEN patients are female. The in-house acute care ALOS for the Army is 9.55 days and 12.6 days for MEDCENs. The typical patient would spend slightly less than one-half a day in ICU, ten days on the acute care ward, two days of convalescent care, three days in medical hold and another two days of miscellaneous bed care. The Army wide case mix index, as measured by HCFA is 1.49, while the MEDCEN average is 1.83. Refer to Table 1, and Table 2 for detailed listing of descriptive statistics.

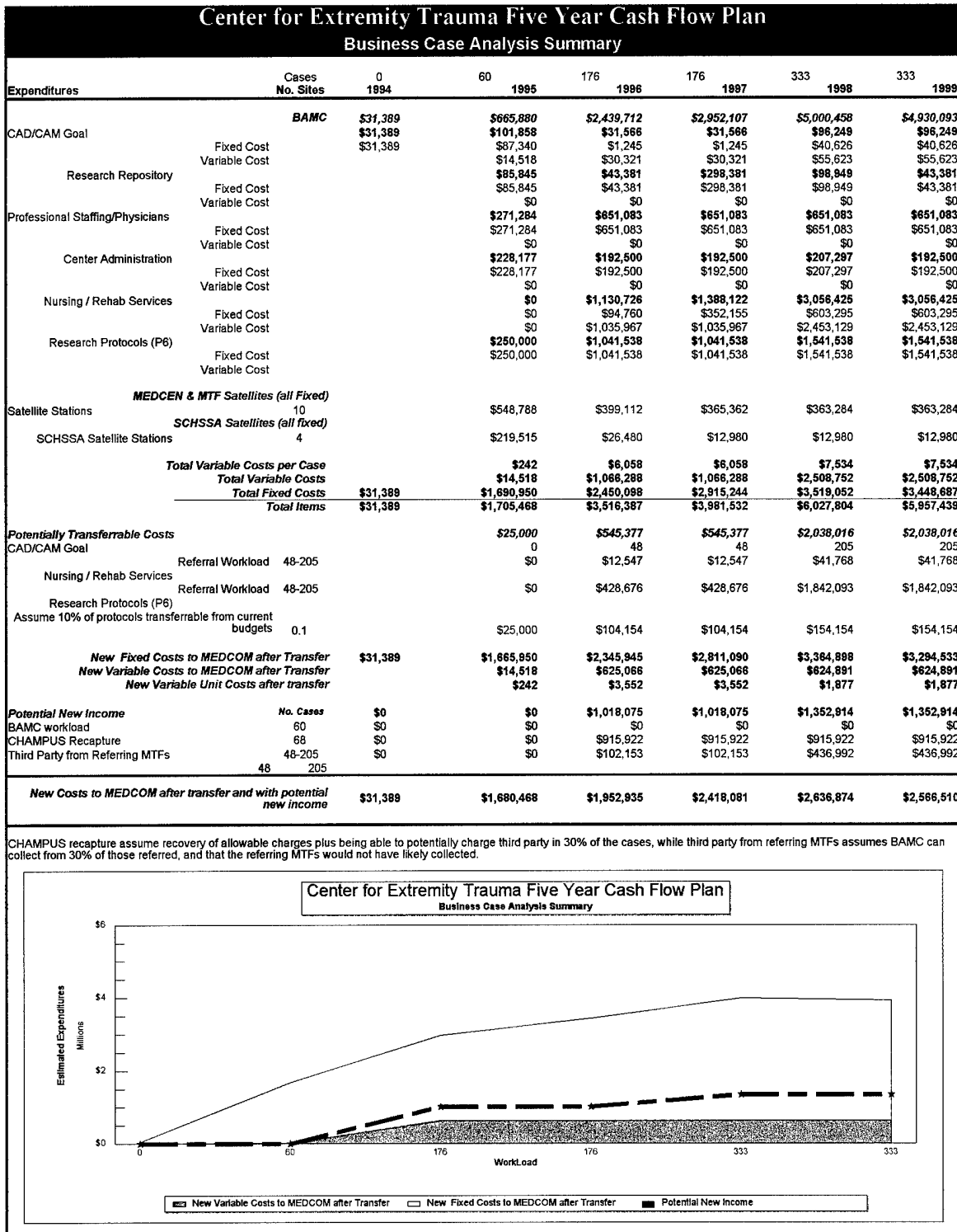


Figure 7 Business case analysis summary showing projected cash flow

To determine significance of BAMC membership in determining the number of cases, the total cases for each facility were regressed against the variable indicating BAMC membership. This yielded an average number of cases per MTF equal to 272.05 with BAMC having a total of 1,167 cases during the five year period. Results of this ANOVA regression indicate a relationship whereby BAMC has significantly more extremity trauma cases than other Army MTFs.:

$$r^2 = 0.3382 \quad t(36) = 4.289 \quad F(1,37) = 18.394 \quad \rho = 0.00013 \quad n = 38$$

Yields a regression equation of:

$$\text{Extremity Trauma Cases} = 247.8649 + 919.1351(\text{More at BAMC})$$

**Table 1 Descriptive Statistics for MEDCOM wide primary diagnosis extremity trauma**

Variable	Mean	Standard Deviation
BAMC membership	0.1129	0.3165
MEDCEN membership	0.4916	0.5
Maleness of Patient	0.7152	0.4513
Age of Patient	36.733	21.3856
Active Duty Status of Patient	0.4242	0.4942
Army AD Patients	0.3572	0.4792
In-House Acute Care ALOS per patient	9.5503	19.7364
ICU ALOS	0.4160	3.0391
Convalescent Bed Days per patient	2.2006	8.9996
Medical Hold Bed Days per patient	3.1833	31.8719
Other Bed Days (external to MTF)	1.7415	24.1486
ALOS per patient (all bed types)	17.2999	55.6636
Ratio of Convalescent Bed Usage to In-House Beds	0.4312	2.8163
Ratio of Medical Hold Bed Usage to In-House Beds	0.2198	2.7886
Ratio of ICU Bed Usage to Total Bed Days	0.0321	0.1574
CHAMPUS CMI	1.4731	4.2355
HCFA CMI	1.4902	2.8051

Comparisons of group means between the MEDCOM as a whole and BAMC resulted in significant differences between the two groups, although ALOS overall is the same, as is the number of medical hold bed days per patient treated. BAMC was found to have significantly, as determined by student's t: higher case mix index, older patients, fewer male patients, fewer Army active duty, and fewer active duty in general than other Army MTFs. BAMC used significantly more in-house beds per patient, and more ICU beds, while using fewer convalescent

and medical hold beds in relation to the total length of stay. See Table 3 for details of the analysis.

**Table 2 Descriptive statistics for Non-Burn Extremity Trauma treated at Army MEDCENs, includes BAMC data**

Variable	Mean	Standard Deviation
BAMC membership	0.2212	0.4151
Maleness of Patient	0.6413	0.4797
Age of Patient	43.6111	23.0999
Active Duty Status of Patient	0.2792	0.4487
Army AD Patients	0.1882	0.3909
In-House Acute Care ALOS per patient	12.5839	24.3388
ICU ALOS	0.5154	3.6901
Convalescent Bed Days per patient	1.5492	9.3147
Medical Hold Bed Days per patient	3.3689	34.4086
Other Bed Days (external to MTF)	1.7944	25.8711
ALOS per patient (all bed types)	19.9147	63.0364
Ratio of Convalescent Bed Usage to In-House Beds	0.1110	1.0147
Ratio of Medical Hold Bed Usage to In-House Beds	0.1673	2.1806
Ratio of ICU Bed Usage to Total Bed Days	0.0280	0.1310
CHAMPUS CMI	1.8939	5.1422
HCFA CMI	1.8304	3.2931

BAMC was then compared against its peer MEDCENs, but this time excluding extremity trauma burn cases. No significant difference between BAMC's case mix index and other MEDCENs was found, nor was the two groups' use of medical hold beds as a ratio of total length of stay found to be significantly different. BAMC was found to treat older patients, and fewer active duty or Army active duty patients than other Army MEDCENs. Also BAMC treats fewer male patients than other MEDCENs. However, BAMC's ALOS was significantly lower than its peer MEDCENs, more than six days less. BAMC used less in-house acute care bed days (2 fewer) but twice as many ICU bed days per patient than other Army MEDCENs. BAMC also used fewer convalescent bed days and had a lower use of both medical hold beds and convalescent beds in relation to the total patient length of stay (bed mix). See Table 4 for details of the comparison.

**Table 3 Comparison of group means between MEDCOM as a whole and BAMC**

Variable	Non-BAMC (n = 9,171)		BAMC (n = 1,167)		t (10336)	Probability of Same Population
	Mean	S.D.	Mean	S.D.		
HCFA CMI	1.404	2.831	2.363	5.296	-9.624	0.000
Patient Age	35.6082	20.8790	45.5721	23.1942	-15.156	0.000
Percentage of Male Patients	0.7264	0.4458	0.6272	0.4837	7.0868	0.000
Patient's Active Duty Status	0.4533	0.4978	0.1954	0.3967	17.0227	0.000
Patient's Army AD Status	0.3828	0.4861	0.1560	0.3630	15.4068	0.000
ALOS overall	17.3281	57.4410	17.0780	38.9877	.1446	Same
In-House Acute Bed Usage	9.1015	19.5233	13.0771	21.0153	-6.4942	0.000
ICU Bed Usage	0.3665	2.9085	0.8055	3.8960	-4.6525	0.000
Convalescent Bed Usage	2.4056	9.4259	0.5895	4.0448	6.5058	0.000
Medical Hold Usage	3.3281	33.0076	2.0454	20.8742	1.2949	Same
Ratio of Convalescent to In-House	0.4805	2.9826	0.0430	0.4301	5.0041	0.000
Ratio of Med Hold to In-House	.2365	2.9244	0.0889	1.2922	1.7031	0.05

Results of ANOCOVA between BAMC and other Army MEDCENs, for overall ALOS indicated that after controlling for differences in CMI and patient age (Table 5), BAMC continued to have a significantly lower ALOS [ $F(1,4995)=9.47$ ] than its peers, implying a more effective use of assets by getting the patient out quicker.

**Table 4 Comparison of Group Means for Non-Burn cases treated at Army MEDCENs**

Variable	MEDCENs (n = 9,171)		BAMC (n = 1,167)		t (10336)	Probability of Same Population
	Mean	S.D.	Mean	S.D.		
HCFA CMI	1.8615	3.9471	1.8233	2.3995	0.3059	same
Patient Age	42.7816	23.0221	46.5320	23.1466	-4.7731	0.000
Percentage of Male Patients	0.6484	0.4775	0.6163	0.4865	1.9656	0.05
Patient's Active Duty Status	0.3053	0.4606	0.1873	0.3904	7.7604	0.000
Patient's Army AD Status	0.1984	0.3989	0.1520	0.3592	3.4841	0.000
ALOS overall	21.3215	68.7139	14.9611	36.1940	2.9623	0.002
In-House Acute Bed Usage	13.0072	26.2214	11.0932	15.9583	2.3080	0.0105
ICU Bed Usage	0.4202	3.5923	0.8507	3.9991	-3.4259	0.000
Convalescent Bed Usage	1.8209	10.3166	0.5928	4.0456	3.8732	0.000
Medical Hold Usage	3.7851	37.4370	1.9032	20.3870	1.6048	0.054
Ratio of Convalescent to In-House	0.1299	1.1249	0.0446	0.4412	2.4663	0.01
Ratio of Med Hold to In-House	0.1898	2.3686	0.0883	1.3183	1.3655	same

ANOCOVA of the relative use of convalescent beds to in-house acute care beds (Table 6), performed while holding CMI and patient age constant, indicates that BAMC uses a bed mix with a significantly lower convalescent bed ratio than its peers. This would indicate that BAMC is perhaps not as efficient in its selection of bed mix types, since it is expected that convalescent beds are cheaper than in-house beds. However, ANOCOVA (Table 8) of the use of both convalescent and medical hold beds as a bed mix ratio to in-house beds indicates that BAMC does not differ from its peer MEDCENs when both of these lower cost bed types are accounted for.

**Table 5 ANCOVA of ALOS, between BAMC and other MEDCENs**

ANCOVA of ALOS holding HCFA CMI and patient age constant as the covariates		
Source of Variation	F(D.F.)	Significance of F
BAMC	(1,4995) = 9.47	0.002
Regression	(2,4994) = 1450.13	0.000
Adjusted ALOS after holding covariates constant.		
Group	Observed Mean	Adjusted Mean
MEDCEN	21.322	20.775
BAMC	14.960	15.506

**Table 6 ANCOVA of Convalescent Bed Ratio**

ANCOVA of ratio Convalescent beds to in-house acute care beds holding HCFA CMI, and patient age constant as the covariates		
Source of Variation	F(D.F.)	Significance of F
BAMC	(1,4995) = 4.37	0.037
Regression	(2,4994) = 12.27	0.000
Adjusted ratio after holding covariates constant.		
Group	Observed Mean	Adjusted Mean
MEDCEN	0.127	0.121
BAMC	0.044	0.050

**Table 7 ANCOVA of Medical Hold Bed ratio**

ANCOVA of ratio of Medical Hold beds to in-house acute care beds while holding HCFA CMI, active duty status, Army AD status, and patient age constant as the covariates		
Source of Variation	F(D.F.)	Significance of F
BAMC	(1,4995) = 0.72	0.395
Regression	(2,4994) = 26.63	0.000
Adjusted ratio after holding covariates constant.		
Group	Observed Mean	Adjusted Mean
MEDCEN	0.190	0.170
BAMC	0.087	0.107

**Table 8 ANOCOVA of Convalescent plus Med Hold Ratio to in-house acute care beds**

ANOCOVA of ratio of convalescent and medical hold beds to in-house acute care beds while holding HCFA CMI, active duty status, Army AD status, and patient age constant as the covariates		
Source of Variation	F(D.F.)	Significance of F
BAMC	(1,4995) = 1.48	0.224
Regression	(2,4994) = 287.12	0.000
Adjusted ratio after holding covariates constant.		
Group	Observed Mean	Adjusted Mean
MEDCEN	0.320	0.280
BAMC	0.133	0.172

## Chapter 4. Discussion

Market analysis has shown a sufficient quantity of extremity trauma during peacetime and of sufficient diversity to adequately support levels of medical education and research appropriate for the proposed Center of Excellence in Extremity Trauma. This analysis also found BAMC to be at the epicenter of the peacetime workload as indicated by both the geographical plotting of patient's residences and the distribution of the workload by Army MTFs. The latter clearly shows BAMC dominating two of the major categories of extremity trauma: visceral complications and open fractures and dislocations. As supported through ANOVA, BAMC has significantly more workload (11% of the Army's total) than the rest of the Army, while experiencing an increasing workload level over the past five years, mostly in prostheses (the third major category of diagnoses across the Army). This is in comparison with the rest of the Army MTFs who have decreasing workload over five years.

The intent of the Center is to focus research upon extremity trauma to active duty military while extending benefits to all beneficiary categories. Although BAMC sees only 20% active duty, a large portion of the Army-wide historical workload is from active duty (42%) amply supporting the research focus. The large role that civilian emergencies play in BAMC's workload provide a research opportunity that is unique to BAMC.

CHAMPUS workload is being outsourced at 176 cases per year (based upon the one year sample), and represents an income and cost avoidance opportunity. The Pareto chart of all extremity trauma workload by treating MTF has been modified to include CHAMPUS outsourced workload (aggregated for the five year period at the above rate) (see *Figure 8*). As indicated, CHAMPUS becomes the second greatest provider of extremity trauma care and

BAMC's biggest competitor. Targeting this competitor not only saves the Army funds but also represents potential savings to service member families.

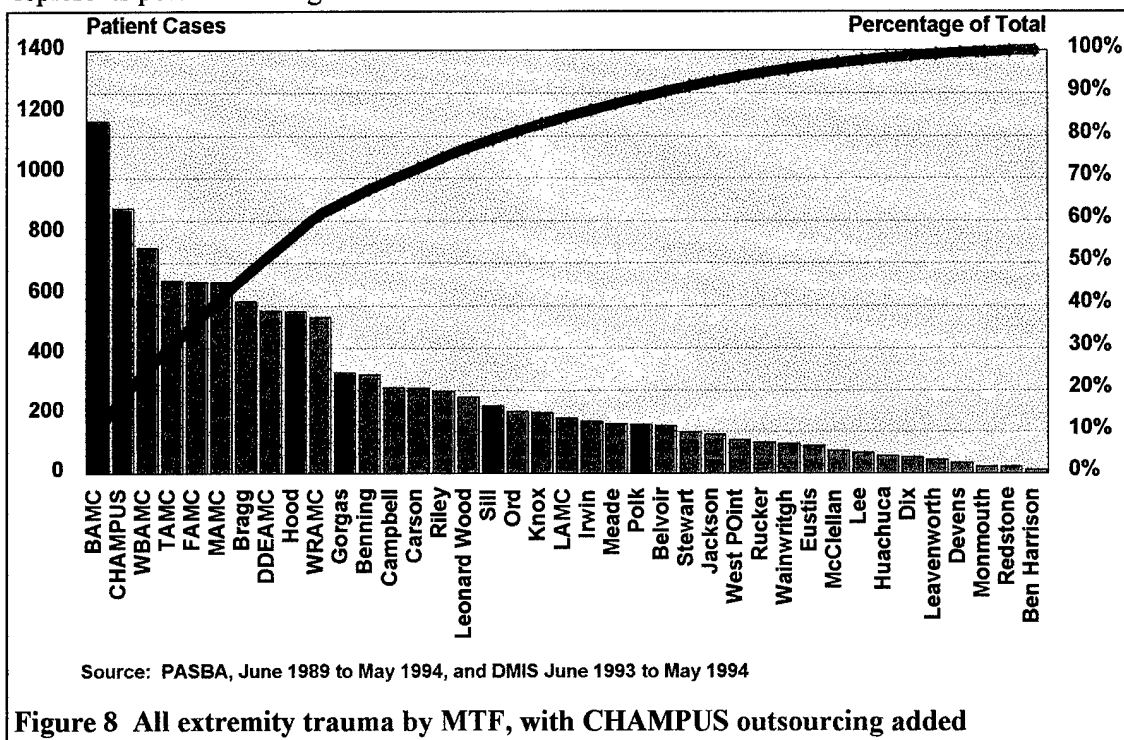


Figure 8 All extremity trauma by MTF, with CHAMPUS outsourcing added

## **Chapter 5. Conclusions and Recommendations**

### **Recommendations**

One observation after reviewing the data is that there were no ICU beds identified for BAMC extremity burn cases. It is expected that most of these cases would have been treated at the ISR, and should therefore have been identified as ICU/critical care beds. This lack of ICU beds for this BAMC category, is an indication that the data being collected by PASBA is not accurate regarding this field. The ISR and BAMC need to investigate their beds reporting information to ensure it is accurate regarding this important management measure.

Another recommendation is based upon a shortcoming of this study. Cost estimates for research are presently based upon very subjective input from the staff of the ISR. This input is subject to desires to “pad” the estimate to cover unforeseen circumstances. Research funds are subject to tremendous scrutiny and are ultimately resourced from a different source than the other operational medical funds. As a result further efforts must be made to quantify the research funding requirements. One proposal is to attempt to identify the historical cost of past protocols, and to then apply this cost average to projected future protocols. Another related recommendation is that the benefits of the research must be further defined, and some type of quantification applied to these benefits. This would not only allow better justification to higher headquarters for funding of the Center, but would also provide one important method to manage the progress and success of each protocol and the research program as a whole.

## Conclusions

BAMC clearly has the lion's share of extremity trauma workload amongst the MEDCOM state side hospitals. This quantity is sufficient to support minimal generic level research while also allowing the maintenance of surgical skills by providing both sufficient quantities of cases and variety of diagnostic and procedural mix. The collocation of the Institute of Surgical Research with BAMC provides a synergistic element that is not equaled at any other Army site.

As supported by statistical and graphical analysis BAMC is the best site for this proposed Center:

- Hypothesis  $H_1$  is accepted indicating that BAMC has a significantly higher caseload than other MTF sites.
- BAMC by being located in San Antonio Texas is at the geographical center of the majority of extremity trauma (accept  $H_2$ ).
- BAMC's patients are significantly sicker than the average of the MEDCOM providing better education and research opportunities, although BAMC's average CMI is equivalent to other Army MEDCENS, (partial acceptance of  $H_3$ ).
- BAMC is more effective than its peer MEDCENS in the care of extremity trauma as measured by the overall ALOS (accept  $H_4$ ).
- BAMC uses less convalescent and medical hold beds as measured as a ratio of in-house beds. This however is independent of the patient's CMI, age or active duty status (reject  $H_5$ ). Considering that BAMC has a lower overall ALOS, BAMC may have found a more effective means of care. However, without costing information assigned for each patient's case based upon the bed-mix, it is not possible to determine which method is more efficient in its use of funds. It can probably be stated that the patient would prefer the shorter overall LOS rather than a potentially cheaper but longer one.

- BAMC treats significantly fewer active duty, more females and older patients than its peer MEDCENs and the other MTFs (except H<sub>6</sub>). These demographics, and growing workload in prostheses may be indicative of the growing retirement community of San Antonio. National demographics support this observation that as the population ages it consists of increasingly female members. This observation about BAMC's workload demographics indicates the future needs for more effective care of extremity trauma and the importance of advances in this field. As a result BAMC has a vested personal interest in the stated goals of the Center to improve care and make it more effective and efficient.

## Implementation Plan

The results of this study will be incorporated into a business plan. The implementation of this business plan will be the creation of this Center of Excellence in Extremity Trauma. This implementation phasing is shown in *Figure 9 Technical and Operational Timeline*, with milestones identified in *Table 9 Technical and Operational Milestones*. Several of the actions

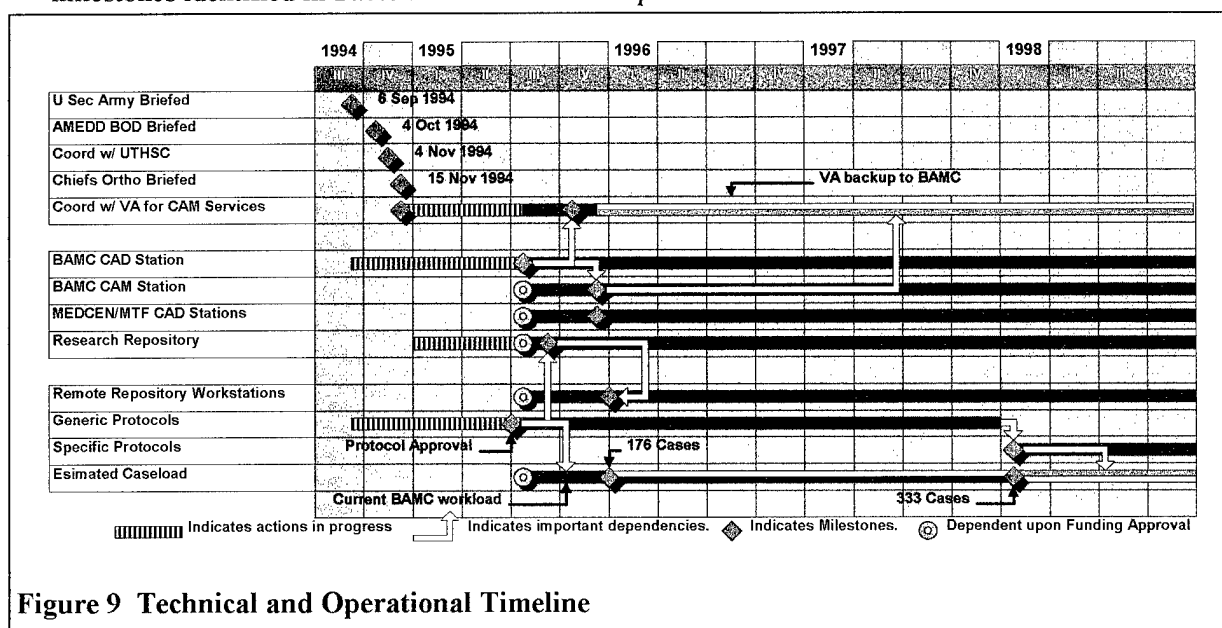


Figure 9 Technical and Operational Timeline

shown have already transpired, while the remaining actions will span several years ahead.

**Table 9 Technical and Operational Milestones**

6 SEP 1994	Under Secretary of the Army, and the Surgeon General briefed on the concept proposal for the Center. (Approval Received)
4 OCT 1994	Army Medical Department Board of Directors briefed on concept proposal for Center. (Concept Approval Received)
4 NOV 1994	Initial coordination with University of Texas Health Science Center (BG(R) Deffer).
15 NOV 1994	Concept for Center briefed to Orthopedic Chiefs or their representatives at the Society of Military Orthopaedic Surgeons (SOMOS). Verbal support received.
FY 95, Third Quarter	BAMC CAD Station operational.
FY 95, Third Quarter	BAMC Extremity Trauma Repository Operational.
FY 95, Fourth Quarter	Approval of initial "generic" clinical research protocols.
FY 95, Fourth Quarter	Remote repository stations at each MEDCEN plus additional MTFs become operational.
FY 95, Fourth Quarter	BAMC CAM Station operational.
FY 95, Fourth Quarter	Remote CAD digitizing stations become operational. Agreements with VA manufacturing sites are established.
FY 96, First Quarter	Annual Patient Caseload expands to 176 cases.
FY 98, First Quarter	Approval of definitive "specific" research protocols.
FY 98, First Quarter	Annual patient caseload expands to 333 cases

### *Summary*

In summary, this study will allow the presentation of strong justification for establishing the proposed Center of Excellence. The justification will be supported with not only graphical analysis of market composition based upon historical workload, geographical mapping of the source and density of that workload, but also statistical analysis supporting the conclusions that BAMC is the superior choice for such a Center. The analysis performed, allowed the development of costing figures that are based upon historical experience despite the fact that this proposal is for a new entity. The final result of this analysis will be the creation and continuance of a Center based at BAMC that will further advances in the treatment of extremity trauma.

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## Appendix A • Working Definition of Extremity Trauma

The working definition of extremity trauma consists of the following list of diagnoses (Table 11) and amputation procedure codes (Table 10), as defined in the ICD9 manual. These codes have been selected through coordination with the subject matter expert COL Ryan who is also the appointed Director of the Center. It is expected that as clinical data is collected, upon start-up of the Center, this list will be modified to provide a clearer definition of the generic term “extremity trauma”. These codes were used to gather workload data to perform initial market research and costs analysis.

**Table 10 Listing of ICD-9-CM Procedure Codes for Amputations**

Code	Procedure
840.	AMPUTATION OF UPPER LIMB
840.0	UPPER LIMB AMPUTATION, NOT OTHERWISE SPECIFIED
840.3	AMPUTATION THROUGH HAND
840.5	AMPUTATION THROUGH FOREARM
840.7	AMPUTATION THROUGH HUMERUS
841.	AMPUTATION OF LOWER LIMB
841.0	LOWER LIMB AMPUTATION, NOT OTHERWISE SPECIFIED
841.2	AMPUTATION THROUGH FOOT
841.4	AMPUTATION OF ANKLE THROUGH MALLEOLI OF TIBIA AND FIBULA
841.5	OTHER AMPUTATION BELOW KNEE
841.7	AMPUTATION ABOVE KNEE
843.	REVISION OF AMPUTATION STUMP
849.1	AMPUTATION, NOT OTHERWISE SPECIFIED

Table 11 Listing of ICD-9-CM Diagnoses Codes defining Extremity Trauma.

Code	Diagnosis
8121	FRACTURE OF HUMERUS, UPPER END, OPEN
81210	FRACTURE OF UNSPECIFIED PART OF UPPER END OF HUMERUS, OPEN
81211	FRACTURE OF SURGICAL NECK OF HUMERUS, OPEN
81212	FRACTURE OF ANATOMICAL NECK OF HUMERUS, OPEN
81213	FRACTURE OF GREATER TUBEROSITY OF HUMERUS, OPEN
81219	OTHER OPEN FRACTURE OF UPPER END OF HUMERUS
8123	FRACTURE OF HUMERUS, SHAFT OR UNSPECIFIED PART, OPEN
81230	FRACTURE OF UNSPECIFIED PART OF HUMERUS, OPEN
81231	FRACTURE OF SHAFT OF HUMERUS, OPEN
8125	FRACTURE OF HUMERUS, LOWER END, OPEN
81250	FRACTURE OF UNSPECIFIED PART OF LOWER END OF HUMERUS, OPEN
81251	SUPRACONDYLAR FRACTURE OF HUMERUS, OPEN
81252	FRACTURE OF LATERAL CONDYLE OF HUMERUS, OPEN
81253	FRACTURE OF MEDIAL CONDYLE OF HUMERUS, OPEN
81254	FRACTURE OF UNSPECIFIED CONDYLE(S) OF HUMERUS, OPEN
81259	OTHER FRACTURE OF LOWER END OF HUMERUS, OPEN
8131	FRACTURE OF RADIUS AND ULNA, UPPER END, OPEN
81310	OPEN FRACTURE OF UPPER END OF FOREARM, UNSPECIFIED
81311	FRACTURE OF OLECRANON PROCESS OF ULNA, OPEN
81312	FRACTURE OF CORONOID PROCESS OF ULNA, OPEN
81313	MONTEGGIA'S FRACTURE, OPEN
81314	OTHER & UNSPECIFIED OPEN FX OF PROXIMAL END OF ULNA (ALONE)
81315	FRACTURE OF HEAD OF RADIUS, OPEN
81316	FRACTURE OF NECK OF RADIUS, OPEN
81317	OTH & UNSPECIFIED OPEN FX OF PROXIMAL END OF RADIUS (ALONE)
81318	FRACTURE OF RADIUS WITH ULNA, UPPER END (ANY PART), OPEN
8133	FRACTURE OF RADIUS AND ULNA, SHAFT, OPEN
81330	FRACTURE OF SHAFT OF RADIUS OR ULNA, UNSPECIFIED, OPEN
81331	FRACTURE OF SHAFT OF RADIUS (ALONE), OPEN
81332	FRACTURE OF SHAFT OF ULNA (ALONE), OPEN

Code	Diagnosis
81333	FRACTURE OF SHAFT OF RADIUS WITH ULNA, OPEN
8135	FRACTURE OF RADIUS AND ULNA, LOWER END, OPEN
81350	OPEN FRACTURE OF LOWER END OF FOREARM, UNSPECIFIED
81351	COLLES' FRACTURE, OPEN
81352	OTHER OPEN FRACTURES OF DISTAL END OF RADIUS (ALONE)
81353	FRACTURE OF DISTAL END OF ULNA (ALONE), OPEN
81354	FRACTURE OF LOWER END OF RADIUS WITH ULNA, OPEN
8139	FRACTURE OF RADIUS AND ULNA, UNSPECIFIED PART, OPEN
81390	FRACTURE OF UNSPECIFIED PART OF FOREARM, OPEN
81391	FRACTURE OF UNSPECIFIED PART OF RADIUS (ALONE), OPEN
81392	FRACTURE OF UNSPECIFIED PART OF ULNA (ALONE), OPEN
81393	FRACTURE OF UNSPECIFIED PART OF RADIUS WITH ULNA, OPEN
8141	FRACTURE OF CARPAL BONE(S), OPEN
81410	OPEN FRACTURE OF CARPAL BONE, UNSPECIFIED
81411	OPEN FRACTURE OF NAVICULAR (SCAPHOID) BONE OF WRIST
81412	OPEN FRACTURE OF LUNATE (SEMILUNAR) BONE OF WRIST
81413	OPEN FRACTURE OF TRIQUETRAL (CUNEIFORM) BONE OF WRIST
81414	OPEN FRACTURE OF PISIFORM BONE OF WRIST
81415	OPEN FRACTURE OF TRAPEZIUM BONE (LARGER MULTANGULAR), WRIST
81416	OPEN FRACTURE OF TRAPEZOID BONE (SMALLER MULTANGULAR), WRIST
81417	OPEN FRACTURE OF CAPITATE BONE (OS MAGNUM) OF WRIST
81418	OPEN FRACTURE OF HAMATE (UNCIFORM) BONE OF WRIST
81419	OPEN FRACTURE OF OTHER BONE OF WRIST
8151	FRACTURE OF METACARPAL BONE(S), OPEN
81510	OPEN FRACTURE OF METACARPAL BONE(S), SITE UNSPECIFIED
81511	OPEN FRACTURE OF BASE OF THUMB (FIRST) METACARPAL
81512	OPEN FRACTURE OF BASE OF OTHER METACARPAL BONE(S)
81513	OPEN FRACTURE OF SHAFT OF METACARPAL BONE(S)
81514	OPEN FRACTURE OF NECK OF METACARPAL BONE(S)
81519	OPEN FRACTURE OF MULTIPLE SITES OF METACARPUS
8161	FRACTURE OF ONE OR MORE PHALANGES OF HAND, OPEN

Code	Diagnosis
81610	OPEN FRACTURE OF PHALANX OR PHALANGES OF HAND, UNSPECIFIED
81611	OPEN FX OF MIDDLE OR PROXIMAL PHALANX OR PHALANGES OF HAND
81612	OPEN FRACTURE OF DISTAL PHALANX OR PHALANGES OF HAND
81613	OPEN FX OF MULTIPLE SITES OF PHALANX OR PHALANGES OF HAND
8171	MULTIPLE FRACTURE OF HAND BONES, OPEN
8181	ILL-DEFINED FRACTURE OF UPPER LIMB, OPEN
8191	MULTIPLE FRACTURE OF ARMS, ARM WITH RIB AND STERNUM, OPEN
8201	FRACTURE OF NECK OF FEMUR, TRANSCERVICAL, OPEN
82012	OPEN FRACTURE OF MIDCERVICAL SECTION OF FEMUR
82013	OPEN FRACTURE OF BASE OF NECK OF FEMUR
82019	OTHER OPEN TRANSCERVICAL FRACTURE OF FEMUR
82022	CLOSED FRACTURE OF SUBTROCHANTERIC SECTION OF FEMUR
8203	FRACTURE OF NECK OF FEMUR, PERTROCHANTERIC, OPEN
82030	OPEN FRACTURE OF UNSPECIFIED TROCHANTERIC SECTION OF FEMUR
82031	OPEN FRACTURE OF INTERTROCHANTERIC SECTION OF FEMUR
82032	OPEN FRACTURE OF SUBTROCHANTERIC SECTION OF FEMUR
8208	UNSPECIFIED FRACTURE, PART OF NECK OF FEMUR, CLOSED
8209	UNSPECIFIED FRACTURE, PART OF NECK OF FEMUR, OPEN
8211	FRACTURE OF FEMUR, SHAFT OR PART NOS, OPEN
82110	OPEN FRACTURE OF UNSPECIFIED PART OF FEMUR
82111	OPEN FRACTURE OF SHAFT OF FEMUR
8213	FRACTURE OF FEMUR, LOWER END, OPEN
82130	OPEN FRACTURE OF LOWER END OF FEMUR, UNSPECIFIED PART
82131	OPEN FRACTURE OF FEMORAL CONDYLE
82132	OPEN FRACTURE OF LOWER EPIPHYSIS OF FEMUR
82133	OPEN SUPRACONDYLAR FRACTURE OF FEMUR
82139	OTHER OPEN FRACTURE OF LOWER END OF FEMUR
8221	FRACTURE OF PATELLA, OPEN
8231	FRACTURE TIBIA AND FIBULA, UPPER END, OPEN
82310	OPEN FRACTURE OF UPPER END OF TIBIA
82311	OPEN FRACTURE OF UPPER END OF FIBULA

Code	Diagnosis
82312	OPEN FRACTURE OF UPPER END OF FIBULA WITH TIBIA
8233	FRACTURE OF TIBIA AND FIBULA, SHAFT, OPEN
82330	OPEN FRACTURE OF SHAFT OF TIBIA
82331	OPEN FRACTURE OF SHAFT OF FIBULA
82332	OPEN FRACTURE OF SHAFT OF FIBULA WITH TIBIA
8239	FRACTURE OF TIBIA AND FIBULA, PART NOS, OPEN
82390	OPEN FRACTURE OF UNSPECIFIED PART OF TIBIA
82391	OPEN FRACTURE OF UNSPECIFIED PART OF FIBULA
82392	OPEN FRACTURE OF UNSPECIFIED PART OF FIBULA WITH TIBIA
8241	FRACTURE OF ANKLE, MEDIAL MALLEOLUS, OPEN
8243	FRACTURE OF ANKLE, LATERAL MALLEOLUS, OPEN
8245	FRACTURE OF ANKLE, BIMALLEOLAR, OPEN
8247	FRACTURE OF ANKLE, TRIMALLEOLAR, OPEN
8249	FRACTURE OF ANKLE, UNSPECIFIED, OPEN
8251	FRACTURE OF CALCANEUS, OPEN
8253	FRACTURE OF OTHER TARSAL AND METATARSAL BONES, OPEN
82530	OPEN FRACTURE OF UNSPECIFIED BONE(S) OF FOOT (EXCEPT TOES)
82531	OPEN FRACTURE OF ASTRAGALUS
82532	OPEN FRACTURE OF NAVICULAR (SCAPHOID) BONE OF FOOT
82533	OPEN FRACTURE OF CUBOID BONE
82534	OPEN FRACTURE OF CUNEIFORM BONE OF FOOT
82535	OPEN FRACTURE OF METATARSAL BONE(S)
82539	OTHER OPEN FRACTURES OF TARSAL AND METATARSAL BONES
8261	FRACTURE OF ONE OR MORE PHALANGES OF FOOT, OPEN
8271	OTHER MULTIPLE AND ILL-DEFINED FRACTURES OF LOWER LIMB, OPEN
8281	MULTIPLE FRACTURE OF LEGS, LEG WITH ARM, RIB AND STERNUM, OPEN
83110	OPEN DISLOCATION OF SHOULDER, UNSPECIFIED
83111	OPEN ANTERIOR DISLOCATION OF HUMERUS
83112	OPEN POSTERIOR DISLOCATION OF HUMERUS
83113	OPEN INFERIOR DISLOCATION OF HUMERUS
83114	OPEN DISLOCATION OF ACROMIOCLAVICULAR (JOINT)

Code	Diagnosis
8321	DISLOCATION OF ELBOW, OPEN
83210	OPEN DISLOCATION OF ELBOW, UNSPECIFIED SITE
83211	OPEN ANTERIOR DISLOCATION OF ELBOW
83212	OPEN POSTERIOR DISLOCATION OF ELBOW
83213	OPEN MEDIAL DISLOCATION OF ELBOW
83214	OPEN LATERAL DISLOCATION OF ELBOW
83219	OPEN DISLOCATION OF OTHER SITE OF ELBOW
8331	DISLOCATION OF WRIST, OPEN
83310	OPEN DISLOCATION OF WRIST, UNSPECIFIED PART
83311	OPEN DISLOCATION OF RADIOULNAR (JOINT), DISTAL
83312	OPEN DISLOCATION OF RADIOCARPAL (JOINT)
83313	OPEN DISLOCATION OF MIDCARPAL (JOINT)
83314	OPEN DISLOCATION OF CARPOMETACARPAL (JOINT)
83315	OPEN DISLOCATION OF METACARPAL (BONE), PROXIMAL END
83319	OPEN DISLOCATION OF OTHER PART OF WRIST
8341	DISLOCATION OF FINGER, OPEN
83410	OPEN DISLOCATION OF FINGER, UNSPECIFIED PART
83411	OPEN DISLOCATION OF METACARPOPHALANGEAL (JOINT)
83412	OPEN DISLOCATION INTERPHALANGEAL (JOINT), HAND
83500	CLOSED DISLOCATION OF HIP, UNSPECIFIED SITE
8351	DISLOCATION OF HIP, OPEN
83510	OPEN DISLOCATION OF HIP, UNSPECIFIED SITE
83511	OPEN POSTERIOR DISLOCATION OF HIP
83512	OPEN OBTURATOR DISLOCATION OF HIP
83513	OTHER OPEN ANTERIOR DISLOCATION OF HIP
8363	DISLOCATION OF PATELLA, CLOSED
8364	DISLOCATION OF PATELLA, OPEN
83659	OTHER DISLOCATION OF KNEE, CLOSED
8366	OTHER DISLOCATION OF KNEE, OPEN
83660	DISLOCATION OF KNEE, UNSPECIFIED PART, OPEN
83661	ANTERIOR DISLOCATION OF TIBIA, PROXIMAL END, OPEN

Code	Diagnosis
83662	POSTERIOR DISLOCATION OF TIBIA, PROXIMAL END, OPEN
83663	MEDIAL DISLOCATION OF TIBIA, PROXIMAL END, OPEN
83664	LATERAL DISLOCATION OF TIBIA, PROXIMAL END, OPEN
83669	OTHER DISLOCATION OF KNEE, OPEN
8371	DISLOCATION OF ANKLE, OPEN
8381	DISLOCATION OF FOOT, OPEN
83810	OPEN DISLOCATION OF FOOT, UNSPECIFIED PART
83811	OPEN DISLOCATION OF TARSAL (BONE), JOINT UNSPECIFIED
83812	OPEN DISLOCATION OF MIDTARSAL (JOINT)
83813	OPEN DISLOCATION OF TARSOMETATARSAL (JOINT)
83814	OPEN DISLOCATION OF METATARSAL (BONE), JOINT UNSPECIFIED
83815	OPEN DISLOCATION OF METATARSOPHALANGEAL (JOINT)
83816	OPEN DISLOCATION OF INTERPHALANGEAL (JOINT), FOOT
83819	OPEN DISLOCATION OF OTHER PART OF FOOT
8801	OPEN WOUND OF SHOULDER AND UPPER ARM, COMPLICATED
88010	OPEN WOUND OF SHOULDER REGION, COMPLICATED
88011	OPEN WOUND OF SCAPULAR REGION, COMPLICATED
88012	OPEN WOUND OF AXILLARY REGION, COMPLICATED
88013	OPEN WOUND OF UPPER ARM, COMPLICATED
88019	OPEN WOUND, MULTIPLE SITES, SHOULDER, UPPER ARM, COMPLICATED
8811	OPEN WOUND OF ELBOW, FOREARM AND WRIST, COMPLICATED
88110	OPEN WOUND OF FOREARM, COMPLICATED
88111	OPEN WOUND OF ELBOW, COMPLICATED
88112	OPEN WOUND OF WRIST, COMPLICATED
8821	OPEN WOUND OF HAND EXCEPT FINGERS ALONE, COMPLICATED
8822	OPEN WOUND OF HAND EXCEPT FINGERS ALONE, W TENDON INVOLVEMENT
8831	OPEN WOUND OF FINGERS, COMPLICATED
8841	MULTIPLE & UNSPECIFIED OPEN WOUND OF UPPER LIMB, COMPLICATED
8842	MULTIPLE & UNSPEC OPEN WOUND, UPPER LIMB, W TENDON INVOLVEMENT
885	TRAUMATIC AMPUTATION OF THUMB (COMPLETE) (PARTIAL)
8850	TRAUMATIC AMPUTATION THUMB (COMPLETE) (PARTIAL), WO COMPLICATION

Code	Diagnosis
8851	TRAUMATIC AMPUTATION OF THUMB(COMPLETE)(PARTIAL),COMPLICATED
886	TRAUMATIC AMPUTATION OF OTHER FINGER(S) (COMPLETE) (PARTIAL)
8860	TRAUMA AMPUTATION,OTH FINGER(S) (COMPLETE) (PARTIAL),WO COMPL
8861	TRAUMA AMPUTATION,OTH FINGERS(COMPLETE)(PARTIAL),COMPLICATED
887	TRAUMATIC AMPUTATION OF ARM AND HAND (COMPLETE) (PARTIAL)
8870	TRAUMATIC AMPUTATION, ARM & HAND, UNILATERAL, BELOW ELBOW
8871	TRAUMATIC AMPUTATION,ARM,HAND,UNILAT,BELOW ELBOW,COMPLICATED
8872	TRAUMATIC AMPUTATION,ARM & HAND,UNILATERAL,AT OR ABOVE ELBOW
8873	TRAUMA AMPUTATION,ARM,HAND,UNILAT,AT/ABOVE ELBOW,COMPLICATED
8874	TRAUMA AMUPTATION,ARM & HAND,UNILATERAL, LEVEL NOT SPECIFIED
8875	TRAUMA AMPUTATION,ARM,HAND,UNILATERAL,LEVEL NOS, COMPLICATED
8876	TRAUMATIC AMPUTATION OF ARM & HAND, BILATERAL, ANY LEVEL
8877	TRAUMATIC AMPUTATION,ARM,HAND,BILATERL,ANY LEVEL,COMPLICATED
8901	OPEN WOUND OF HIP AND THIGH, COMPLICATED
8911	OPEN WOUND OF KNEE, LEG (EXCEPT THIGH), & ANKLE, COMPLICATED
8912	OPEN WOUND,KNEE,LEG(EXCEPT THIGH),ANKLE W TENDON INVOLVEMENT
8921	OPEN WOUND OF FOOT EXCEPT TOE(S) ALONE, COMPLICATED
8922	OPEN WOUND OF FOOT EXCEPT TOE(S) ALONE, W TENDON INVOLVEMENT
8931	OPEN WOUND OF TOE(S), COMPLICATED
8932	OPEN WOUND OF TOE(S), WITH TENDON INVOLVEMENT
8941	MULTIPLE & UNSPECIFIED OPEN WOUND OF LOWER LIMB, COMPLICATED
8942	MULTIPLE/NOS OPEN WOUND OF LOWER LIMB, W TENDON INVOLVEMENT
895	TRAUMATIC AMPUTATION OF TOE(S) (COMPLETE) (PARTIAL)
8950	TRAUMA AMPUTATION,TOE(S)(COMPLETE)(PARTIAL),W/O COMPLICATION
8951	TRAUMATIC AMPUTATION OF TOE(S), COMPLICATED
896	TRAUMATIC AMPUTATION OF FOOT (COMPLETE) (PARTIAL)
8960	TRAUMA AMPUTATION,FOOT(COMPLETE)(PARTIAL),UNILATERAL,WO COMPL
8961	TRAUMATIC AMPUTATION OF FOOT, UNILATERAL, COMPLICATED
8962	TRAUMA AMPUTATION,FOOT(COMPLETE)(PARTIAL),BILATERAL,W/O COMPL
8963	TRAUMATIC AMPUTATION OF FOOT, BILATERAL, COMPLICATED
897	TRAUMATIC AMPUTATION OF LEG(S) (COMPLETE) (PARTIAL)

Code	Diagnosis
8970	TRAUMA AMPUTATION,LEG(S),UNILATERAL,BELOW KNEE,WO COMPLICATION
8971	TRAUMATIC AMPUTATION,LEG, UNILATERAL,BELOW KNEE,COMPLICATED
8972	TRAUMA AMPUTATION,LEG(S),UNILATERAL,AT OR ABOVE KNEE,WO COMPL
8973	TRAUMATIC AMPUTATION,LEG,UNILATERL,AT/ABOVE KNEE,COMPLICATED
8974	TRAUMATIC AMPUTATION,LEG(S),UNILATERAL,LEVEL NOS, W/O COMPL
8975	TRAUMATIC AMPUTATION,LEG(S),UNILATERAL,LEVEL NOS,COMPLICATED
8976	TRAUMA AMPUTATION,LEG(S),BILATERAL(ANY LEVEL),WO COMPLICATION
8977	TRAUMATIC AMPUTATION,LEG(S),BILATERAL(ANY LEVEL),COMPLICATED
9041	INJURY TO SUPERFICIAL FEMORAL ARTERY
90441	INJURY TO POPLITEAL ARTERY
9059	LATE EFFECT OF TRAUMATIC AMPUTATION
9061	LATE EFFECT OF OPEN WOUND OF EXTREMITIES
9064	LATE EFFECT OF CRUSHING
927	CRUSHING INJURY OF UPPER LIMB
9270	CRUSHING INJURY TO SHOULDER AND UPPER ARM
92700	CRUSHING INJURY OF SHOULDER REGION
92701	CRUSHING INJURY OF SCAPULAR REGION
92702	CRUSHING INJURY OF AXILLARY REGION
92703	CRUSHING INJURY OF UPPER ARM
92709	CRUSHING INJURY OF MULTIPLE SITES OF UPPER ARM
9271	CRUSHING INJURY TO ELBOW AND FOREARM
92710	CRUSHING INJURY OF FOREARM
92711	CRUSHING INJURY OF ELBOW
9272	CRUSHING INJURY TO WRIST AND HAND EXCEPT DIGITS
92720	CRUSHING INJURY OF HAND(S)
92721	CRUSHING INJURY OF WRIST
9273	CRUSHING INJURY OF FINGER(S)
9278	CRUSHING INJURY OF MULTIPLE SITES OF UPPER LIMB
9279	CRUSHING INJURY OF UNSPECIFIED SITE OF UPPER LIMB
928	CRUSHING INJURY OF LOWER LIMB
9280	CRUSHING INJURY TO HIP AND THIGH

Code	Diagnosis
92800	CRUSHING INJURY OF THIGH
92801	CRUSHING INJURY OF HIP
9281	CRUSHING INJURY TO KNEE AND LOWER LEG
92810	CRUSHING INJURY OF LOWER LEG
92811	CRUSHING INJURY OF KNEE
9282	CRUSHING INJURY TO ANKLE AND FOOT
92820	CRUSHING INJURY OF FOOT
92821	CRUSHING INJURY OF ANKLE
9283	CRUSHING INJURY OF TOE(S)
9288	CRUSHING INJURY OF MULTIPLE SITES OF LOWER LIMB
9289	CRUSHING INJURY OF UNSPECIFIED SITE OF LOWER LIMB
94339	BURN, 3D DEGREE NOS, MULTIPLE SITES, UPPER LIMB EXC WRIST, HAND
9434	BURN, UPPER LIMB EXCEPT WRIST & HAND, 3D DEGREE, DEEP
94340	BURN NECROSIS DEEP 3D DEGREE, UPPER LIMB EXCEPT WRIST & HAND
94341	BURN NECROSIS DEEP 3D DEGREE, FOREARM
94342	BURN NECROSIS DEEP 3D DEGREE, ELBOW
94343	BURN NECROSIS DEEP 3D DEGREE, UPPER ARM
94344	BURN NECROSIS DEEP 3D DEGREE, AXILLA
94345	BURN NECROSIS DEEP 3D DEGREE, SHOULDER
94346	BURN NECROSIS DEEP 3D DEGREE, SCAPULAR REGION
94349	BURN NECROSIS DEEP 3D DEGREE, MULTI SITES, ARM EXC WRIST, HAND
9435	BURN, UPPER LIMB EXCEPT WRIST & HAND, 3D DEG, BODY PART LOSS
94350	BURN NECROSIS W BODY PART LOSS, UPPER LIMB EXCEPT WRIST, HAND
94351	BURN NECROSIS W BODY PART LOSS, FOREARM
94352	BURN NECROSIS W BODY PART LOSS, ELBOW
94353	BURN NECROSIS W BODY PART LOSS, UPPER ARM
94354	BURN NECROSIS W BODY PART LOSS, AXILLA
94355	BURN NECROSIS W BODY PART LOSS, SHOULDER
94356	BURN NECROSIS W BODY PART LOSS, SCAPULAR REGION
94359	BURN NECROSIS, BODY PART LOSS, MULT UPPER LIMB EXC WRIST, HAND
94430	BURN, 3D DEGREE NOS, UNSPECIFIED SITE OF HAND

Code	Diagnosis
94438	BURN, 3D DEGREE NOS, MULTIPLE SITES OF WRIST(S) AND HAND(S)
9444	BURN OF WRIST AND HAND, 3D DEGREE, DEEP
94440	BURN NECROSIS DEEP 3D DEGREE, UNSPECIFIED SITE OF HAND
94441	BURN NECROSIS DEEP 3D DEGREE, SINGLE FINGER (NOT THUMB)
94442	BURN NECROSIS DEEP 3D DEGREE, THUMB AND NAIL
94443	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE FINGERS EXCL THUMB
94444	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE FINGERS INCL THUMB
94445	BURN NECROSIS DEEP 3D DEGREE, PALM OF HAND
94446	BURN NECROSIS DEEP 3D DEGREE, BACK OF HAND
94447	BURN NECROSIS DEEP 3D DEGREE, WRIST
94448	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE WRIST & HAND SITES
9445	BURN OF WRIST AND HAND, 3D DEGREE WITH BODY PART LOSS
94450	BURN NECROSIS W BODY PART LOSS, UNSPECIFIED SITE OF HAND
94451	BURN NECROSIS W BODY PART LOSS, ONE FINGER EXCLUDING THUMB
94452	BURN NECROSIS W BODY PART LOSS, THUMB AND NAIL
94453	BURN NECROSIS W BODY PART LOSS, MULTIPLE FINGERS EXCL THUMB
94454	BURN NECROSIS W BODY PART LOSS, MULTIPLE FINGERS INCL THUMB
94455	BURN NECROSIS W BODY PART LOSS, PALM OF HAND
94456	BURN NECROSIS W BODY PART LOSS, BACK OF HAND
94457	BURN NECROSIS W BODY PART LOSS, WRIST
94458	BURN NECROSIS W BODY PART LOSS, MULTIPLE WRIST & HAND SITES
94530	BURN, 3D DEGREE NOS, UNSPECIFIED SITE OF LOWER LIMB
9454	BURN OF LOWER LIMB, 3D DEGREE, DEEP
94540	BURN NECROSIS DEEP 3D DEGREE, UNSPECIFIED SITE OF LOWER LIMB
94541	BURN NECROSIS DEEP 3D DEGREE, TOE(S) NAIL(S)
94542	BURN NECROSIS DEEP 3D DEGREE, FOOT
94543	BURN NECROSIS DEEP 3D DEGREE, ANKLE
94544	BURN NECROSIS DEEP 3D DEGREE, LOWER LEG
94545	BURN NECROSIS DEEP 3D DEGREE, KNEE
94546	BURN NECROSIS DEEP 3D DEGREE, THIGH (ANY PART)
94549	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE SITES, LOWER LIMB(S)

Code	Diagnosis
9455	BURN OF LOWER LIMB, 3D DEGREE WITH BODY PART LOSS
94550	BURN NECROSIS W BODY PART LOSS, UNSPECIFIED SITE, LOWER LIMB
94551	BURN NECROSIS WITH BODY PART LOSS, TOE(S)
94552	BURN NECROSIS WITH BODY PART LOSS, FOOT
94553	BURN NECROSIS WITH BODY PART LOSS, ANKLE
94554	BURN NECROSIS WITH BODY PART LOSS, LOWER LEG
94555	BURN NECROSIS WITH BODY PART LOSS, KNEE
94556	BURN NECROSIS WITH BODY PART LOSS, THIGH
94559	BURN NECROSIS W BODY PART LOSS, MULTIPLE SITES, LOWER LIMB(S)
9583	POSTTRAUMATIC WOUND INFECTION NOT ELSEWHERE CLASSIFIED
9964	MECHANICAL COMPLICATION, INTERNAL ORTHOPEDIC PROSTHESIS/GRAFT
99652	MECHANICAL COMPLICATION DUE TO GRAFT OF OTH TISSUE, NEC
99662	INFECTION/INFLAMM REACTION, OTH VAS DEVICE/IMPLANT/GRFT
99666	INFECTION/INFLAMM REACTION, INTERNAL JOINT PROSTHESIS
99669	INFECTION/INFLAMM REACTION, OTH INT PROSTH DEV/IMPL/GRFT
99677	OTHER COMPLICATIONS, INTERNAL JOINT PROSTHESIS
99678	OTHER COMPLICATION, OTHER INT ORTHO DEVICE/IMPLANT/GRAFT
9976	LATE AMPUTATION STUMP COMPLICATION
99760	UNSPECIFIED LATE COMPLICATION OF AMPUTATION STUMP
99761	NEUROMA OF AMPUTATION STUMP
99762	INFECTION (CHRONIC) OF AMPUTATION STUMP
99769	OTHER LATE AMPUTATION STUMP COMPLICATION
V090	INFECTION WITH MICROORGANISMS RESISTANT TO PENICILLINS
V528	FITTING AND ADJUSTMENT OF OTHER SPECIFIED PROSTHETIC DEVICE

## Appendix B • Workload Database Data Structures

Following is the data-structure to be used for importing, storing and manipulating the workload data received from PASBA. This file is in dBASE™ III+ datafile format allowing flexibility and compatibility with numerous reporting and analysis software. Additionally, through the use of a software utility developed by the author, this dBASE™ file can be transferred into Microstat™, the statistics analysis software.

**Table 12 Data Structure for: ET\_DATA.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
MTF_RPRT	Character	5	0	Identification Code of the Treating Medical Facility
MEDCEN	Logical	1		Logical flag, coded True if the treating Medical Facility (MTF_RPRT) is a Medical Center (MEDCEN). This field was created by comparing the MTF codes with list of MEDCENS.
SSN	Character	9	0	Social Security Number of Patient (stripped out at a later date).
DATE_DISPC	Character	6	0	Date of disposition in character format (as downloaded from PASBA).
DATE_DISP	Date	8	0	Date of disposition converted into date type.
SITE_OCCUR	Character	2	0	Site where trauma occurred.
ZIP_CODE	Character	5	0	Zip-Code of patient residence as taken off admitting form, used for Market Mapping Analysis.
CATCH_AREA	Character	6	0	Catchment area of treating facility.
GENDER	Character	1	0	Gender of patient.
AGE	Numeric	5	2	Age of Patient in years, and fractions of years. Converted from AGE_DISP into numeric format to allow calculations.
AGE_DISP	Character	3	0	Age of patient in months or years, character type as downloaded from PASBA.
RACE	Character	1	0	Race of patient.
PAT_CAT	Character	3	0	Beneficiary category of patient, i.e. active duty Army or Army retiree dependent.
GRADE	Character	2	0	Pay grade of patient if military.

Field Name	Type	Width	Dec	Description of Field Contents
ADM_SRC	Character	1	0	Source of admission.
DISP_TYPE	Character	2	0	Type of disposition.
TRAUMA_TYP	Character	1	0	Type of trauma.
INJURY_XCS	Character	3	0	Cause of injury.
BEDBAS_DAY	Numeric	4	0	Total in-House bed or bassinet days (includes ICU days).
BEDDAY_ICU	Numeric	3	0	In-House ICU days.
BEDICU_SUM	Numeric	4	0	Total ICU bed days of patient.
BEDDAY_CIV	Numeric	4	0	Bed days spent in civilian institution.
BEDDAY_FED	Numeric	4	0	Bed days spent in other federal institutions.
DAYCONVLVE	Numeric	4	0	Bed days spent in convalescent facility.
DAYCOOPCAR	Numeric	4	0	Bed days spent in cooperative care.
DAYMEDHOLD	Numeric	4	0	Bed days spent in medical hold.
DAYOTHER	Numeric	4	0	Bed days not included in above.
DAYSUPLCAR	Numeric	4	0	Bed days supplemental care.
DAYTOTSICK	Numeric	5	0	Total bed days utilized by patient including all sources.
DIAGNOS_1	Character	6	0	Primary diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_2	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_3	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_4	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_5	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_6	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_7	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
DIAGNOS_8	Character	6	0	Next leading diagnosis, utilizing ICD-9-CM diagnosis codes.
PROCEDR_1	Character	4	0	Primary procedural code.
PROC1_QTY	Numeric	1	0	Number of procedures performed.
PROC1_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_2	Character	4	0	Procedure code.
PROC2_QTY	Numeric	1	0	Number of procedures performed.
PROC2_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_3	Character	4	0	Procedure code.
PROC3_QTY	Numeric	1	0	Number of procedures performed.
PROC3_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.

Field Name	Type	Width	Dec	Description of Field Contents
PROCEDR_4	Character	4	0	Procedure code.
PROC4_QTY	Numeric	1	0	Number of procedures performed.
PROC4_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_5	Character	4	0	Procedure code.
PROC5_QTY	Numeric	1	0	Number of procedures performed.
PROC5_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_6	Character	4	0	Procedure code.
PROC6_QTY	Numeric	1	0	Number of procedures performed.
PROC6_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_7	Character	4	0	Procedure code.
PROC7_QTY	Numeric	1	0	Number of procedures performed.
PROC7_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
PROCEDR_8	Character	4	0	Procedure code.
PROC8_QTY	Numeric	1	0	Number of procedures performed.
PROC8_SITE	Character	1	0	Facility site where procedure performed, e.g. in-house or not.
CMI_CHAMP	Numeric	8	4	Case Mix Index based on CHAMPUS Diagnosis Related Group (DRG) code.
DRG_CHAMP	Character	3	0	CHAMPUS Diagnosis Related Group (DRG) code.
CMI_HCFA	Numeric	7	4	Case Mix Index based on HCFA Diagnosis Related Group (DRG) code.
DRG_HCFA	Character	3	0	HCFA Diagnosis Related Group (DRG) code.
AMPUTATION	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates an amputation occurred.
LOWER_EXTR	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates the lower extremities were involved.
CRUSHING	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a crushing trauma occurred.
FRACTROPEN	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving open fractures or dislocations occurred.
COMPL_OTHR	Logical	1	0	Logical flag indicating true if any diagnosis code indicates that other complications of an orthopedic nature occurred.
PROSTHESIS	Logical	1	0	Logical flag indicating true if any diagnosis code indicates prostheses work or complications occurred.
BURN_XTREM	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a burn to the extremity occurred.

Field Name	Type	Width	Dec	Description of Field Contents
PICK_IT	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving extremities occurred. Used to select records for analysis.
EXT_TRAUMA	Character	8	0	Character code string that indicates what category each diagnosis 1 through 8 was. Codes used are: "A" for amputations, "B" for burns, "F" for open fractures, "C" for crushing, "O" for other complications, "P" for prostheses and "-" was used to indicate if the diagnosis code was not applicable to extremity trauma. This allowed selection of cases that had a primary diagnosis of extremity trauma by asking for cases without a "-" in the first space of this field.
MAPLINXCNT	Numeric	1	0	Used by MAPLinX software for counting cases.

The following structure is used for transferring the basic workload data file into Microstat™ for statistical analysis.

**Table 13 Data structure for: ETPRIMES.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
MTF_RPRT	Character	5	0	Identification Code of the Treating Medical Facility
BAMC	Numeric	1	0	Logical flag indicating True if treatment provided at BAMC
MEDCEN	Logical	1	0	Logical flag indicating True if treatment provided at an MTF identified as a Medical Center.
DATE_DISP	Date	8	0	Date of disposition converted into date type.
DATE	Numeric	6	0	Date of disposition converted into a numeric suitable for processing by Microstat™, since later dates will have higher values. Considered an interval variable type.
YEAR	Numeric	1	0	Numeric indicator as to which of the five years from the sample the treatment disposition occurred. Coded 1 through 5, based upon the date disposition field/
GENDER	Character	1	0	Gender of patient.
MALENESS	Numeric	1	0	Numeric coded 1 if patient is a male, 0 otherwise. Suitable for Microstat™ processing.
AGE	Numeric	5	2	Age of Patient in years, and fractions of years. Converted from AGE_DISP into numeric format to allow calculations.
RACE	Character	1	0	Race of patient.
TRAUMA_TYP	Character	1	0	Type of trauma.

Field Name	Type	Width	Dec	Description of Field Contents
NOT_TRAUMA	Numeric	1	0	Numeric binary variable coded 1 if not a trauma case, 0 if otherwise. Based upon Trauma type code.
TRAUMA_0	Numeric	1	0	Numeric binary variable coded 1 if trauma due to direct result of action (WAR), 0 if otherwise. Based upon Trauma type code.
TRAUMA_1	Numeric	1	0	Numeric binary variable coded 1 if trauma due to other battle casualties, 0 if otherwise. Based upon Trauma type code.
TRAUMA_2	Numeric	1	0	Numeric binary variable coded 1 if trauma due to intervention by legal authority, 0 if otherwise. Based upon Trauma type code.
TRAUMA_3	Numeric	1	0	Numeric binary variable coded 1 if trauma due to assault or intentionally inflicted, 0 if otherwise. Based upon Trauma type code.
TRAUMA_4	Numeric	1	0	Numeric binary variable coded 1 if trauma intentionally self-inflicted, 0 if otherwise. Based upon Trauma type code.
TRAUMA_5	Numeric	1	0	Numeric binary variable coded 1 if trauma occurred while off duty, 0 if otherwise. Based upon Trauma type code.
TRAUMA_6	Numeric	1	0	Numeric binary variable coded 1 if trauma due to schemes, maneuvers or exercises, 0 if otherwise. Based upon Trauma type code.
TRAUMA_7	Numeric	1	0	Numeric binary variable coded 1 if trauma due to scheduled training, 0 if otherwise. Based upon Trauma type code.
TRAUMA_8	Numeric	1	0	Numeric binary variable coded 1 if trauma while on duty except 6 or 7, 0 if otherwise. Based upon Trauma type code.
TRAUMA_9	Numeric	1	0	Numeric binary variable coded 1 if trauma is non-military injury, or unknown duty, 0 if otherwise. Based upon Trauma type code.
PAT_CAT	Character	3	0	Beneficiary category of patient, i.e. active duty Army or Army retiree dependent.
ACTIVEDUTY	Logical	1	0	Logical flag indicating True if beneficiary category of patient (PAT_CAT above), is active duty.
GRADE	Character	2	0	Pay grade of patient if military.
BEDBAS_DAY	Numeric	4	0	Total in-House bed or bassinet days (includes ICU days).
BEDDAY_ICU	Numeric	3	0	In-House ICU days.
BEDICU_SUM	Numeric	4	0	Total ICU bed days of patient.
BEDDAY_CIV	Numeric	4	0	Bed days spent in civilian institution.
BEDDAY_FED	Numeric	4	0	Bed days spent in other federal institutions.
DAYCONVLVE	Numeric	4	0	Bed days spent in convalescent facility.

Field Name	Type	Width	Dec	Description of Field Contents
DAYCOOPCAR	Numeric	4	0	Bed days spent in cooperative care.
DAYMEDHOLD	Numeric	4	0	Bed days spent in medical hold.
DAYOTHER	Numeric	4	0	Bed days not included in above.
DAYSUPLCAR	Numeric	4	0	Bed days supplemental care.
DAYTOTSICK	Numeric	5	0	Total bed days utilized by patient including all sources.
CMI_CHAMP	Numeric	8	4	Case Mix Index based on CHAMPUS Diagnosis Related Group (DRG) code.
CMI_HCFA	Numeric	7	4	Case Mix Index based on HCFA Diagnosis Related Group (DRG) code.
AMPUTATION	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicated an amputation occurred.
LOWER_EXTR	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates the lower extremities were involved.
CRUSHING	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a crushing trauma occurred.
FRACTROPEN	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving open fractures or dislocations occurred.
COMPL_OTHR	Logical	1	0	Logical flag indicating true if any diagnosis code indicates that other complications of an orthopedic nature occurred.
PROSTHESIS	Logical	1	0	Logical flag indicating true if any diagnosis code indicates prostheses work or complications occurred.
BURN_XTREM	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a burn to the extremity occurred.
PICK_IT	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving extremities occurred. Used to select records for analysis.
EXT_TRAUMA	Character	8	0	Character code string that indicates what category each diagnosis 1 through 8 was. A for amputations, B for burns, F for open fractures, C for crushing, O for other complications and P for prostheses. A "-" was used to indicate if the diagnosis code was not applicable to extremity trauma. This allowed selection of cases that had a primary diagnosis of extremity trauma by asking for cases without a "-" in the first space of this field.

This data structure used as a look-up table for the trauma codes.

**Table 14 Data structure for: TRAUMCOD.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
TRAUMA_TYP	Character	1	0	Code indicating type of trauma.
TRAUMA	Character	27	0	Description of trauma

The following table is used as a look-up table for the patient beneficiary category codes.

**Table 15 Structure for: PATCAT.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
PAT_CAT	Character	3	0	Beneficiary category of patient, i.e. active duty Army or Army retiree dependent.
CATEGORY	Character	25	0	Description of the patient beneficiary category

The following table is used as a look-up table for the procedure codes and for identifying which procedures are applicable to extremity trauma categories.

**Table 16 Structure for: PROCODE.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
PROC_CODE	Character	4	0	Procedure code.
PROCEDURE	Character	65	0	Procedure description
PICK_IT	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving extremities occurred. Used to select records for analysis.
AMPUTATION	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates an amputation occurred.
LOWER_EXTR	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates the lower extremities were involved.
CRUSHING	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a crushing trauma occurred.
FRACTROPEN	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving open fractures or dislocations occurred.
COMPL_OTHR	Logical	1	0	Logical flag indicating true if any diagnosis code indicates that other complications of an orthopedic nature occurred.
PROSTHESIS	Logical	1	0	Logical flag indicating true if any diagnosis code indicates prostheses work or complications occurred.
BURN_XTREM	Logical	1	0	Logical flag indicating true if any diagnosis code

EXT_TRAUMA	Character	8	0	indicates a burn to the extremity occurred. Character code string that indicates what category each diagnosis 1 through 8 was. A for amputations, B for burns, F for open fractures, C for crushing, O for other complications and P for prostheses. A "-" was used to indicate if the diagnosis code was not applicable to extremity trauma. This allowed selection of cases that had a primary diagnosis of extremity trauma by asking for cases without a "-" in the first space of this field.
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The following table is used as a look-up table for the Medical Treatment Facility (MTF) codes and for identifying which MTFs are considered MEDCENS.

**Table 17 Structure for: MTFCODE.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
MTF_RPRT	Character	5	0	Identification Code of the Treating Medical Facility
MTF_NAME	Character	25	0	Name of the MTF being described
MEDCEN	Logical	1	0	Logical flag indicating if the MTF is considered a MEDCEN

The following table is used as a look-up table for the Patient Disposition codes.

**Table 18 Structure for: DISPOSN.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
DISP_TYPE	Character	2	0	Type of Disposition Code
DISPOSTION	Character	25	0	Disposition description

The following table is used as a look-up table for the Cause of Injury codes.

**Table 19 Structure for: CAUINJ.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
INJURY_XCS	Character	3	0	Cause of Injury Code
CAUSE_INJR	Character	60	0	Description of injury code

The following table is used as a look-up table for the Catchment Area codes.

**Table 20 Structure for: CATCH.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
CATCH_AREA	Character	6	0	Catchment Area Code
CATCHMENT	Character	25	0	Facility controlling the catchment area

The following table is used as a look-up table for the CHAMPUS DRG codes and for identifying which CHAMPUS DRGs are applicable to extremity trauma categories, and for also calculating the allowable billings for a particular DRG.

**Table 21 Structure for: CHAMPDRG.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
DRG_CHAMP	Character	3	0	CHAMPUS Diagnosis Related Group (DRG) code.
DESCRIPT	Character	65	0	Description of the CHAMPUS DRG code
PICK_IT	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving extremities occurred. Used to select records for analysis.
CHAMP_WGT	Numeric	7	4	CHAMPUS beneficiary cost-share per diem rate under the DRG based-payment system. Entered by the author based upon DOD Federal Register.
MEAN_LOS	Numeric	5	2	Average length of stay for that DRG across all MTFs.
SHORT_STAY	Numeric	2	0	Unknown
LONG_STAY	Numeric	2	0	Unknown

The following table is used as a look-up table for the diagnosis codes and for identifying which diagnoses are applicable to extremity trauma categories.

**Table 22 Structure for: DIAGCODE.dbf**

Field Name	Type	Width	Dec	Description of Field Contents
DIAG_CODE	Character	6	0	Diagnosis code utilizing the ICD-9-CM listing
DIAGNOSIS	Character	65	0	Textual description of the diagnosis
PICK_IT	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving extremities occurred. Used to select records for analysis.
AMPUTATION	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates an amputation occurred.
LOWER_EXTR	Logical	1	0	Logical flag indicating true if any diagnosis code or procedural code indicates the lower extremities were involved.
CRUSHING	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a crushing trauma occurred.
FRACTROPEN	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a trauma involving open fractures or dislocations occurred.
COMPL_OTHR	Logical	1	0	Logical flag indicating true if any diagnosis code indicates that other complications of an orthopedic nature occurred.

Field Name	Type	Width	Dec	Description of Field Contents
PROSTHESIS	Logical	1	0	Logical flag indicating true if any diagnosis code indicates prostheses work or complications occurred.
BURN_XTREM	Logical	1	0	Logical flag indicating true if any diagnosis code indicates a burn to the extremity occurred.
EXT_TRAUMA	Character	8	0	Character code string that indicates what category each diagnosis 1 through 8 was. A for amputations, B for burns, F for open fractures, C for crushing, O for other complications and P for prostheses. A "-" was used to indicate if the diagnosis code was not applicable to extremity trauma. This allowed selection of cases that had a primary diagnosis of extremity trauma by asking for cases without a "-" in the first space of this field.
EXTREMITY	Logical	1	0	Logical flag indicating true if any diagnosis code indicates an injury to an extremity occurred.

## Appendix C • Market Base

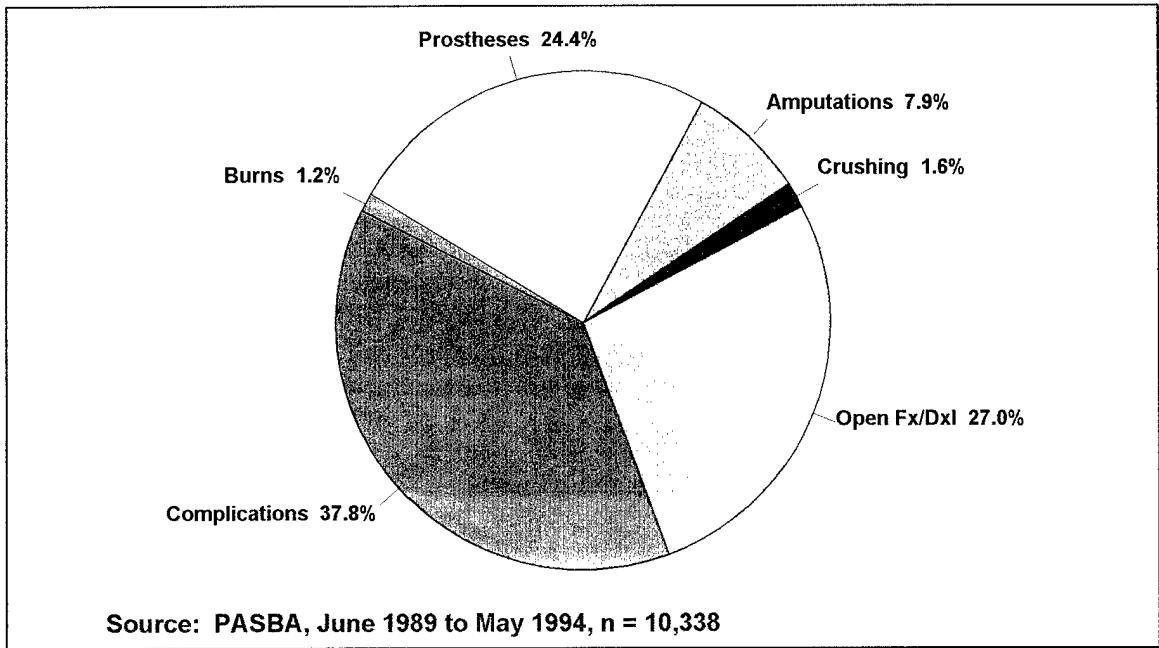


Figure 10 Extremity trauma cases grouped by primary diagnosis, all MEDCOM

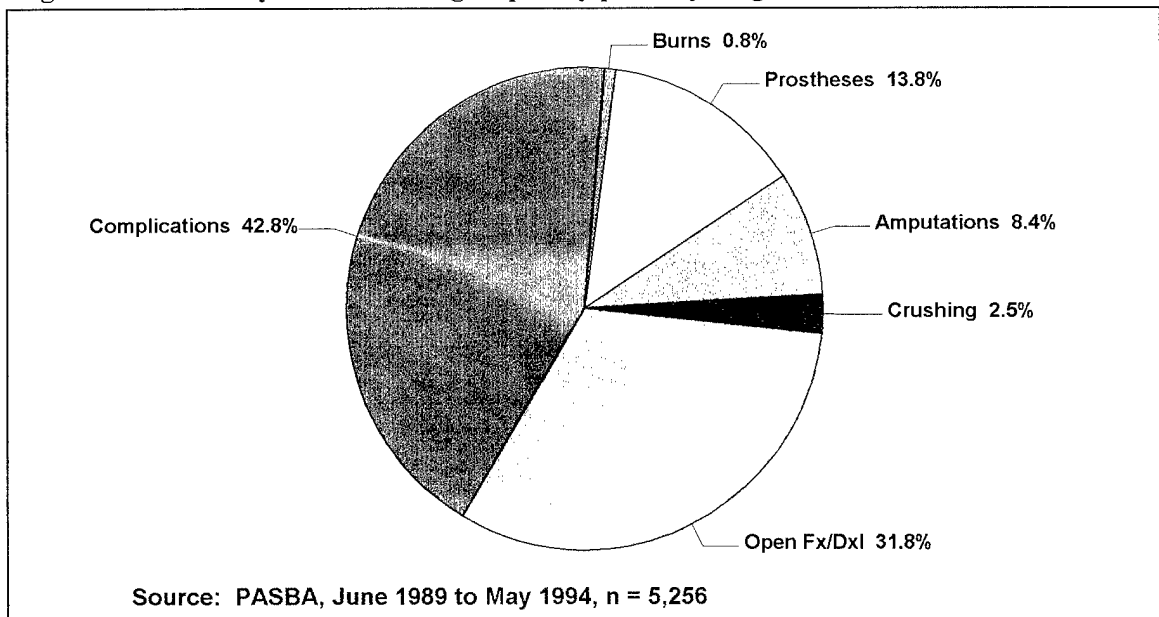


Figure 11 Army MEDDAC Extremity trauma caseload grouped by primary diagnostic category

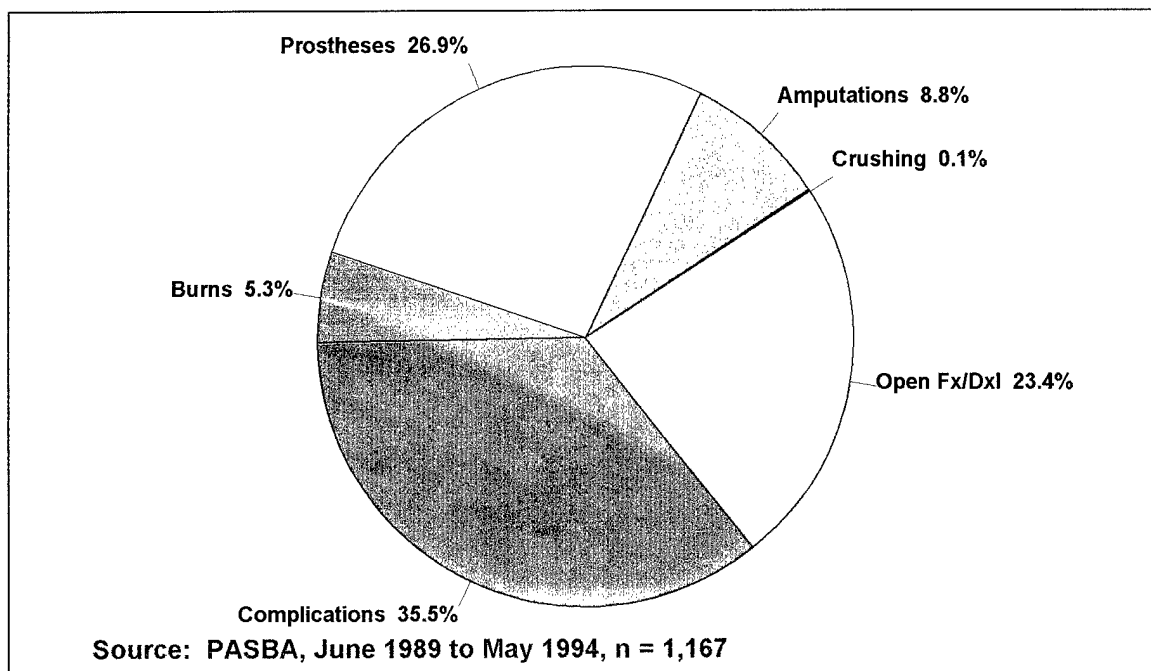


Figure 12 BAMC's Extremity trauma caseload grouped by primary diagnosis category

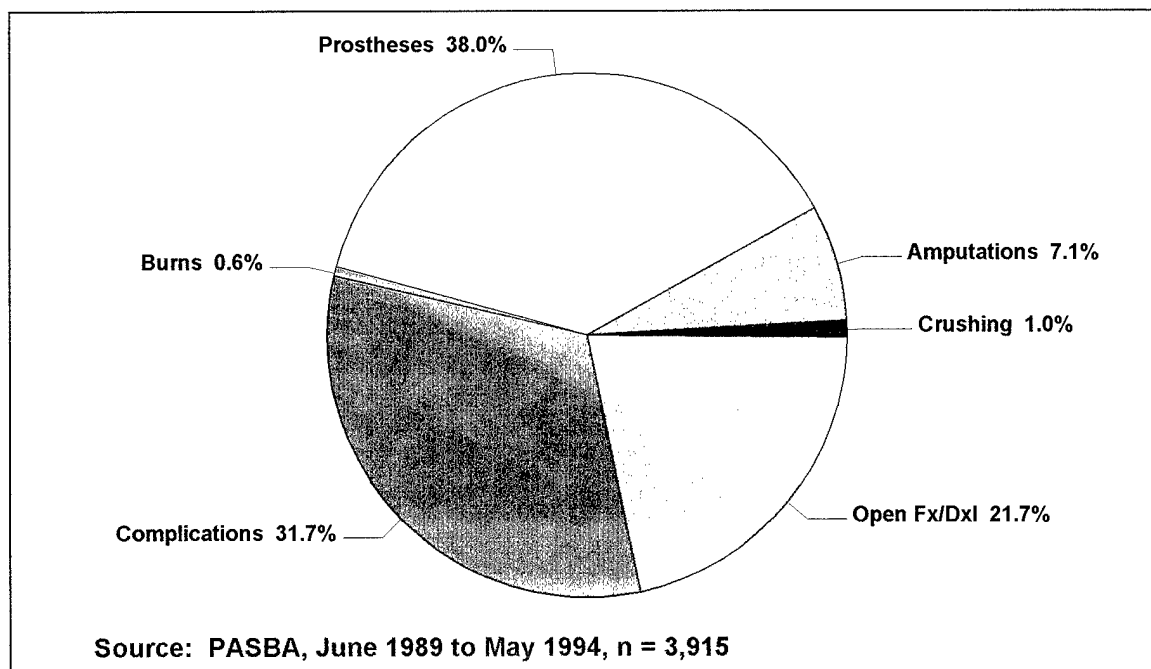


Figure 13 Extremity Trauma cases treated at other MEDCENS, excluding BAMC

## Appendix D • Bed Day Mix by Diagnosis

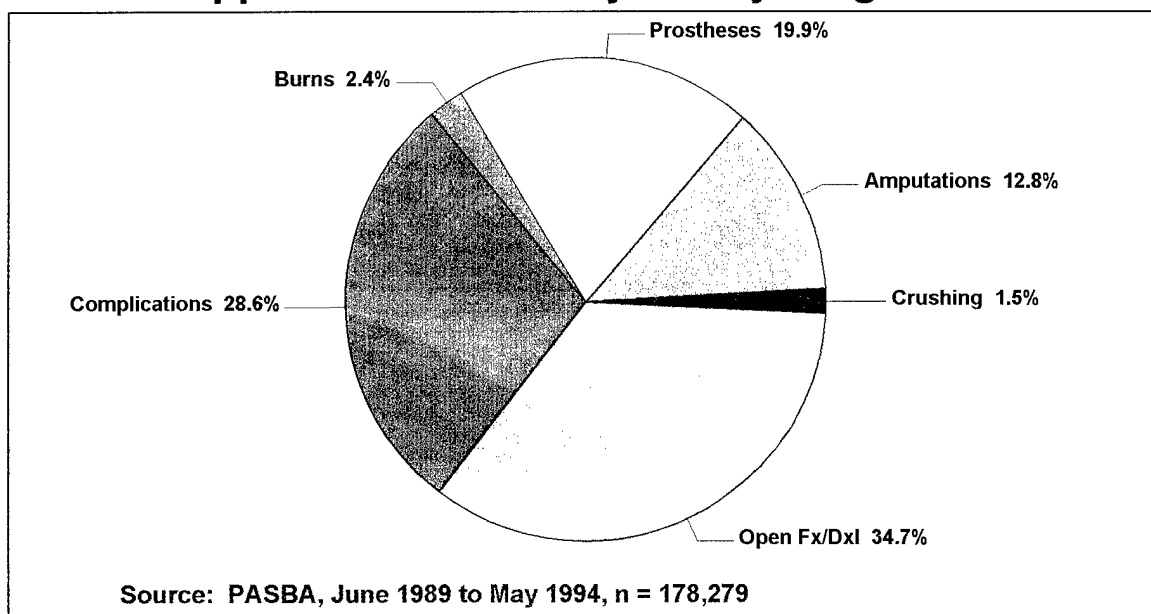


Figure 14 All Army bed utilization grouped by primary diagnostic category

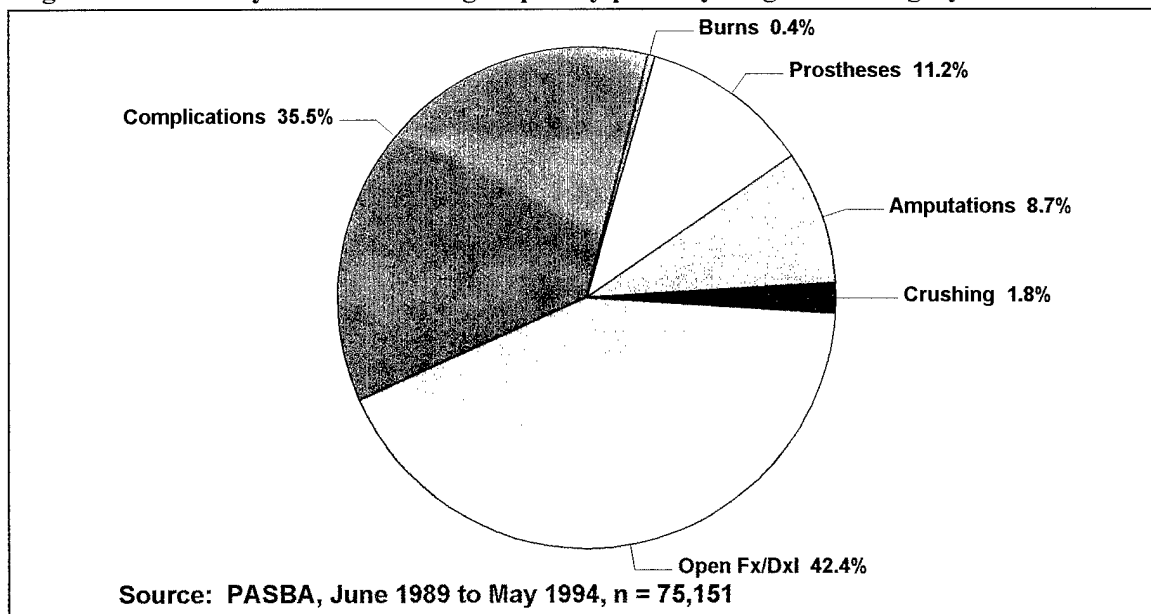


Figure 15 Army MEDDACs' bed utilization grouped by primary diagnostic category

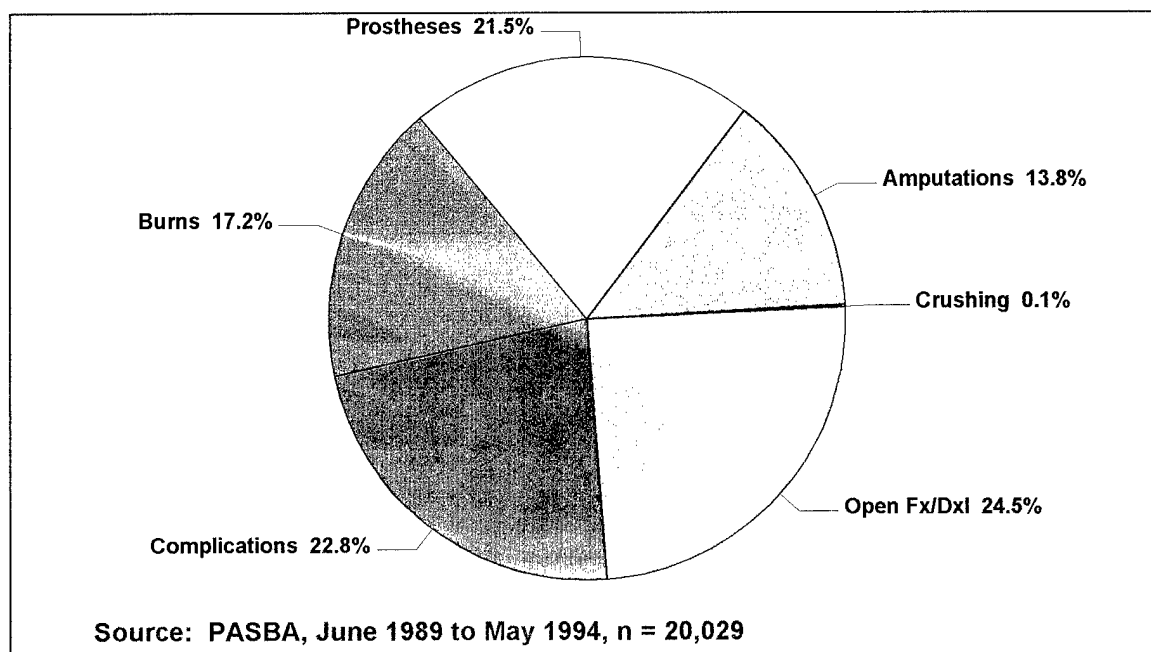


Figure 16 BAMC's bed utilization grouped by primary diagnostic category

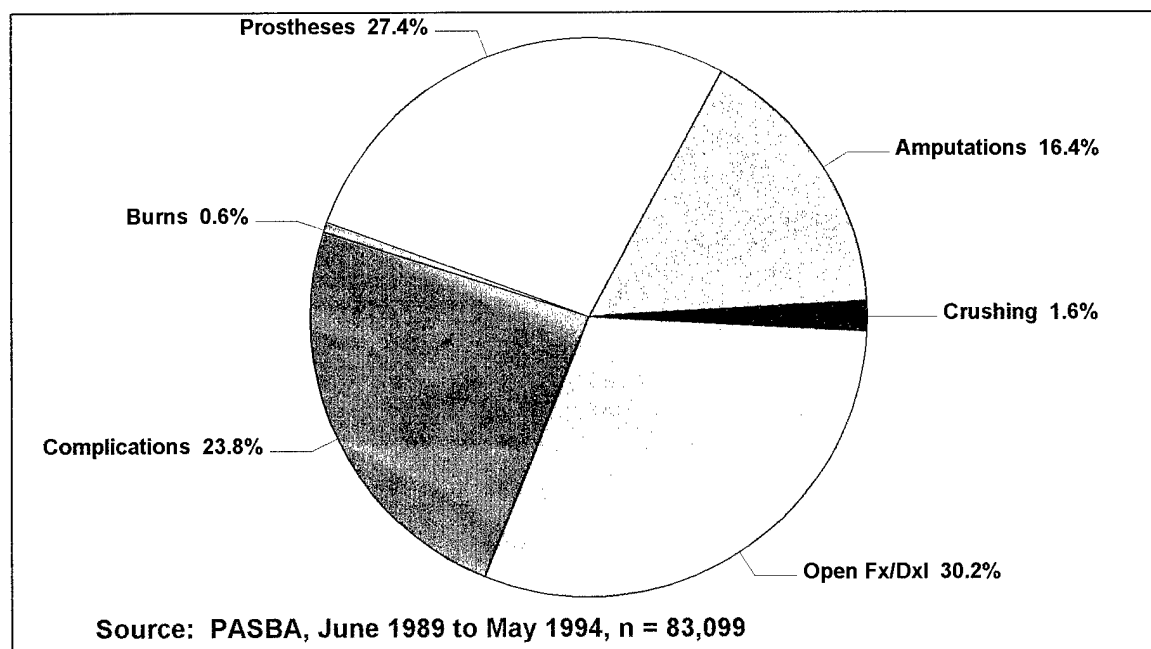
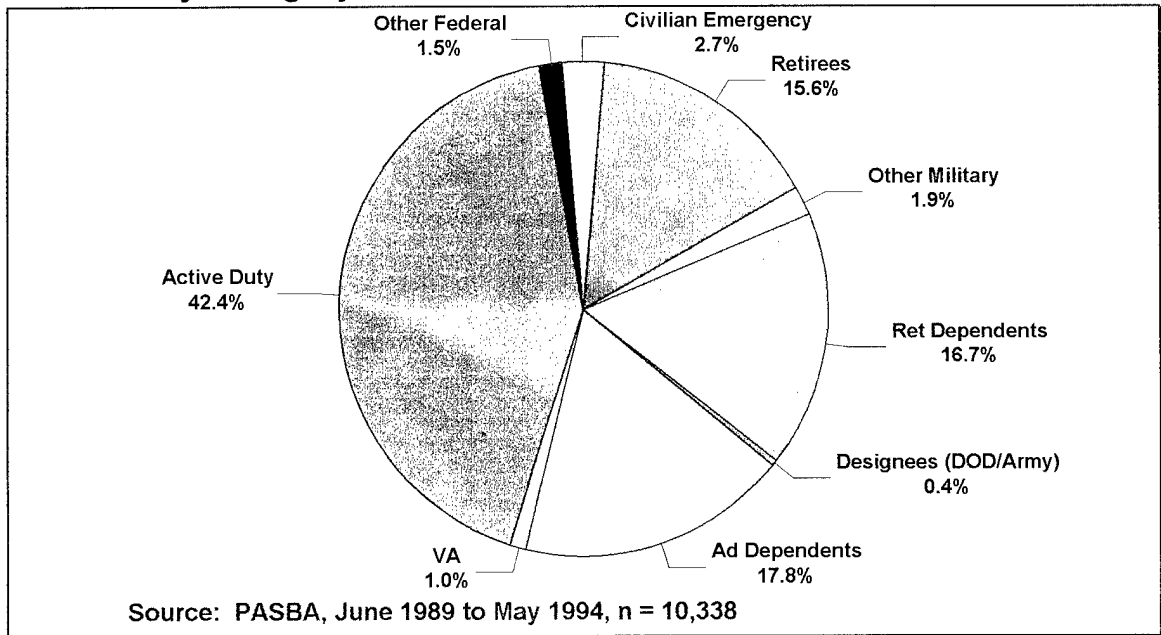


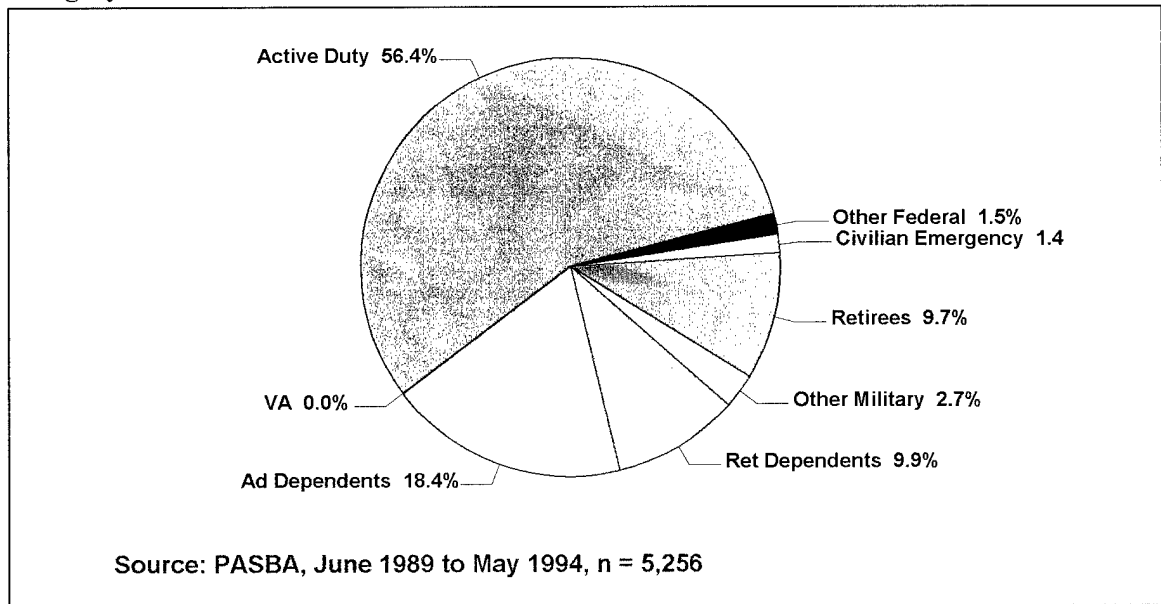
Figure 17 Other Army MEDCENS' (excluding BAMC) bed utilization grouped by primary diagnostic category

## Appendix E • Population

### Beneficiary Category



**Figure 18** All extremity trauma cases treated at Army MTFs grouped by beneficiary category.



**Figure 19** Extremity trauma cases treated at Army MEDDACs grouped by beneficiary category.

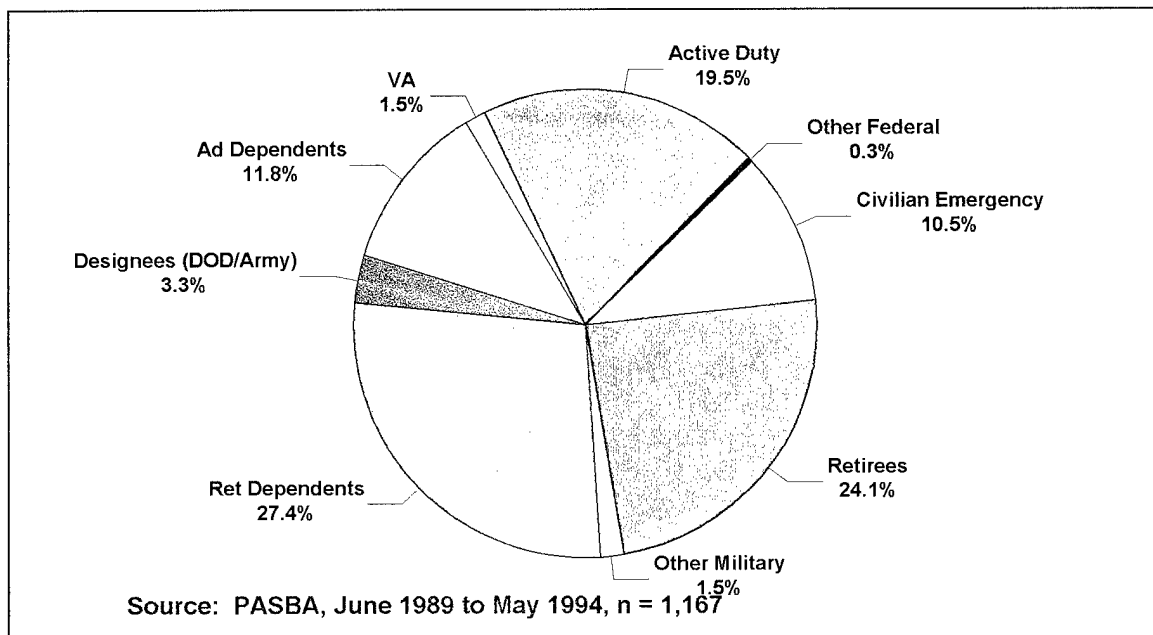


Figure 20 All extremity trauma cases treated at BAMC grouped by beneficiary category.

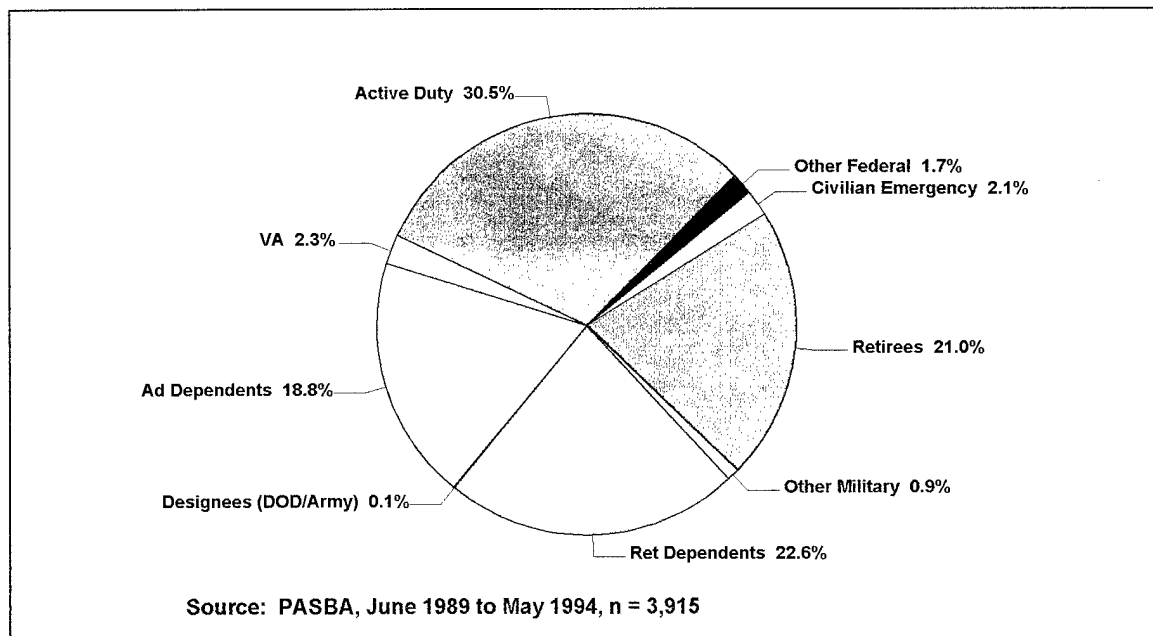
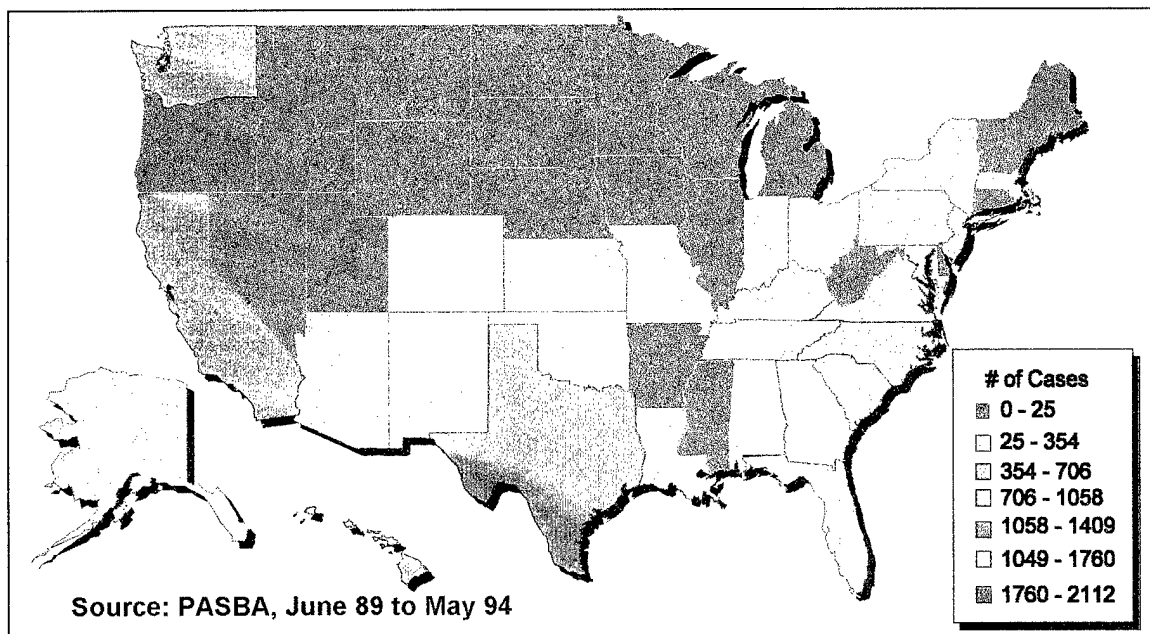


Figure 21 Extremity trauma cases treated at Army MEDCENs, excluding BAMC, grouped by beneficiary category.

## Geographic Residence



**Figure 22** All extremity trauma thematic map of cases by patient residence zipcode

The map (*Figure 23*) shown indicates a total of 1,135 cases for BAMC, 736 for WBAMC, 629 for MAMC, 493 for WRAMC, and 630 for FAMC. Due to some zipcodes, such as APOs, not being registered in the software's (MapLinX™) database, the number of cases does not agree exactly with total counts from the PASBA datafile.

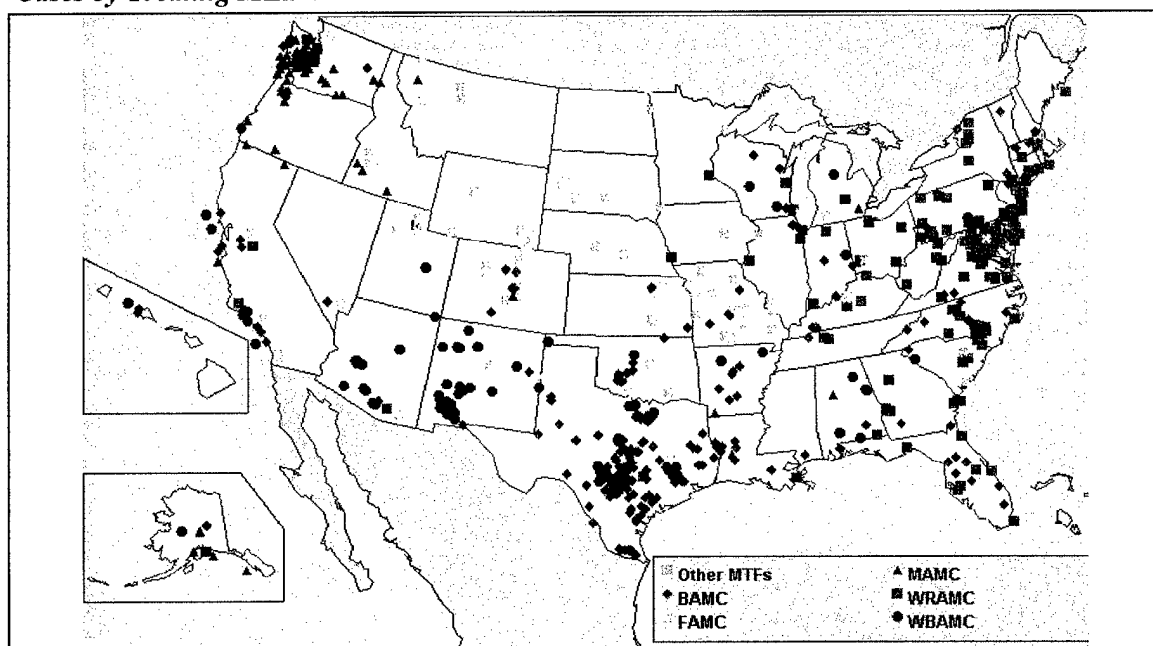
*Cases by Treating MEDCEN*

Figure 23 Map showing geographic distribution of caseload by major Army MEDCEN.  
Source: PASBA, period June 1989 to May 1994, n = 9,785.

## Appendix F • Workload Distribution by MTF

### Categories by MTF (Pareto Analysis)

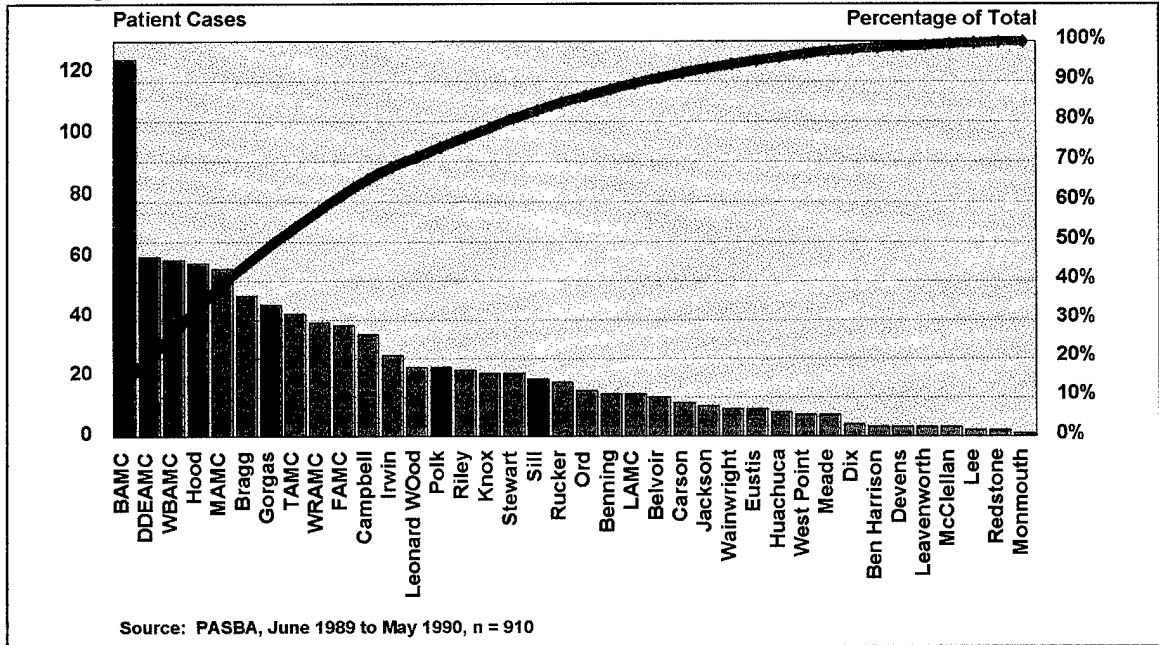


Figure 24 Pareto chart showing amputation extremity trauma by treating MTF

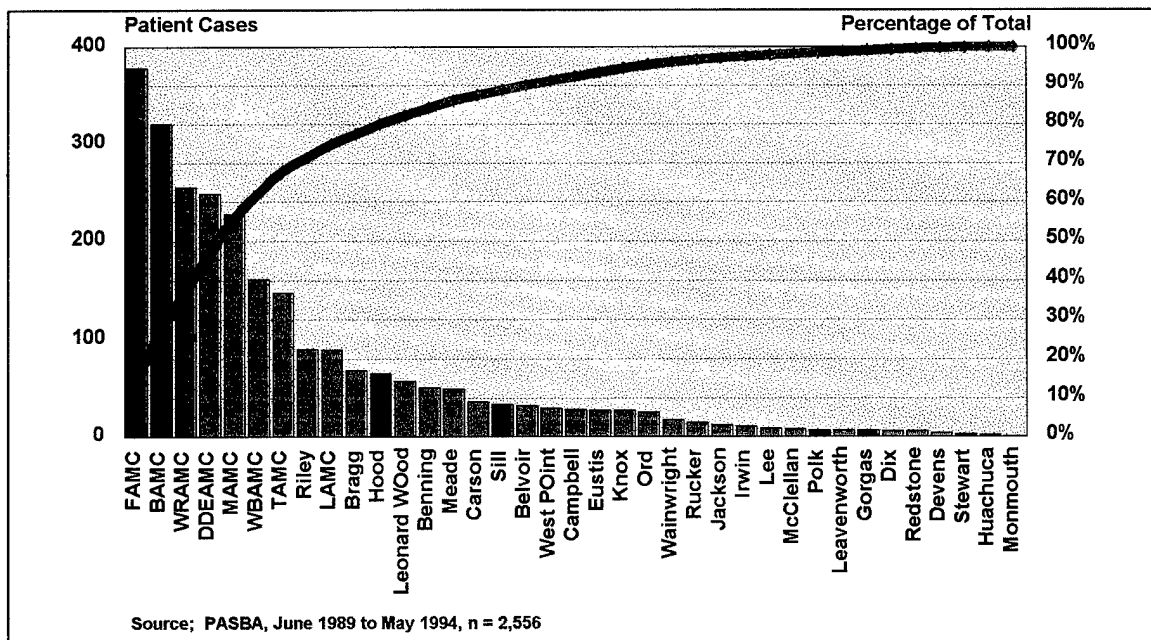


Figure 25 Pareto chart showing extremity prostheses workload by treating MTF

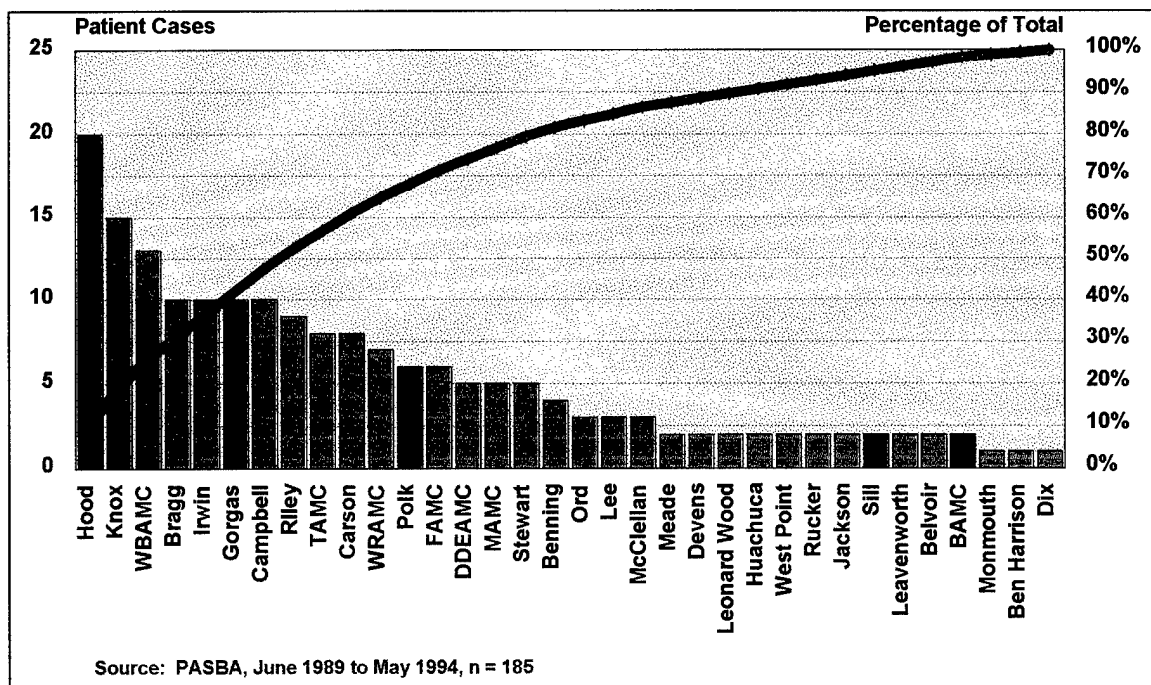


Figure 26 Pareto chart showing extremity crushing injuries by treating MTF

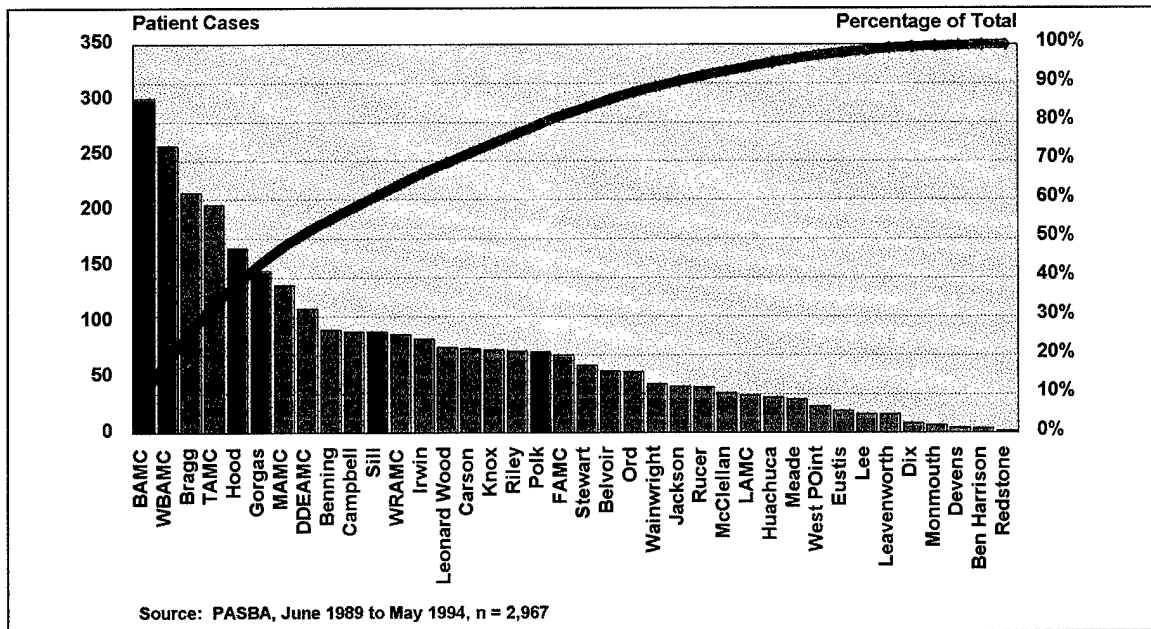


Figure 27 Pareto chart showing open fractures and dislocations by treating MTF

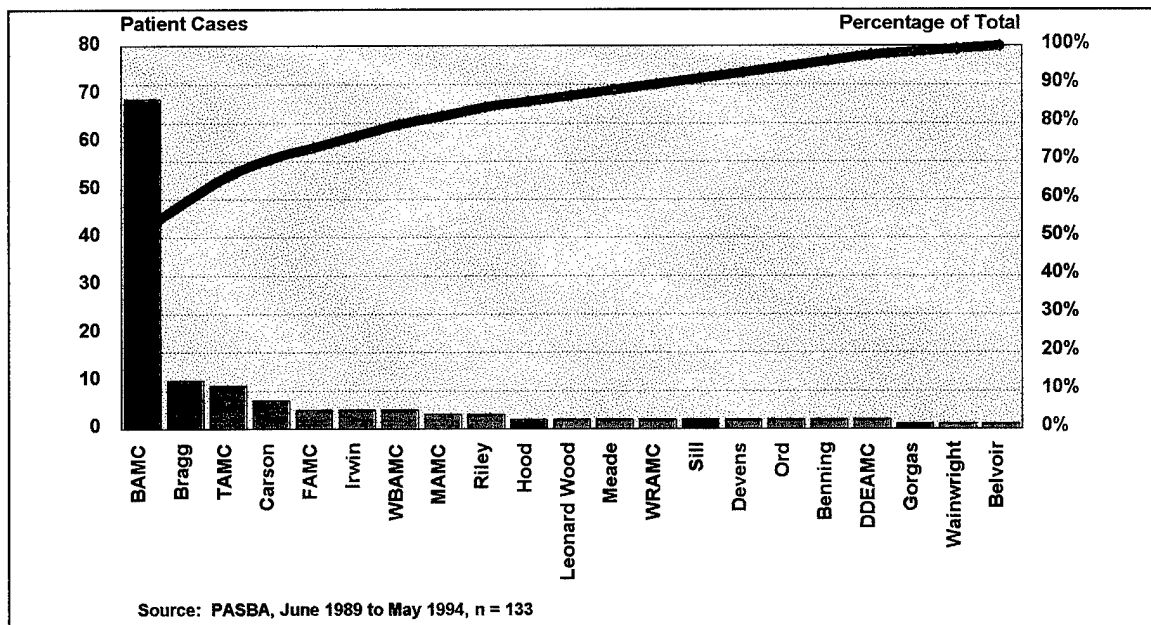


Figure 28 Pareto chart showing burns to extremities by treating MTF

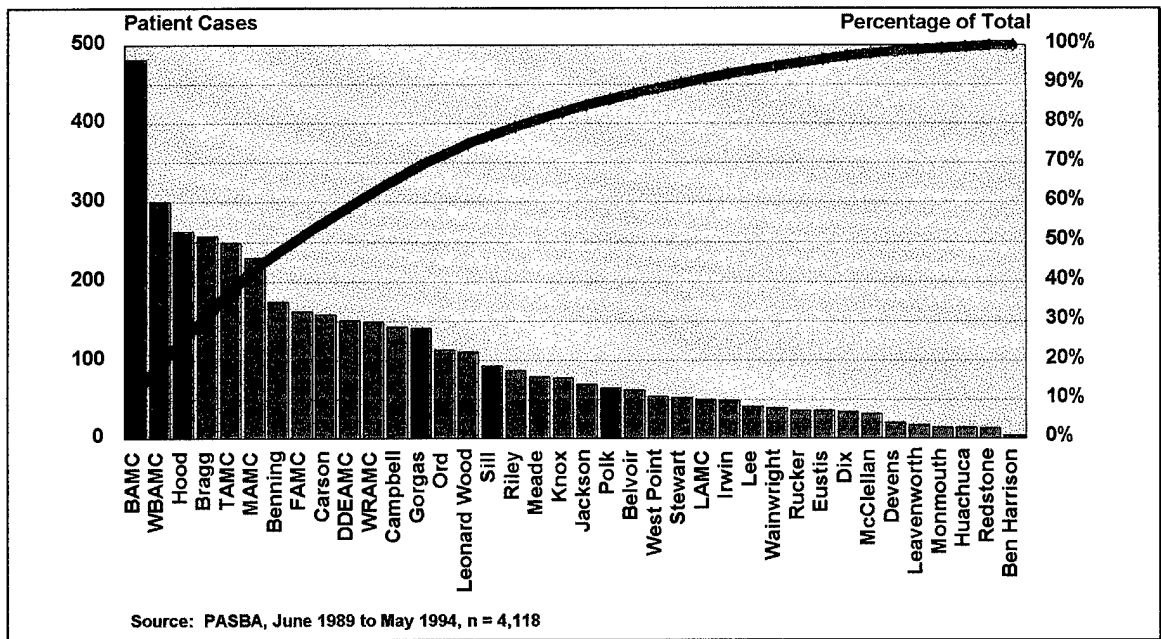
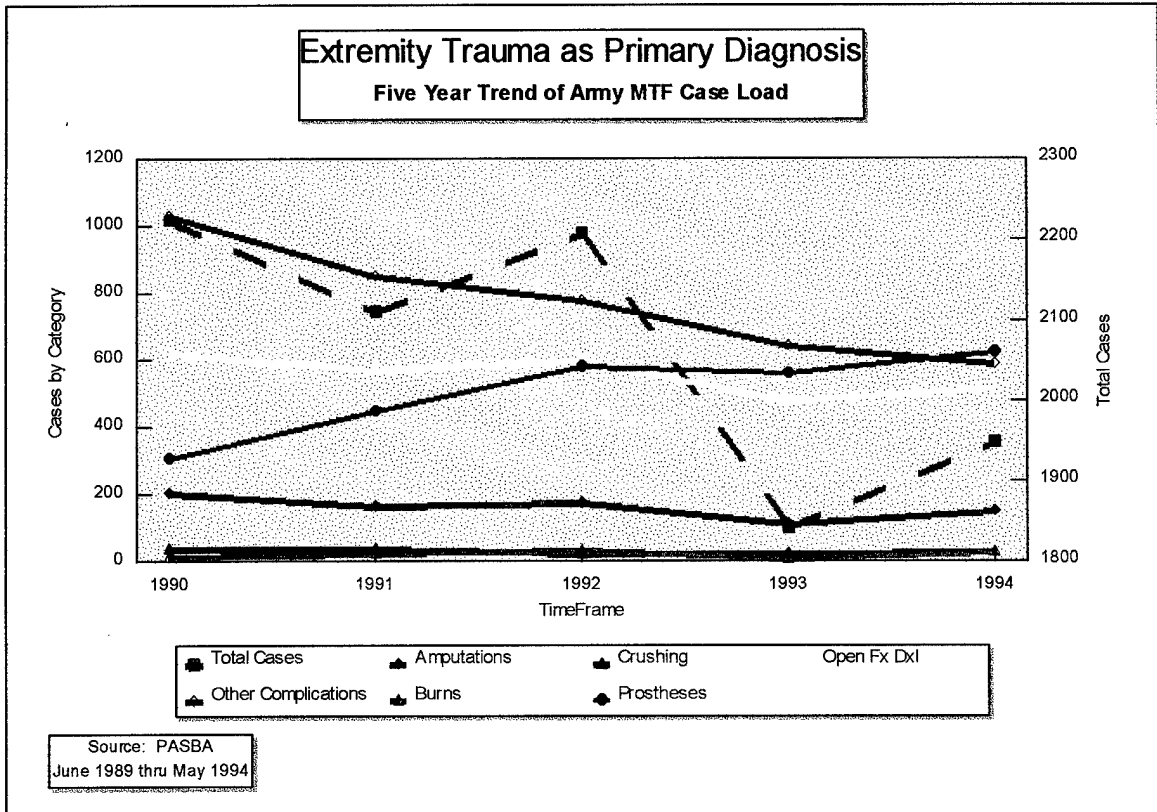


Figure 29 Pareto chart showing extremity visceral complications by treating MTF

## Appendix G • Trend Analysis



**Figure 30** Trend chart showing MEDCOM extremity workload by major diagnostic category. Includes trend line indicating total workload over five year period.

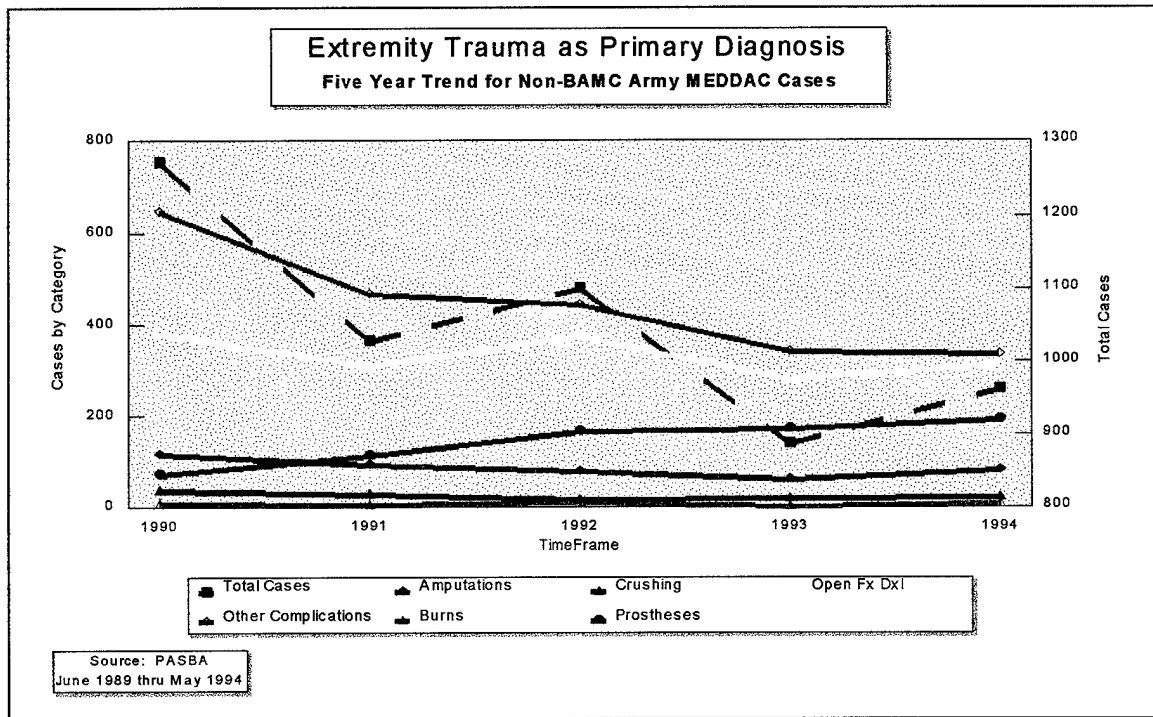


Figure 31 Trend chart showing MEDDACs' extremity workload by major diagnostic category. Includes trend line indicating total workload over five year period.

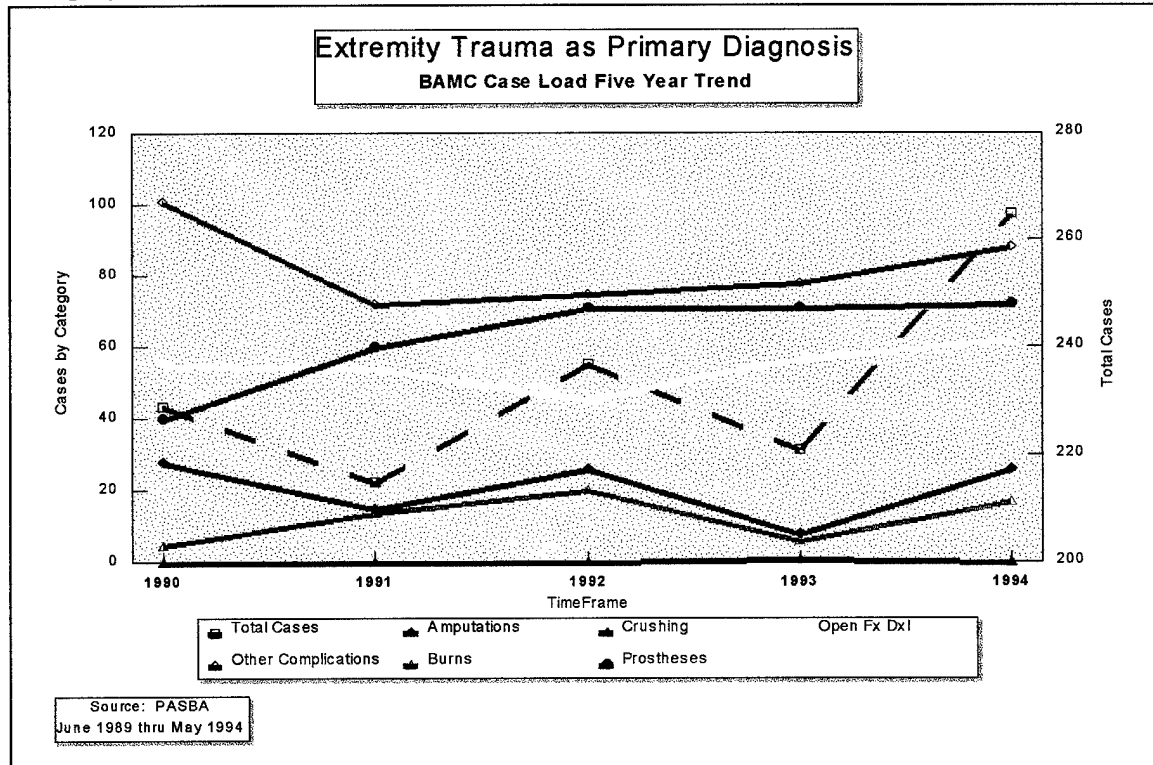
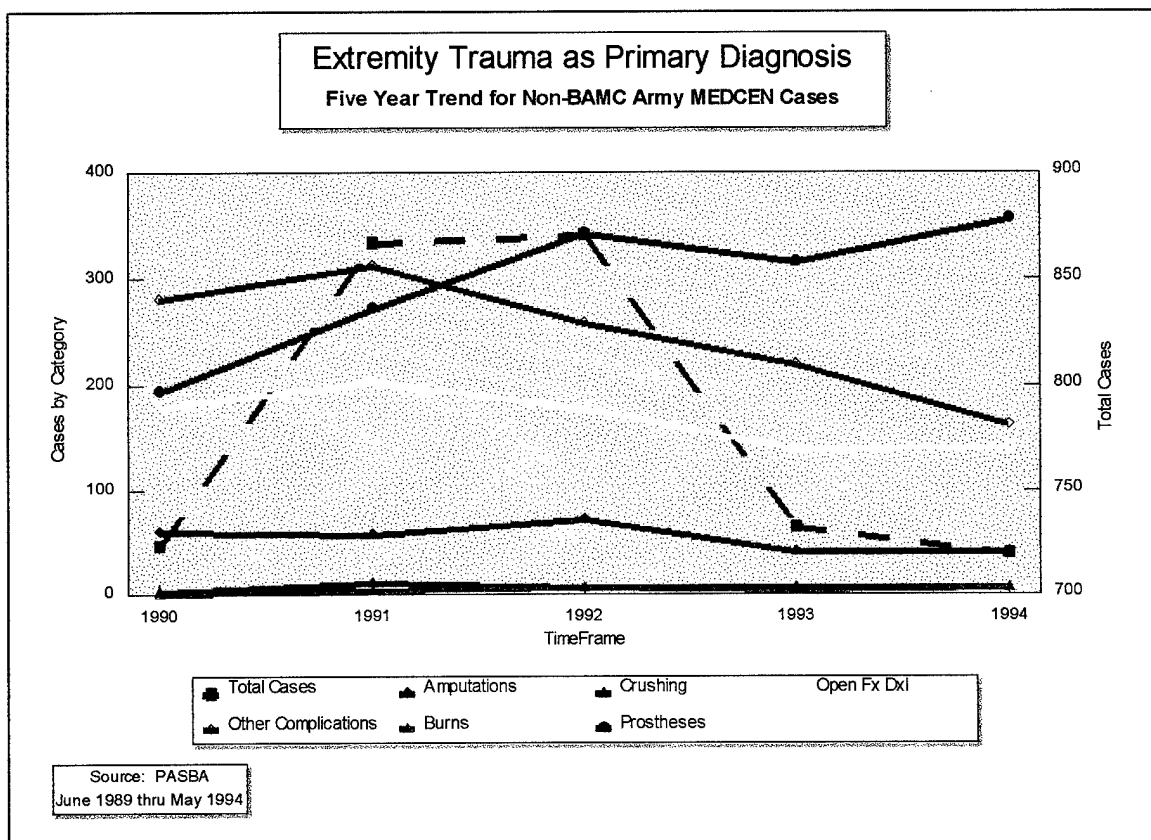


Figure 32 Trend chart showing BAMC's extremity workload by major diagnostic category. Includes trend line indicating total workload over five year period.



**Figure 33** Trend chart showing MEDCENs' extremity workload by major diagnostic category. Excludes BAMC workload. Includes trend line indicating total workload over five year period.

## Appendix H • BAMC to PEER Comparison

### ALOS of Workload by Diagnostic Category

The ALOS for each of the following groups of facilities were plotted showing the ALOS for each diagnostic category and the bed types utilized. The Y scale is the same in each graph to allow for graphical comparisons.

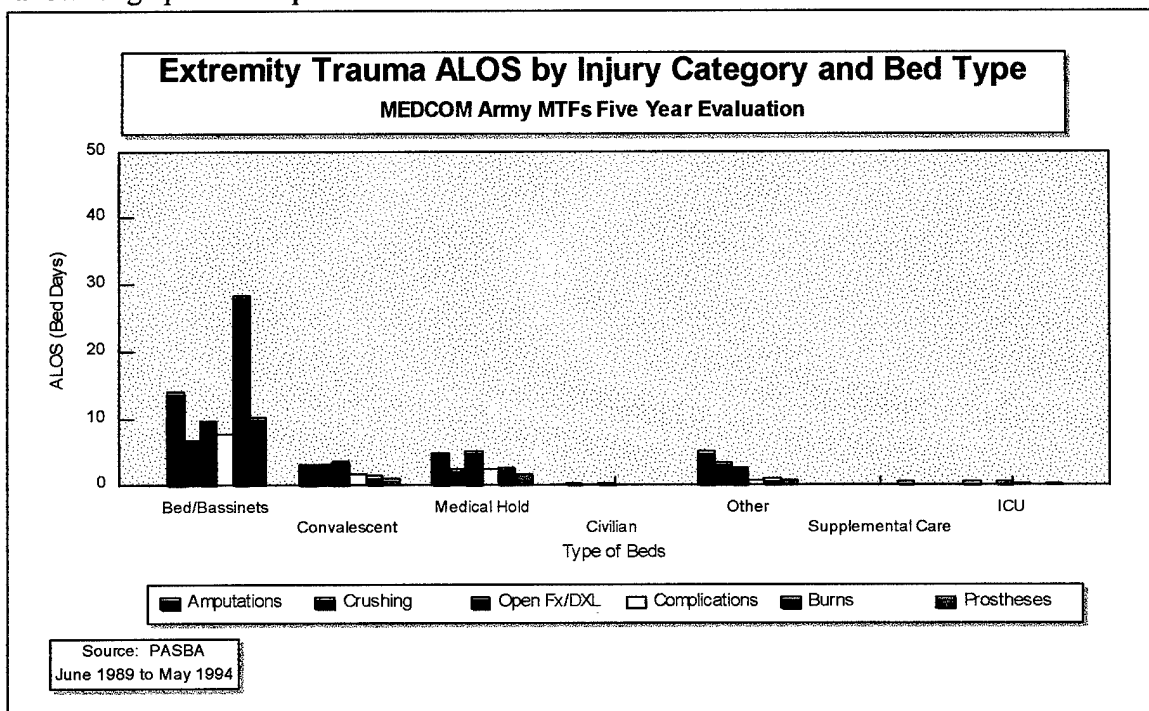


Figure 34 ALOS by diagnostic category and bed type for entire MEDCOM

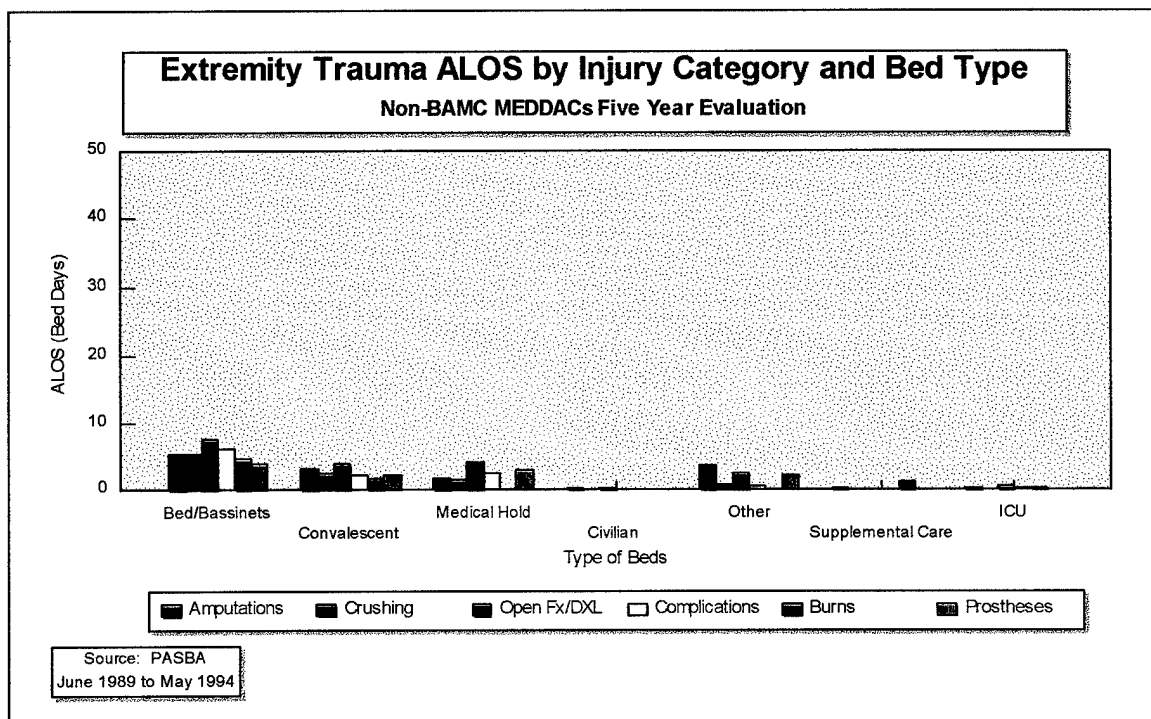


Figure 35 ALOS by diagnostic category and bed type for Army MEDDACs

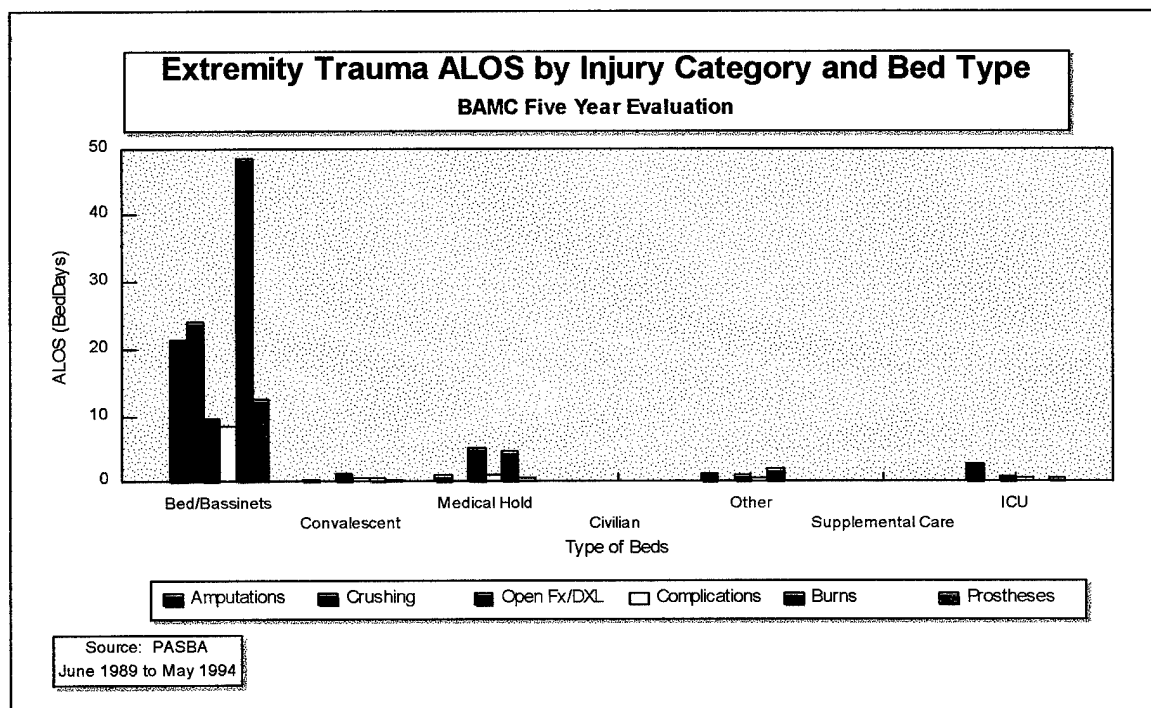


Figure 36 ALOS by diagnostic category and bed type for BAMC

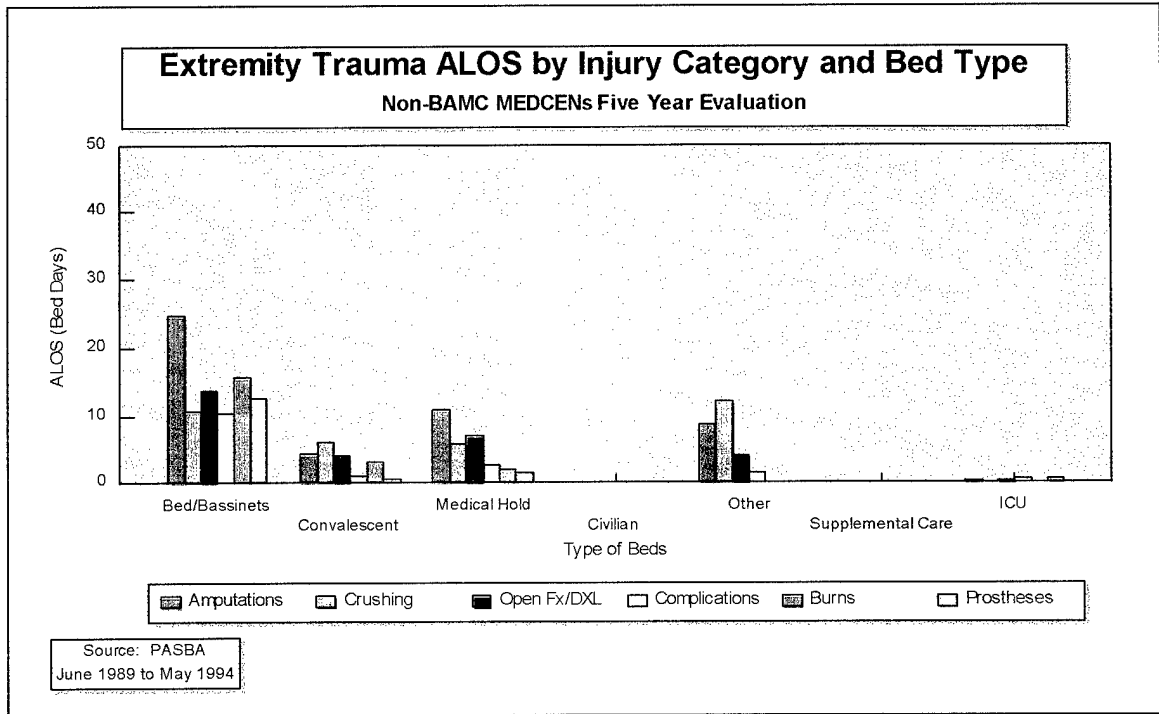


Figure 37 ALOS by diagnostic category and bed type for Army MEDCENS, excluding BAMC

**Bed Mix Utilization**

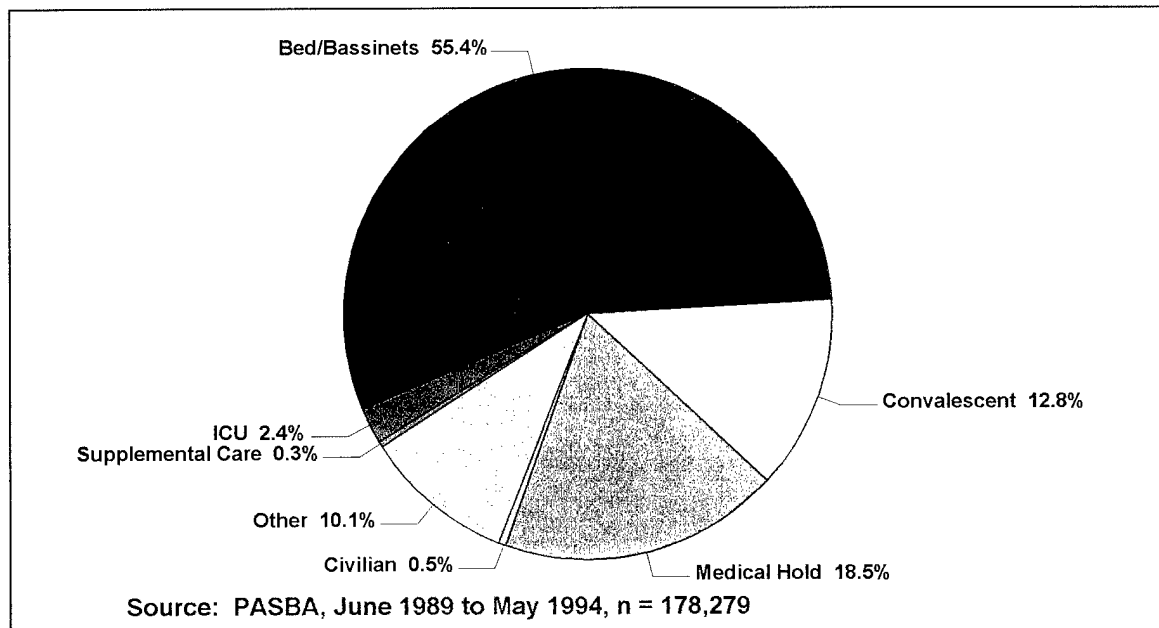


Figure 38 Distribution of bed utilization by major type, for entire MEDCOM

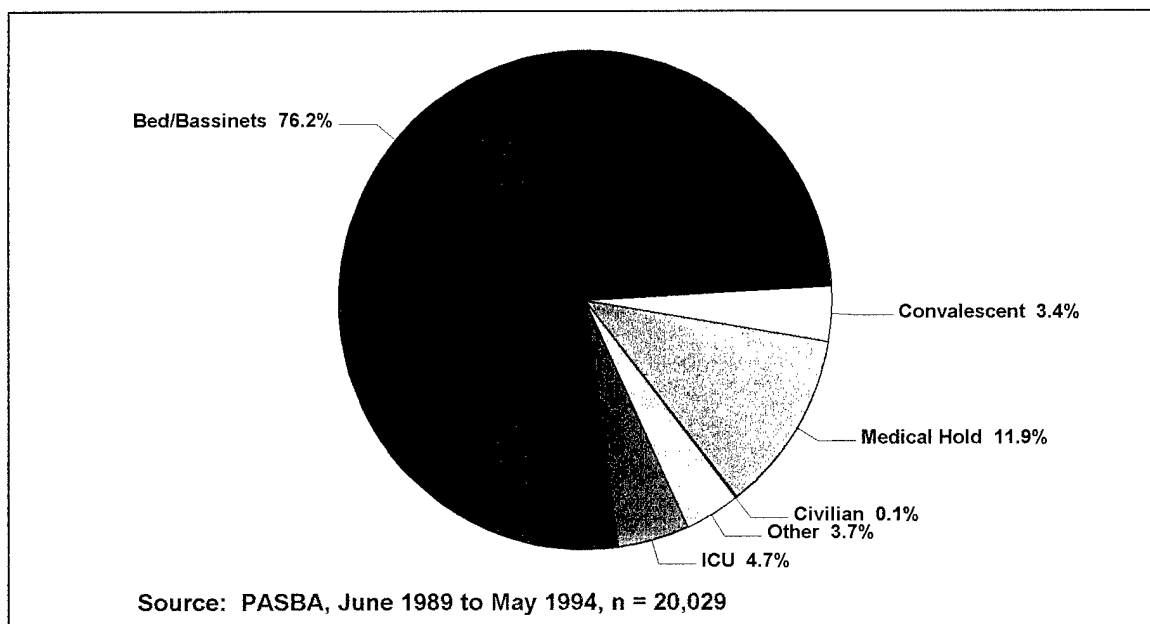


Figure 39 Distribution of bed utilization by major type, for BAMC

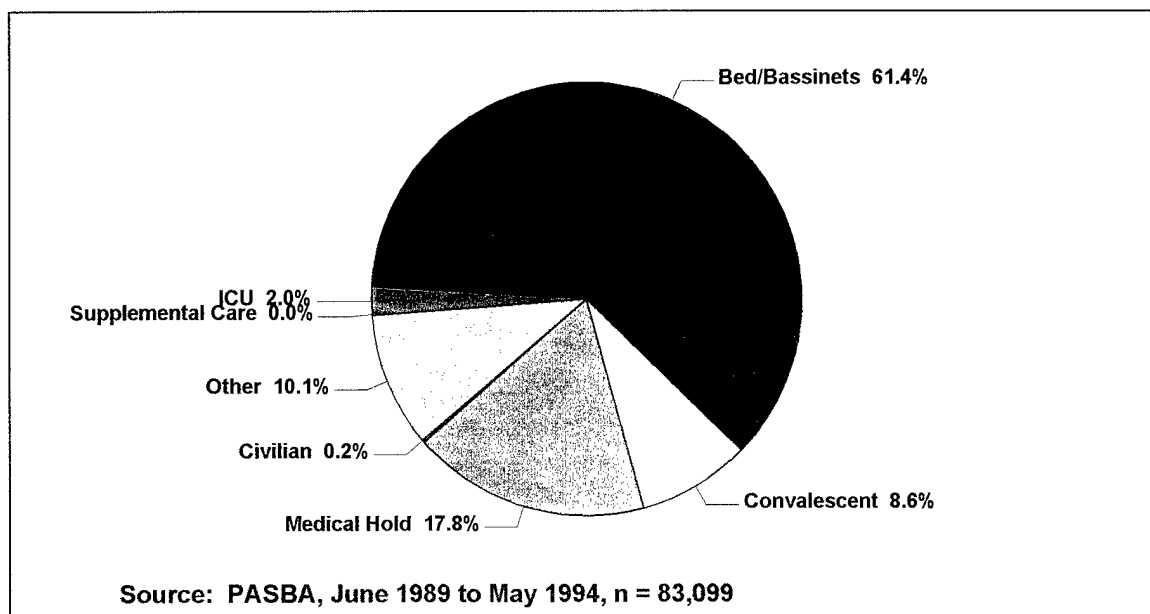


Figure 40 Distribution of bed utilization by major type, for all Army MEDCENS, excluding BAMC

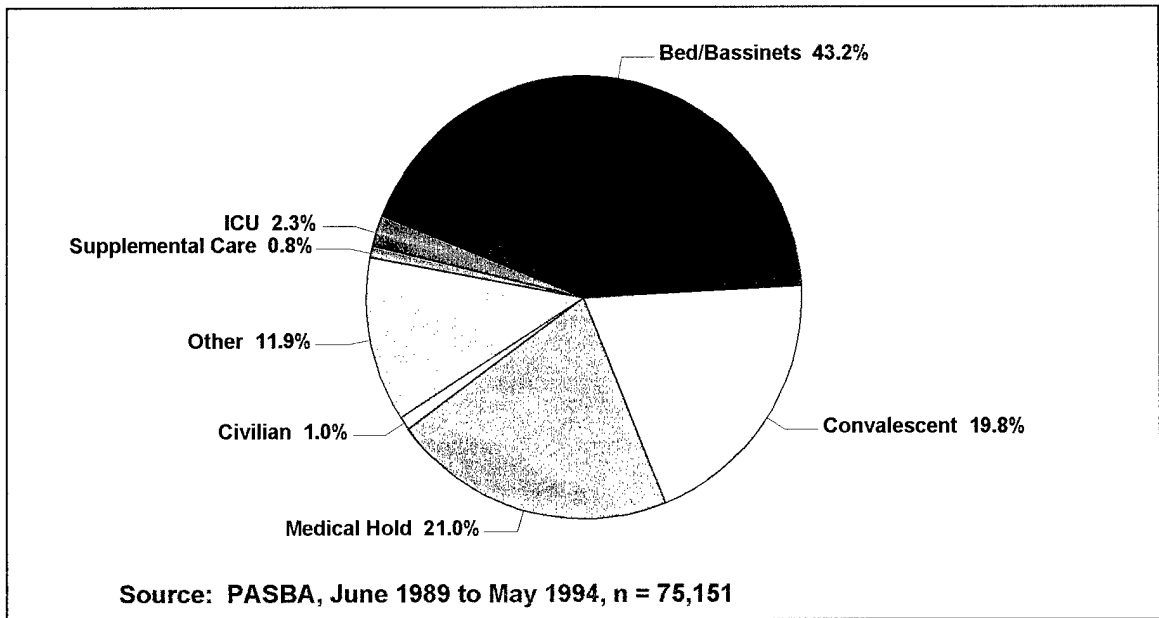
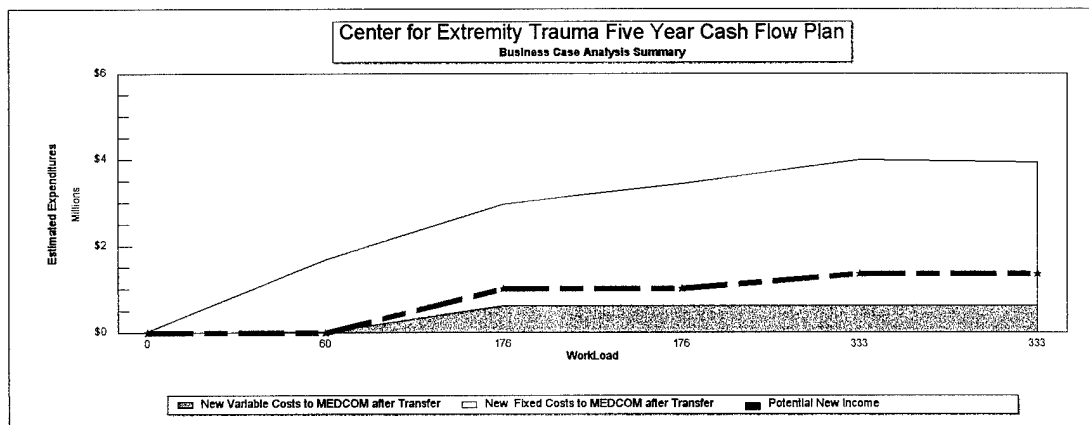


Figure 41 Distribution of bed utilization by major type, for all Army MEDDACs

**Appendix I • Five Year Cost Budget**

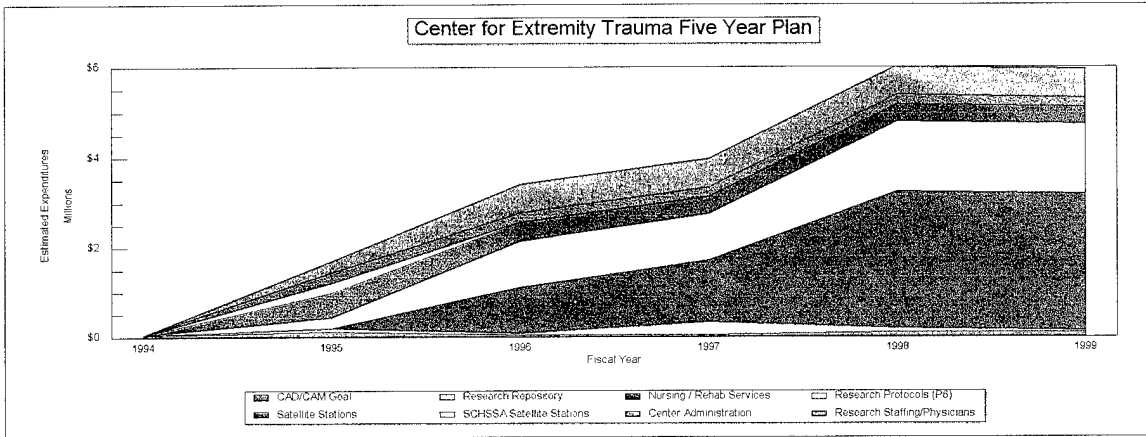
Center for Extremity Trauma Five Year Cash Flow Plan									
Business Case Analysis Summary									
Expenditures	Cases No. Sites	0 1994	60 1995	176 1996	176 1997	333 1998	333 1999		
<b>BAMC</b>									
CAD/CAM Goal		\$31,389	\$665,880	\$2,439,712	\$2,952,107	\$5,000,458	\$4,930,093		
		\$31,389	\$101,858	\$31,566	\$31,566	\$96,249	\$96,249		
	Fixed Cost	\$31,389	\$87,340	\$1,245	\$1,245	\$40,626	\$40,626		
	Variable Cost		\$14,518	\$30,321	\$30,321	\$55,623	\$55,623		
Research Repository			\$85,845	\$43,381	\$298,381	\$98,949	\$43,381		
	Fixed Cost		\$85,845	\$43,381	\$298,381	\$98,949	\$43,381		
	Variable Cost		\$0	\$0	\$0	\$0	\$0		
Professional Staffing/Physicians			\$271,284	\$651,083	\$651,083	\$651,083	\$651,083		
	Fixed Cost		\$271,284	\$651,083	\$651,083	\$651,083	\$651,083		
	Variable Cost		\$0	\$0	\$0	\$0	\$0		
Center Administration			\$228,177	\$192,500	\$192,500	\$207,297	\$192,500		
	Fixed Cost		\$228,177	\$192,500	\$192,500	\$207,297	\$192,500		
	Variable Cost		\$0	\$0	\$0	\$0	\$0		
Nursing / Rehab Services			\$0	\$1,130,726	\$1,388,122	\$3,056,425	\$3,056,425		
	Fixed Cost		\$0	\$94,760	\$352,155	\$603,295	\$603,295		
	Variable Cost		\$0	\$1,035,967	\$1,035,967	\$2,453,129	\$2,453,129		
Research Protocols (P6)			\$250,000	\$1,041,538	\$1,041,538	\$1,541,538	\$1,541,538		
	Fixed Cost		\$250,000	\$1,041,538	\$1,041,538	\$1,541,538	\$1,541,538		
	Variable Cost		\$0	\$0	\$0	\$0	\$0		
<b>MEDCEN &amp; MTF Satellites (all Fixed)</b>									
Satellite Stations	10		\$548,788	\$399,112	\$365,362	\$363,284	\$363,284		
<b>SCHSSA Satellites (all fixed)</b>									
SCHSSA Satellite Stations	4		\$219,515	\$26,480	\$12,980	\$12,980	\$12,980		
<b>Total Variable Costs per Case</b>									
			\$242	\$6,058	\$6,058	\$7,534	\$7,534		
<b>Total Variable Costs</b>									
			\$14,518	\$1,066,288	\$1,066,288	\$2,508,752	\$2,508,752		
<b>Total Fixed Costs</b>									
		\$31,389	\$1,690,950	\$2,450,098	\$2,915,244	\$3,519,052	\$3,448,887		
<b>Total Items</b>									
		\$31,389	\$1,705,468	\$3,516,387	\$3,981,532	\$6,027,804	\$5,957,438		
<b>Potentially Transferrable Costs</b>									
			\$25,000	\$545,377	\$545,377	\$2,038,016	\$2,038,016		
CAD/CAM Goal			\$0	\$48	\$48	\$205	\$205		
	Referral Workload 48-205		\$0	\$12,547	\$12,547	\$41,768	\$41,768		
Nursing / Rehab Services			\$0	\$428,676	\$428,676	\$1,842,093	\$1,842,093		
	Referral Workload 48-205		\$0	\$428,676	\$428,676	\$1,842,093	\$1,842,093		
Research Protocols (P6)			\$0	\$0	\$0	\$0	\$0		
Assume 10% of protocols transferrable from current budgets	0.1		\$25,000	\$104,154	\$104,154	\$154,154	\$154,154		
<b>New Fixed Costs to MEDCOM after Transfer</b>									
		\$31,389	\$1,665,950	\$2,345,945	\$2,811,090	\$3,364,898	\$3,294,533		
<b>New Variable Costs to MEDCOM after Transfer</b>									
			\$14,518	\$625,066	\$625,066	\$624,891	\$624,891		
<b>New Variable Unit Costs after transfer</b>									
			\$242	\$3,552	\$3,552	\$1,877	\$1,877		
<b>Potential New Income</b>									
BAMC workload	60	\$0	\$0	\$1,018,075	\$1,018,075	\$1,352,914	\$1,352,914		
CHAMPUS Recapture	68	\$0	\$0	\$0	\$0	\$0	\$0		
CHAMPUS Recapture	68	\$0	\$0	\$915,922	\$915,922	\$915,922	\$915,922		
Third Party from Referring MTFs	48-205	\$0	\$0	\$102,153	\$102,153	\$436,992	\$436,992		
	48 205								
<b>New Costs to MEDCOM after transfer and with potential new income</b>									
		\$31,389	\$1,680,468	\$1,952,935	\$2,418,081	\$2,636,874	\$2,566,510		

CHAMPUS recapture assume recovery of allowable charges plus being able to potentially charge third party in 30% of the cases, while third party from referring MTFs assumes BAMC collect from 30% of those referred, and that the referring MTFs would not have likely collected.



## Center for Extremity Trauma Five Year Plan Summary

Expenditures	No. Sites	1994	1995	1996	1997	1998	1999
<b>BAMC</b>							
CAD/CAM Goal		\$31,389	\$101,858	\$31,566	\$31,566	\$96,249	\$96,249
Research Repository			\$85,845	\$43,381	\$298,381	\$98,949	\$43,381
Nursing / Rehab Services			\$0	\$1,035,967	\$1,388,122	\$3,056,425	\$3,056,425
Research Protocols (P6)			\$250,000	\$1,041,538	\$1,041,538	\$1,541,538	\$1,541,538
Research Staffing/Physicians			\$271,284	\$651,083	\$651,083	\$651,083	\$651,083
Center Administration			\$228,177	\$192,500	\$192,500	\$207,297	\$192,500
<b>MEDCEN &amp; MTF Satellites</b>							
Satellite Stations	10		\$548,788	\$399,112	\$365,362	\$363,284	\$363,284
<b>SCHSSA Satellites</b>							
SCHSSA Satellite Stations	4		\$219,515	\$26,480	\$12,980	\$12,980	\$12,980
		<b>\$31,389</b>	<b>\$1,705,468</b>	<b>\$3,421,627</b>	<b>\$3,981,532</b>	<b>\$6,027,804</b>	<b>\$5,957,439</b>



## Center for Extremity Trauma - Five Year Budget Plan

### Year One (1995)

#### Operational Concept Summary

Workload at BAMC will remain same, with no additional referrals to BAMC due to the Center's operation. Operational emphasis will be on establishing a working CAD/CAM site at BAMC, and a data repository at BAMC. CAD stations will be procured for each MEDCEN plus select facilities, plus repository software and PCs will also be procured.

Satellite sites (14) include: MAMC, TAMC, FAMC, WBAMC, DDEAMC, WAMC, WRAMC, Europe, Ft Benning, West Point, plus SC HSSA MTFs: Ft Hood, Ft Sill, Ft Polk and Gorgas Hospital in Panama.

#### Annual Summary

Total Expenditures	\$1,736,857	
Funded Expenditures	\$31,389	Utilized end-of-year funds.
Unfunded Expenditures	\$1,705,468	

#### BAMC Expenditures

Item	Qty	Unit Cost	Total Cost	Assumptions
<b>CAD/CAM Goal</b>	<b>\$133,247</b>			
Digitizing Station w/Software	1	\$20,990.00	\$20,990	M+IND CAD, purchased in FY94
CAD Computer Station	1	\$10,033.00	\$10,033	Pentium w/ 21" Screen, HP color deskjet printer, purchased in FY 94
Office Software	1	\$366.00	\$366	Spreadsheet, database, Word Processor, purchased in FY 94
CAD Software Support and Installation	1	\$3,745.00	\$3,745	M+IND
Computer Workstation Furniture	2	\$5,678.91	\$11,358	Systems furniture workstation, one for CAD and one for business computer
CAM Carver	1	\$64,658.00	\$64,658	M+IND
Business Operations Computer	1	\$3,887.00	\$3,887	486. Used for managing business of central manufacturing
TDY Travel to Seattle Veterans' Affairs Training Site	3	\$1,230.67	\$3,692	Prosthetist and two technicians for 7 days, w/ one rental car
Socket Supplies	178	\$40.42	\$7,194	Training plus prorated remaining BAMC prosthetic workload.
Shipping Supplies for sockets	52	\$40.00	\$2,080	Supports mailing to SC HSSA facilities, Unit cost of \$25 for FedEx and \$15 for boxes and shipping peanuts.
Overhead (indirect costs)	52	\$100.84	\$5,244	Based upon MEPRS data
<b>Research Repository</b>	<b>\$85,845</b>			
Computer Server	1	\$10,790.00	\$10,790	Pentium w/ Mirrored Gig HDs, plus Syquest, MS Office Pro, Procomm, HP Laserjet 4P
Repository Software License	1	\$8,000.00	\$8,000	American College of Surgeons' TRACS trauma repository.
TRACS Maintenance	1	\$4,000.00	\$4,000	
Ward Computer LAN connection Stations	3	\$2,995.00	\$8,985	Based upon current ADPL. of one CCU bed, two Acute Care. (486 @ 100mhz)
CruisePAD mobile data entry interfaces with Spread spectrum RF LAN connections.	3	\$3,375.00	\$10,125	Includes RF receivers, LAN cards, and CruisePAD with accessories.
Repository Manager Workstation Computer	1	\$3,887.00	\$3,887	
Repository Manager: RN with RM certification (GS9)	0.5	\$39,381.26	\$19,691	Prorated for remaining FY
Office Equipment	2	\$10,183.86	\$20,368	One for Manager and one supports server
<b>Research Protocols (P6)</b>	<b>\$250,000</b>			
Support to five generic protocols			\$250,000	

## Center for Extremity Trauma - Five Year Budget Plan

<b>Professional Staffing/Physicians</b>		<b>\$271,284</b>		
Orthopedic Surgeon (06)	0.4	\$145,136.66	\$60,474	Extremity Trauma Center Chief
Orthopedic Surgeon (05)	0.4	\$118,489.48	\$49,371	Research manager
PHD Researcher (GS13)	0.4	\$73,993.00	\$30,830	Basic science researcher
Veterinary Surgeon (04-05)	0.4	\$118,489.48	\$49,371	Basic science researcher
Laboratory Material Specialist (GS12)	0.4	\$57,109.25	\$23,796	May be realigned from current ISR staffing
Laboratory Technician (GS9)	0.4	\$39,381.26	\$16,409	May be realigned from current ISR staffing
Animal Care/Laboratory Medicine Technician (O1H) E6	0.8	\$49,241.74	\$41,035	May be realigned from current ISR staffing
<b>Center Administration</b>		<b>\$228,177</b>		
Office Administrator (O4 or GS11)	0.4	\$47,652.71	\$19,855	
Nurse / Protocol Manager (05 or GS11)	0.4	\$47,652.71	\$19,855	
Secretary (GS7)	0.4	\$32,194.23	\$13,414	
Operating expenses	0.4	\$15,000.00	\$6,250	Allows \$5000 for operating plus \$10,000 for TDY to satellites and training.
Business Operations Computer	10	\$3,887.00	\$38,870	486s connected to LAN. for admin staff plus physicians(3), PHD, Vet surg, lab spec, lab
Office Software	10	\$726.00	\$7,260	Office Suite of software, Spreadsheet, database, Word Processor, windows, communication software.
Office Equipment	10	\$10,183.86	\$101,839	Systems furniture
Consultant Fees	0.4	\$50,000.00	\$20,833	
			<b>\$968,553</b>	
<b>External MTF Expenditures</b>				
Item	Qty	Unit Cost	Total Cost	Assumptions
<b>Satellite Stations</b> <span style="float: right;"><b>\$548,788</b></span>				
Digitizing Station w/Software	10	\$24,735.00	\$247,350	M+IND Corporation
CAD Computer Station	10	\$10,399.00	\$103,990	
CAD Training at Seattle	10	\$1,500.00	\$15,000	
Computer Workstation Furniture	10	\$5,678.91	\$56,789	Systems furniture workstation
Repository Software Licenses	10	\$2,000.00	\$20,000	ACS TRACS
TRACS Software/Database Maintenance	10	\$1,000.00	\$10,000	
Computer Workstation Furniture	10	\$5,678.91	\$56,789	Systems furniture workstation
Repository Collection Computers	10	\$3,887.00	\$38,870	486's w/ Modems
<b>SCHSSA Satellite Stations</b> <span style="float: right;"><b>\$219,515</b></span>				
Digitizing Station w/Software	4	\$24,735.00	\$98,940	M+IND Corporation
CAD Computer Station	4	\$10,399.00	\$41,596	
CAD Training at Seattle	4	\$1,500.00	\$6,000	
Computer Workstation Furniture	4	\$5,678.91	\$22,716	Systems furniture workstation
Repository Software Licenses	4	\$2,000.00	\$8,000	ACS TRACS
TRACS Software/Database Maintenance	4	\$1,000.00	\$4,000	
Computer Workstation Furniture	4	\$5,678.91	\$22,716	Systems furniture workstation
Repository Collection Computers	4	\$3,887.00	\$15,548	486's w/ Modems
			<b>\$768,303</b>	

## Center for Extremity Trauma - Five Year Budget Plan

### Year Two (1996)

#### Operational Concept Summary

Continue operation of repository and CAD/CAM site at BAMC, while providing research staff support to remote sites in the form of a part-time research manager. Small increase in referral numbers to BAMC but with minimal impact upon surgical, nursing, or rehabilitative operations. CAM operations supporting SC HSSA, while satellite facilities have negotiated agreements with local VA CAM sites (assumed to be 120% of BAMC's cost).

Five generic protocols are supported. Increase in daily patient load results in three additional acute care beds required daily: (+3 ADPL). AD Amputee follow-through program where amputees and spouse are brought to BAMC for complete work-up begins.

#### Annual Summary

Total Expenditures	\$3,516,387
Funded Expenditures	
Unfunded Expenditures	<b>\$3,516,387</b>

#### BAMC Expenditures

Item	Qty	Unit Cost	Total Cost	Assumptions
<b>CAD/CAM Operations (HSSA)</b>	<b>\$37,566</b>			
Prosthetic Socket Supplies	213	\$40.75	\$8,680	BAMC has 106, plus 9 new referrals (7.9% of 116 cases), HSSA provides an additional: 13 @ Hood, 8 @ Sill, 6 @ Gorgas & 2 @ Polk. (Positive mold @ \$2.75, socket @ \$26 & mounting plate @ \$12) includes fitting socket allowances
Prosthetic Shipping Operations	65	\$43.87	\$2,852	Provides FedEx costs of \$25.00 plus moneys for shipping packaging(\$15), plus approximately 15 minutes of GS7 wages.
Prosthetic CAM Operations	213	\$11.61	\$2,473	Approximately one hour of technician time (GS7) wages spent in manufacturing of sockets
Definitive Prostheses for referral cases	9	\$1,813.05	\$16,317	9 new amputee cases from the new 116 patients (@ 7.9% - amputees for annual workload)
CAD Software Support/Maintenance	1	\$1,245.00	\$1,245	M+IND
<b>Repository Operations</b>	<b>\$43,381</b>			
TRACS Software/Database Maintenance	1	\$4,000.00	\$4,000	ACS TRACS
Repository Manager: RN with RM certification (GS9)	1	\$39,381.26	\$39,381	
<b>Nursing / Rehab Services</b>	<b>\$1,035,967</b>			
Agency Costs to support Ward			\$396,440	Increase of three patients in acute care average daily patient load (ADPL).
Ward Supplies			\$639,527	
Orthopedic Surgeon (03)	1	\$94,759.56	\$94,760	Ward physician and researcher
<b>Research Protocols (P6)</b>	<b>\$1,041,538</b>			
AD Amputee follow-through program	79	**	\$41,538	TDY with spouse annually for AD amputee follow-up, comparable to "astronaut program".
Support to five generic protocols			\$1,000,000	
<b>Research Staffing/Physicians</b>	<b>\$651,083</b>			
Orthopedic Surgeon (06)	1	\$145,136.66	\$145,137	Extremity Trauma Center Chief
Orthopedic Surgeon (05)	1	\$118,489.48	\$118,489	Research manager
PHD Researcher (GS13)	1	\$73,993.00	\$73,993	Basic science researcher
Veterinary Surgeon (04-05)	1	\$118,489.48	\$118,489	Basic science researcher
Laboratory Material Specialist (GS12)	1	\$57,109.25	\$57,109	May be realigned from current ISR staffing
Laboratory Technician (GS9)	1	\$39,381.26	\$39,381	May be realigned from current ISR staffing
Animal Care/Laboratory Medicine Technician (O1H) E6	2	\$49,241.74	\$98,483	May be realigned from current ISR staffing

## Center for Extremity Trauma - Five Year Budget Plan

<b>Center Administration</b>		<b>\$192,500</b>			
Office Administrator (O4 or GS11)	1	\$47,652.71	\$47,653		
Nurse / Protocol Manager (05 or GS11)	1	\$47,652.71	\$47,653		
Secretary (GS7)	1	\$32,194.23	\$32,194		
Operating expenses	1	\$15,000.00	\$15,000		Allows \$5000 for operating plus \$10,000 for TDY to satellites and training.
Consultant Fees	1	\$50,000.00	\$50,000		
			<b>\$3,090,794</b>		
<b>External MTF Expenditures</b>					
Item	Qty	Unit Cost	Total Cost	Assumptions	
<b>Satellite Stations</b>					
<b>\$399,112</b>					
CAD Software Support/Maintenance	10	\$1,245.00	\$12,450		
Socket Manufacturing Fees negotiated with local VA.	95	\$115.47	\$10,970		Assumed VA negotiated costs are 120% of BAMC's costs.
TRACS Software/Database Maintenance	10	\$2,000.00	\$20,000		
CruisePAD mobile data entry interfaces with Spread spectrum RF LAN connections.	10	\$3,375.00	\$33,750		Includes RF receivers, LAN cards, and CruisePAD with accessories.
Research Assistant (GS7)	10	\$32,194.23	\$321,942		
<b>SCHSSA Satellite Stations</b>					
<b>\$26,480</b>					
CAD Software Support/Maintenance	4	\$1,245.00	\$4,980		
CruisePAD mobile data entry interfaces with Spread spectrum RF LAN connections.	4	\$3,375.00	\$13,500		Includes RF receivers, LAN cards, and CruisePAD with accessories.
TRACS Software/Database Maintenance	4	\$2,000.00	\$8,000		
			<b>\$425,592</b>		

## Center for Extremity Trauma - Five Year Budget Plan

### Year Three (1997)

#### Operational Concept Summary

The Center will continue operation at an approximate 176 cases being followed. This equates to an additional ADPL increase of three as in the previous year. This year will be a stabilizing period prior to increasing to the full load state. Rehabilitation Medicine (PT,OT, Physical Medicine) will requisition equipment in support of the next year's workload. Any modifications to the repository software necessary to fully support the determined requirement will be made (at an assumed replacement cost).

Research repository is made InterNet accessible.

#### Annual Summary

Total Expenditures	\$3,981,532
Funded Expenditures	
Unfunded Expenditures	\$3,981,532

#### BAMC Expenditures

Item	Qty	Unit Cost	Total Cost	Assumptions
<b>CAD/CAM Operations (HSSA)</b>	<b>\$31,566</b>			
Prosthetic Socket Supplies	213	\$40.75	\$8,680	BAMC has 106, plus 9 new referrals (7.9% of 116 cases), HSSA provides an additional: 13 @ Hood, 8 @ Sill, 6 @ Gorgas & 2 @ Polk. (Positive mold @ \$2.75, socket @ \$26 & mounting plate @ \$12)
Prosthetic Shipping Operations	65	\$43.87	\$2,852	Provides FedEx costs of \$25.00 plus moneys for shipping packaging(\$15), plus approximately 15 minutes of GS7 wages.
Prosthetic CAM Operations	213	\$11.61	\$2,473	Approximately one hour of technician time (GS7) wages spent in manufacturing of sockets
Definitive Prostheses for referral cases	9	\$1,813.05	\$16,317	9 new amputee cases from the new 116 patients (@ 7.9% - amputees for annual workload)
CAD Software Support/Maintenance	1	\$1,245.00	\$1,245	M+IND
<b>Repository Operations</b>	<b>\$298,381</b>			
TRACS Software/Database Maintenance	1	\$4,000.00	\$4,000	ACS TRACS
Repository Manager: RN with RM certification (GS9)	1	\$39,381.26	\$39,381	
InterNet OSE Upgrade to repository server.	1	\$255,000.00	\$255,000	Provides Open System Environment (OSE) with link onto InterNet through BAMC node.
<b>Nursing / Rehab Services</b>	<b>\$1,388,122</b>			
Agency Costs to support Ward			\$396,440	Increase of three patients in acute care average daily patient load (ADPL).
Ward Supplies			\$639,527	
Orthopedic Surgeon (03)	1	\$94,759.56	\$94,760	Ward physician and researcher
Physical Therapy Equipment	1	\$100,000.00	\$100,000	Funds required in last quarter of FY for receipt in FY 1998
PT Computer for Repository Support	3	\$3,887.00	\$11,661	Funds required in last quarter of FY for receipt in FY 1998
PT Office Equipment	3	\$5,678.91	\$17,037	Funds required in last quarter of FY for receipt in FY 1998
Occupation Therapy Equipment	1	\$100,000.00	\$100,000	Funds required in last quarter of FY for receipt in FY 1998
OT Computer for Repository Support	3	\$3,887.00	\$11,661	Funds required in last quarter of FY for receipt in FY 1998
OT Office Equipment	3	\$5,678.91	\$17,037	Funds required in last quarter of FY for receipt in FY 1998
<b>Research Protocols (P6)</b>	<b>\$1,041,538</b>			
AD Amputee follow-through program	79	**	\$41,538	TDY with spouse annually for AD amputee follow-up, comparable to "astronaut program".
Support to five generic protocols			\$1,000,000	

## Center for Extremity Trauma - Five Year Budget Plan

<b>Professional Staffing/Physicians</b>		<b>\$651,083</b>		
Orthopedic Surgeon (06)	1	\$145,136.66	\$145,137	Extremity Trauma Center Chief
Orthopedic Surgeon (05)	1	\$118,489.48	\$118,489	Research manager
PHD Researcher (GS13)	1	\$73,993.00	\$73,993	Basic science researcher
Veterinary Surgeon (04-05)	1	\$118,489.48	\$118,489	Basic science researcher
Laboratory Material Specialist (GS12)	1	\$57,109.25	\$57,109	May be realigned from current ISR staffing
Laboratory Technician (GS9)	1	\$39,381.26	\$39,381	May be realigned from current ISR staffing
Animal Care/Laboratory Medicine Technician (O1H) E6	2	\$49,241.74	\$98,483	May be realigned from current ISR staffing
<b>Center Administration</b>		<b>\$192,500</b>		
Office Administrator (O4 or GS11)	1	\$47,652.71	\$47,653	
Nurse / Protocol Manager (05 or GS11)	1	\$47,652.71	\$47,653	
Secretary (GS7)	1	\$32,194.23	\$32,194	
Operating expenses	1	\$15,000.00	\$15,000	Allows \$5000 for operating plus \$10,000 for TDY to satellites and training.
Consultant Fees	1	\$50,000.00	\$50,000	
			<b>\$3,603,190</b>	
<b>External MTF Expenditures</b>				
<b>Item</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Assumptions</b>
<b>Satellite Stations</b>	<b>\$365,362</b>			
CAD Software Support/Maintenance	10	\$1,245.00	\$12,450	
Socket Manufacturing Fees negotiated with local VA.	95	\$115.47	\$10,970	Assumed VA negotiated costs are 120% of BAMC's costs.
TRACS Software/Database Maintenance	10	\$2,000.00	\$20,000	
Research Assistant (GS7)	10	\$32,194.23	\$321,942	
<b>SCHSSA Satellite Stations</b>	<b>\$12,980</b>			
CAD Software Support/Maintenance	4	\$1,245.00	\$4,980	
TRACS Software/Database Maintenance	4	\$2,000.00	\$8,000	
			<b>\$378,342</b>	

## Center for Extremity Trauma - Five Year Budget Plan

**Year Four (1998)**

**Operational Concept Summary**

Center has by now established a benchmark of expected case types and quantities, along with statistical information on ALOS and contributing workload. Research protocols are now more specific, based upon available information about the market. Expected case load increases to steady state maximum of 333 cases, with a resultant increase on ADPL of 2 intensive care beds and 7 acute care beds. Impact upon medical hold is another 10 ADPL.

This equates to a requirement of 3 intensive care beds, 9 acute care (orthopedic) beds and 13 medical hold beds, after allowing for during rotations of patients (75%). Workload is now sufficient to impact upon services of Physical Therapy, Therapy and Physical Medicine.

**Annual Summary**

Total Expenditures	\$6,027,804
<i>Funded Expenditures</i>	
Unfunded Expenditures	<b>\$6,027,804</b>

**BAMC Expenditures**

Item	Qty	Unit Cost	Total Cost	Assumptions
<b>CAD/CAM Operations (HSSA) \$96,249</b>				
Prosthetic Socket Supplies	231	\$40.75	\$9,413	BAMC has 106, plus 22 new referrals (7.9% of 273 cases), HSSA provides an additional: 13 @ Hood, 8 @ Sill, 6 @ Gorgas & 2 @ Polk. (Positive mold @ \$2.75, socket @ \$26 & mounting plate @ \$12)
Prosthetic Shipping Operations	83	\$43.87	\$3,641	Provides FedEx costs of \$25.00 plus moneys for shipping packaging(\$15), plus approximately 15 minutes of GS7 wages.
Prosthetic CAM Operations	231	\$11.61	\$2,682	Approximately one hour of technician time (GS7) wages spent in manufacturing of sockets
Definitive Prostheses for referral cases	22	\$1,813.05	\$39,887	22 new amputee cases from the new 273 patients (@ 7.9% - amputees for annual workload)
Prosthetist (GS9)	1	\$39,381.26	\$39,381	Support of additional prosthetics manufacture
CAD Software Support/Maintenance	1	\$1,245.00	\$1,245	M+IND
<b>Repository Operations \$98,949</b>				
TRACS Software/Database Maintenance	1	\$4,000.00	\$4,000	ACS TRACS
Ward Computer LAN connection Stations	8	\$2,995.00	\$23,960	Supports additional ADPL bed requirements, plus one each for OT and PT
CruisePAD mobile data entry interfaces with Spread spectrum RF LAN connections.	6	\$3,375.00	\$20,250	Includes RF receivers, LAN cards, and CruisePAD with accessories. Only for the ward areas (6 ADPL increase)
Computer Workstation Furniture	2	\$5,678.91	\$11,358	Systems furniture workstation supports OT and PT computers
Repository Manager: RN with RM certification (GS9)	1	\$39,381.26	\$39,381	
<b>Nursing / Rehab Services \$3,056,425</b>				
Agency Costs to support Ward			\$945,555	
Ward Supplies			\$1,507,574	
Orthopedic Surgeon (03)	2	\$94,759.56	\$189,519	Ward physicians and researchers
Physical Therapists (GS11)	2	\$47,652.71	\$95,305	
Physical Therapy Technicians (GS7)	3	\$32,194.23	\$96,583	
Physical Therapy Operating Budget	1	\$15,000.00	\$15,000	
Occupational Therapists (GS11)	2	\$47,652.71	\$95,305	
Occupational Therapy Technicians (GS7)	3	\$32,194.23	\$96,583	
Occupational Therapy Operating Budget	1	\$15,000.00	\$15,000	

## Center for Extremity Trauma - Five Year Budget Plan

<b>Research Protocols (P6)</b>		<b>\$1,541,538</b>			
AD Amputee follow-through program	79	**	\$41,538		TDY with spouse annually for AD amputee follow-up, comparable to "astronaut program".
Support to protocols			\$1,500,000		
<b>Professional Staffing/Physicians</b>		<b>\$651,083</b>			
Orthopedic Surgeon (06)	1	\$145,136.66	\$145,137		Extremity Trauma Center Chief
Orthopedic Surgeon (05)	1	\$118,489.48	\$118,489		Research manager
PHD Researcher (GS13)	1	\$73,993.00	\$73,993		Basic science researcher
Veterinary Surgeon (04-05)	1	\$118,489.48	\$118,489		Basic science researcher
Laboratory Material Specialist (GS12)	1	\$57,109.25	\$57,109		May be realigned from current ISR staffing
Laboratory Technician (GS9)	1	\$39,381.26	\$39,381		May be realigned from current ISR staffing
Animal Care/Laboratory Medicine Technician (O1H) E6	2	\$49,241.74	\$98,483		May be realigned from current ISR staffing
<b>Center Administration</b>		<b>\$207,297</b>			
Office Administrator (O4 or GS11)	1	\$47,652.71	\$47,653		
Nurse / Protocol Manager (05 or GS11)	1	\$47,652.71	\$47,653		
Secretary (GS7)	1	\$32,194.23	\$32,194		
Operating expenses	1	\$15,000.00	\$15,000		Allows \$5000 for operating plus \$10,000 for TDY to satellites and training.
Business Operations Computer	1	\$3,887.00	\$3,887		486s connected to LAN. for additional ward research physician
Office Software	1	\$726.00	\$726		Office Suite of software, Spreadsheet, database, Word Processor, windows, communication software.
Office Equipment	1	\$10,183.86	\$10,184		Systems furniture
Consultant Fees	1	\$50,000.00	\$50,000		
			<b>\$5,651,540</b>		
<b>External MTF Expenditures</b>					
<b>Item</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Assumptions</b>	
<b>Satellite Stations</b>	<b>\$363,284</b>				
CAD Software Support/Maintenance	10	\$1,245.00	\$12,450		
Socket Manufacturing Fees negotiated with local VA.	77	\$115.47	\$8,891		Assumed VA negotiated costs are 120% of BAMC's costs.
TRACS Software/Database Maintenance	10	\$2,000.00	\$20,000		
Research Assistant (GS7)	10	\$32,194.23	\$321,942		
<b>SCRSSA Satellite Stations</b>	<b>\$12,980</b>				
CAD Software Support/Maintenance	4	\$1,245.00	\$4,980		
TRACS Software/Database Maintenance	4	\$2,000.00	\$8,000		
			<b>\$376,264</b>		

## Center for Extremity Trauma - Five Year Budget Plan

### Year Five (1999)

#### Operational Concept Summary

Center is in steady-state operation at an annual case load of 333 cases, resulting in an ADPL of 2 intensive care beds, 7 acute care orthopedic beds and 10 medical hold beds.

#### Annual Summary

Total Expenditures	\$5,957,439
<i>Funded Expenditures</i>	
Unfunded Expenditures	<b>\$5,957,439</b>

#### BAMC Expenditures

Item	Qty	Unit Cost	Total Cost	Assumptions
<b>CAD/CAM Operations (HSSA)</b> <span style="float: right;"><i>\$96,249</i></span>				
Prosthetic Socket Supplies	231	\$40.75	\$9,413	BAMC has 106, plus 22 new referrals (7.9% of 273 cases), HSSA provides an additional: 13 @ Hood, 8 @ Sill, 6 @ Gorgas & 2 @ Polk. (Positive mold @ \$2.75, socket @ \$26 & mounting Provides FedEx costs of \$25.00 plus moneys for shipping packaging(\$15), plus approximately 15 minutes of GS7 wages.
Prosthetic Shipping Operations	83	\$43.87	\$3,641	
Prosthetic CAM Operations	231	\$11.61	\$2,682	
Definitive Prostheses for referral cases	22	\$1,813.05	\$39,887	22 new amputee cases from the new 273 patients (@ 7.9% - amputees for annual workload)
Prosthetist (GS9)	1	\$39,381.26	\$39,381	Support of additional prosthetics manufacture
CAD Software Support/Maintenance	1	\$1,245.00	\$1,245	M+IND
<b>Repository Operations</b> <span style="float: right;"><i>\$43,381</i></span>				
TRACS Software/Database Maintenance	1	\$4,000.00	\$4,000	ACS TRACS
Repository Manager: RN with RM certification (GS9)	1	\$39,381.26	\$39,381	
<b>Nursing / Rehab Services</b> <span style="float: right;"><i>\$3,056,425</i></span>				
Agency Costs to support Ward			\$945,555	
Ward Supplies			\$1,507,574	
Orthopedic Surgeon (03)	2	\$94,759.56	\$189,519	Ward physicians and researchers
Physical Therapists (GS11)	2	\$47,652.71	\$95,305	
Physical Therapy Technicians (GS7)	3	\$32,194.23	\$96,583	
Physical Therapy Operating Budget	1	\$15,000.00	\$15,000	
Occupational Therapists (GS11)	2	\$47,652.71	\$95,305	
Occupational Therapy Technicians (GS7)	3	\$32,194.23	\$96,583	
Occupational Therapy Operating Budget	1	\$15,000.00	\$15,000	
<b>Research Protocols (P6)</b> <span style="float: right;"><i>\$1,541,538</i></span>				
AD Amputee follow-through program	79	**	\$41,538	TDY with spouse annually for AD amputee follow-up, comparable to "astronaut program".
Support to protocols			\$1,500,000	

## Center for Extremity Trauma - Five Year Budget Plan

<b>Professional Staffing/Physicians</b> <span style="float: right;"><b>\$651,083</b></span>				
Orthopedic Surgeon (06)	1	\$145,136.66	\$145,137	Extremity Trauma Center Chief
Orthopedic Surgeon (05)	1	\$118,489.48	\$118,489	Research manager
PHD Researcher (GS13)	1	\$73,993.00	\$73,993	Basic science researcher
Veterinary Surgeon (04-05)	1	\$118,489.48	\$118,489	Basic science researcher
Laboratory Material Specialist (GS12)	1	\$57,109.25	\$57,109	May be realigned from current ISR staffing
Laboratory Technician (GS9)	1	\$39,381.26	\$39,381	May be realigned from current ISR staffing
Animal Care/Laboratory Medicine Technician (O1H) E6	2	\$49,241.74	\$98,483	May be realigned from current ISR staffing
<b>Center Administration</b> <span style="float: right;"><b>\$192,500</b></span>				
Office Administrator (O4 or GS11)	1	\$47,652.71	\$47,653	
Nurse / Protocol Manager (05 or GS11)	1	\$47,652.71	\$47,653	
Secretary (GS7)	1	\$32,194.23	\$32,194	
Operating expenses	1	\$15,000.00	\$15,000	Allows \$5000 for operating plus \$10,000 for TDY to satellites and training.
Consultant Fees	1	\$50,000.00	\$50,000	
			<b>\$5,581,176</b>	
<b>External MTF Expenditures</b>				
<b>Item</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Assumptions</b>
<b>Satellite Stations</b> <span style="float: right;"><b>\$363,284</b></span>				
CAD Software Support/Maintenance	10	\$1,245.00	\$12,450	
Socket Manufacturing Fees negotiated with local VA.	77	\$115.47	\$8,891	Assumed VA negotiated costs are 120% of BAMC's costs.
TRACS Software/Database Maintenance	10	\$2,000.00	\$20,000	
Research Assistant (GS7)	10	\$32,194.23	\$321,942	
<b>SCHSSA Satellite Stations</b> <span style="float: right;"><b>\$12,980</b></span>				
CAD Software Support/Maintenance	4	\$1,245.00	\$4,980	
TRACS Software/Database Maintenance	4	\$2,000.00	\$8,000	
			<b>\$376,264</b>	

## End of Budget Plan

## Center in Extremity Trauma - Cost Estimates

### Some Basic Assumptions

Components	Cost	Explanation
Computer Workstation	\$3,887	Zeos, DX4-100, 24MBRam, 1GB, 17" Monitor, 28.8 Modem/Fax, Ethernet, Tape Backup
BAMC CAD Computer	\$10,033	Zeos, "Pentium w/ 21" Screen, HP color deskjet printer, purchased in FY 94"
CruisePad Computer connection	\$2,995	Zeos, DX4-100, 24MB Ram, 1GB, 15" Monitor.
CruisePAD mobile data entry interfaces with Spread spectrum RF LAN connections.	\$3,375	Zenith CruisePAD, Wireless Bridge, LAN Adapter, Stylus, Carry Case, Lock Kit, Lid, Extra battery w/ Charger
BAMC Repository Server	\$10,790.00	Zeos Pentium w/ Mirrored Gig HDs, plus Syquest , MS Office Pro, Procomm, HP Laserjet 4P
BAMC current definitive Prosthetic production level	106	DMIS and PASBA data, Budinger analysis
BAMC current socket production	148	Prosthetics plus fittings (40%)
BAMC workload to HSSA for sockets	52	Part of current workload, based upon PASBA workload June 1993-May 1994, amputations performed at BAMC HSSA sites (excluding BAMC), includes 40% allowance for fitting sockets.
Additional amputee workload from 116 referrals coming from non-HSSA MTFs	9	Assumed at 7.9% being amputees (based upon PASBA non-BAMC annual workload)
Additional prosthetic socket workload from 116 referrals coming from non-HSSA MTFs	13	Assumed at 7.9% being amputees (based upon PASBA non-BAMC annual workload), plus 40% for fitting sockets
Additional amputee workload from 273 referrals coming from non-HSSA MTFs	22	Assumed at 7.9% being amputees (based upon PASBA non-BAMC annual workload)
Additional prosthetic socket workload from 273 referrals coming from non-HSSA MTFs	31	Assumed at 7.9% being amputees (based upon PASBA non-BAMC annual workload), plus 40% for fitting sockets
BAMC CAM Training Sockets (20% of production)	30	Assumed for first year until we get the hang of it
Definitive prosthesis direct material costs	\$1,712.21	Budinger analysis, Flex-Foot
Definitive prosthesis indirect costs (overhead from MEPRS)	\$100.84	Based upon Budinger analysis at four clinic visits @ 25.21 per visit.
Annual Amputee Patients	149	Based upon one year sample, primary and secondary diagnoses
Annual Amputees who are active duty	79	Based upon PASBA data for June 1993 to May 1994 and primary or secondary diagnosis of amputation
Estimated Army wide prosthetic production level	308	DMIS and PASBA data, Budinger analysis
AD Amputee customers annually traveling to BAMC for follow-up ("astronaut program")	79	Assume equal to new annual number of AD amputees, although will not be only new amputees.
AD Amputee spouse co-travel	59	Assumed 75% are married and will have spouse travel
Travel costs for Amputees & spouse	\$0.00	AirEvac is assumed to be \$0
San Antonio per Diem (7 days)	\$301.00	Both Amputee and spouse receive per diem
Amputee TDY Costs w/ spouse	\$41,538.00	Travel plus San Antonio per diem for one week
BAMC CAM Unit w/o Socket Supplies	\$64,658.00	Includes installation and warranty for one year and any delivery charges.
Socket Supplies (unit cost)	\$40.42	Blank for carving \$2.75, preform socket \$25.67, socket mounting plate \$12.00
Orthopedic Surgeon 06	\$145,136.66	Annual pay including propay, and military benefits, taken from FY94 Army Composite Standard Rates inflated to FY95
Orthopedic Surgeon 05	\$118,489.48	Annual pay including propay, and military benefits, taken from FY94 Army Composite Standard Rates inflated to FY95
Orthopedic Surgeon 03	\$94,759.56	Annual pay including propay, and military benefits, taken from FY94 Army Composite Standard Rates inflated to FY95
PHD Researcher (GS13)	\$73,993.00	Annual pay and benefits
Veterinary Surgeon 05	\$118,489.48	Annual pay including propay, and military benefits, taken from FY94 Army Composite Standard Rates inflated to FY95
Laboratory Material Specialist (GS12)	\$57,109.25	Annual pay and benefits
Laboratory Technician (GS9)	\$39,381.26	Annual pay and benefits
Animal Care/Laboratory Medicine Technician-O1H (E6)	\$49,241.74	Annual pay including propay, and military benefits, taken from FY94 Army Composite Standard Rates inflated to FY95

# Appendix J o Potential Income

## Due to CHAMPUS Recapture

Assumes Referral of CHAMPUS workload to BAMC and saving not only the allowable charges but being able to collect third party from approximately 30%. Billable amounts indicate the potential costs to beneficiaries.

Following data taken from DX.dbf derived from DMIS extract that provides all CHAMPUS extremity trauma workload for the period June 1993 to MAY 1994.

CHAMPUS Extremity Trauma Cases by Dx Mix	Total Cases	Total Billed	Total Allowed	Average Potential Reimbursement	Capture Rate	Captured Cases	Equivalent Income	Allowable Saved	Billable Saved	Potential Reimburse	Assumed Insurance Rate
Amputations	11	\$215,817	\$107,292	\$6,805	27%	3	\$35,387	\$29,261	\$58,859	\$6,126	30%
Burns to Extremity	4	\$62,505	\$35,150	\$12,777	0%	0	\$0	\$0	\$0	\$0	30%
Open Fractures/DXL	41	\$1,053,333	\$467,202	\$6,556	24%	10	\$133,619	\$113,952	\$256,910	\$19,667	30%
Other Complications	28	\$592,652	\$319,407	\$7,287	24%	9	\$95,325	\$75,649	\$140,365	\$19,676	30%
Crushing	0	\$0	\$0	\$5,746	0%	0	\$0	\$0	\$0	\$0	30%
Prosthetics	82	\$2,294,153	\$984,834	\$7,183	56%	46	\$651,591	\$552,468	\$1,286,964	\$99,123	30%
<b>n = 68, \$915922</b>	<b>176</b>	<b>\$4,218,460</b>	<b>\$1,913,885</b>			<b>68</b>	<b>\$916,922</b>	<b>\$771,330</b>	<b>\$1,743,098</b>	<b>\$144,592</b>	

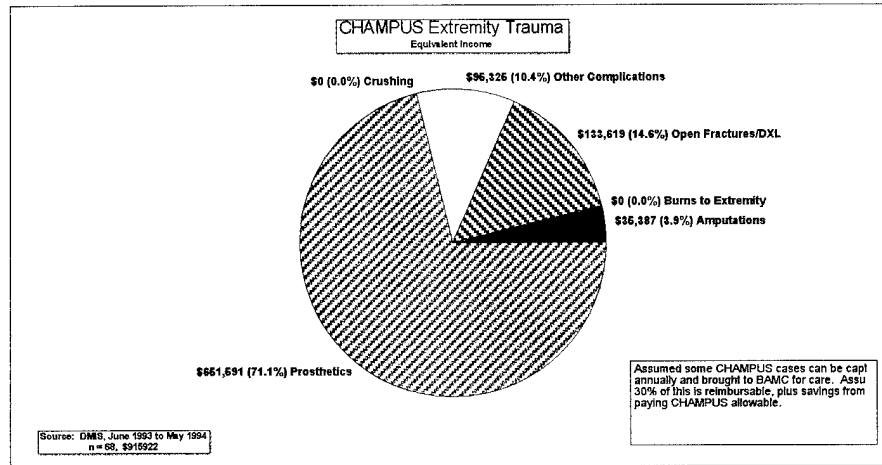


Figure 42 Income/Cost avoidance due to CHAMPUS recapture

## Due to Third Party Collections

### Estimated Potential Income due to Third Party Reimbursement from Referrals

Based upon applying HCFA DRG CHAMPUS weights multiplied by BAMC ASA costs, applied to referred patients and getting third party insured reimbursements.

	Years @ 176 Annual Cases						Years @ 333 Annual Cases					
	Available Cases	Assumed Insurance Rate	Capture Rate	Captured Cases	Equivalent Income	Potential Reimbursable	Billable Saved	Capture Rate	Captured Cases	Equivalent Income	Potential Reimbursable	Billable Saved
Amputations	94	30%	3%	3	\$6,126	\$6,126	\$64,823	11%	10	\$20,419	\$20,419	\$216,075
Burns to Extremity	4	30%	0%	0	\$0	\$0	\$0	0%	0	\$0	\$0	\$0
Open Fractures/DXL	191	30%	3%	5	\$9,834	\$9,834	\$115,436	12%	23	\$45,234	\$45,234	\$531,006
Other Complications	430	30%	0%	0	\$0	\$0	\$0	12%	50	\$109,309	\$109,309	\$864,961
Crushing	7	30%	0%	0	\$0	\$0	\$0	29%	2	\$3,448	\$3,448	\$12,235
Prosthetics	505	30%	8%	40	\$86,194	\$86,194	\$1,112,590	24%	120	\$258,582	\$258,582	\$3,337,769
Combination	27	30%	0%	0	\$0	\$0	\$0	0%	0	\$0	\$0	\$0
<b>Total</b>	<b>1258</b>			<b>48</b>	<b>\$102,153</b>	<b>\$102,153</b>	<b>\$1,292,848</b>		<b>206</b>	<b>\$486,992</b>	<b>\$436,992</b>	<b>\$4,952,047</b>
				<b>Target:</b>	<b>48</b>				<b>Target:</b>	<b>205</b>		

Target number of cases is remainder of 176 or 333 (of which 60 are BAMC's normal workload) minus assumed capture of 68 CHAMPUS (half of prosthetics, 25% of amputations, open FX, and complications). Therefore the 48 or 205 cases must be referred from other facilities. Assume they are not getting third party reimbursement now.

Captured cases is based upon assessment of types of cases, and available numbers. Amputations, Open FX assumed to be predominantly immediate care needs not suitable for referral, while other complications Dx are suspect without detailed case information.

Figure 43 Potential income due to effective third party collections

## **Appendix K • Extremity Trauma Summary Workload**



# Extremity Trauma Workload Data Summed by Diagnosis & Year

Type	Facility	Time Frame	Bed Days					ALOS					Average Allowed	Average Reimbursable					
			In-House Acute Care (beds)	Convalscant	Medical Hold	Civilian	Other	Supplemental Care	ICU	Sum Total	Reimbursable Potential	Medical Hold			Convalscant	In-House Acute Care (business)	Other	Supplemental Care	ICU
Amputation	MED/DACs	1985-1984	32,463	14,931	15,749	777	8,917	75,151	\$1,330,343	\$41,735,023	\$3,526	2,84	7,08	0.15	1.70	0.12	14.30	\$17,604	\$3,295
Amputation	MED/DACs	1985	7,375	3,623	2,336	184	1,337	17,178	\$1,814,253	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Amputation	MED/DACs	1984	1,968	4,313	1,413	653	5,580	57,973	\$1,515,990	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Amputation	MED/DACs	1985-1984	4,989	4,313	1,413	653	5,580	57,973	\$1,515,990	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Amputation	MED/DACs	1985	1,968	4,313	1,413	653	5,580	57,973	\$1,515,990	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Amputation	MED/DACs	1984	3,021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amputation	MED/DACs	1985-1984	689	340	92	2	1,284	2	1,884	\$1,022,321	\$0	118	1.14	1.06	0.28	14.82	\$16,952	\$0	
Amputation	MED/DACs	1985	647	601	35	2	1,613	1	1,559,674	\$2,921,998	95	6.84	3.30	0.25	0.40	0.08	16.88	\$16,418	\$0
Amputation	MED/DACs	1984	387	280	3	0	671	1,444	\$1,366,659	\$844,255	4	4.96	3.90	0.04	0.11	0.04	16.88	\$17,086	\$0
Amputation	MED/DACs	1985-1984	348	68	68	0	1,740	0	\$1,453,423	\$773,085	83	4.19	0.75	0.59	0.29	0.00	16.82	\$17,632	\$0
Crushing	MED/DACs	1985-1984	686	322	169	4	1,115	2,375	\$357,254	\$29,259	540	2.50	0.40	0.19	0.12	0.00	9.54	\$0	\$0
Crushing	MED/DACs	1985	168	64	0	4	109	0	\$0	\$0	454	1.73	0.00	0.11	0.26	0.00	9.54	\$0	\$0
Crushing	MED/DACs	1984	281	281	6	0	0	395	\$0	\$0	3,19	0.19	0.00	0.19	0.00	9.54	\$0	\$0	
Crushing	MED/DACs	1985-1984	73	52	0	0	0	125	\$0	\$0	3,65	0.00	0.00	0.00	0.00	12.42	\$0	\$0	
Crushing	MED/DACs	1985	120	50	0	0	0	171	\$0	\$0	3,65	0.00	0.00	0.00	0.00	12.42	\$0	\$0	
Crushing	MED/DACs	1984	120	50	0	0	0	171	\$0	\$0	3,65	0.00	0.00	0.00	0.00	12.42	\$0	\$0	
Crushing	MED/DACs	1985-1984	6,854	4,892	4,220	319	7,677	31,892	\$3,360,889	\$16,480,751	16,744	3.94	7.54	0.10	0.29	0.46	19.05	\$22,318	\$9,833
Crushing	MED/DACs	1985	3,422	1,534	799	112	2,022	6,236	\$1,718,184	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Crushing	MED/DACs	1984	2,432	3,258	1,421	207	5,655	15,656	\$1,662,695	\$3,185,965	1,020	3,25	7,08	0.18	1.05	0.08	14.30	\$15,977	\$3,295
Crushing	MED/DACs	1985-1984	2,432	1,668	1,245	67	1,668	6,681	\$3,507,649	\$3,219,940	1,722	3.81	2.22	0.24	0.24	0.00	7.43	\$0	\$0
Crushing	MED/DACs	1985	1,649	668	1,245	67	1,668	6,681	\$3,507,649	\$3,219,940	1,722	3.81	2.22	0.24	0.24	0.00	7.43	\$0	\$0
Crushing	MED/DACs	1984	793	1,003	1,000	0	0	0	\$0	\$0	0	0	0	0	0	0	0	0	0
Crushing	MED/DACs	1985-1984	4,528	4,220	1,245	67	1,668	6,681	\$3,507,649	\$3,219,940	1,722	3.81	2.22	0.24	0.24	0.00	7.43	\$0	\$0
Crushing	MED/DACs	1985	1,649	668	1,245	67	1,668	6,681	\$3,507,649	\$3,219,940	1,722	3.81	2.22	0.24	0.24	0.00	7.43	\$0	\$0
Crushing	MED/DACs	1984	2,879	1,552	0	0	0	0	\$0	\$0	0	0	0	0	0	0	0	0	0
Crushing	MED/DACs	1985-1984	1,033	1,486	39	58	474	1,744	\$1,271,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985	2,834	1,486	39	58	474	1,744	\$1,271,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1984	1,033	1,486	39	58	474	1,744	\$1,271,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985-1984	2,146	681	2,084	29	573	2,745	\$1,091,647	\$45,308	6.22	2.00	6.04	0.07	0.86	0.01	16.23	\$11,822	\$4,541
Crushing	MED/DACs	1985	1,716	197	474	21	32	2,068	\$2,065,624	\$1,853,575	3,588	5.08	1.40	0.06	0.09	0.04	15.14	\$12,103	\$5,914
Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
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Crushing	MED/DACs	1984	67	58	0	0	0	125	\$127,881	\$0	9	7.44	0.00	0.00	0.00	0.00	13.88	\$14,187	\$9,359
Crushing	MED/DACs	1985																	



## Appendix L • Look-Up Table Codes

# Trauma Codes Listing

Source: PASBA file dated August 27, 1994

## Trauma Code

## Trauma Explanation

0  
1  
2  
3  
4  
5  
6  
7  
8  
9

Dir result of action (war)  
Oth battle casualties  
Interv by legal authority  
Assault or intent inflict  
Intent self inflicted  
Occurring while off duty  
Schemes (maneuvers) exer  
scheduled training  
while on duty except 6 or  
Non-military inj unk-duty

Records printed: 10

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Amputation

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
885.	TRAUMATIC AMPUTATION OF THUMB (COMPLETE) (PARTIAL)
885.0	TRAUMATIC AMPUTATION, THUMB (COMPLETE) (PARTIAL), WO COMPLICATION
885.1	TRAUMATIC AMPUTATION OF THUMB (COMPLETE) (PARTIAL), COMPLICATED
886.	TRAUMATIC AMPUTATION OF OTHER FINGER(S) (COMPLETE) (PARTIAL)
886.0	TRAUMA AMPUTATION, OTH FINGER(S) (COMPLETE) (PARTIAL), WO COMPL
886.1	TRAUMA AMPUTATION, OTH FINGERS (COMPLETE) (PARTIAL), COMPLICATED
887.	TRAUMATIC AMPUTATION OF ARM AND HAND (COMPLETE) (PARTIAL)
887.0	TRAUMATIC AMPUTATION, ARM & HAND, UNILATERAL, BELOW ELBOW
887.1	TRAUMATIC AMPUTATION, ARM, HAND, UNILAT, BELOW ELBOW, COMPLICATED
887.2	TRAUMATIC AMPUTATION, ARM & HAND, UNILATERAL, AT OR ABOVE ELBOW
887.3	TRAUMA AMPUTATION, ARM, HAND, UNILAT, AT/ABOVE ELBOW, COMPLICATED
887.4	TRAUMA AMUPTATION, ARM & HAND, UNILATERAL, LEVEL NOT SPECIFIED
887.5	TRAUMA AMPUTATION, ARM, HAND, UNILATERAL, LEVEL NOS, COMPLICATED
887.6	TRAUMATIC AMPUTATION OF ARM & HAND, BILATERAL, ANY LEVEL
887.7	TRAUMATIC AMPUTATION, ARM, HAND, BILATERL, ANY LEVEL, COMPLICATED
895.	TRAUMATIC AMPUTATION OF TOE(S) (COMPLETE) (PARTIAL)
895.0	TRAUMA AMPUTATION, TOE(S) (COMPLETE) (PARTIAL), W/O COMPLICATION
895.1	TRAUMATIC AMPUTATION OF TOE(S), COMPLICATED
896.	TRAUMATIC AMPUTATION OF FOOT (COMPLETE) (PARTIAL)
896.0	TRAUMA AMPUTATION, FOOT (COMPLETE) (PARTIAL), UNILATERAL, WO COMPL
896.1	TRAUMATIC AMPUTATION OF FOOT, UNILATERAL, COMPLICATED
896.2	TRAUMA AMPUTATION, FOOT (COMPLETE) (PARTIAL), BILATERAL, W/O COMPL
896.3	TRAUMATIC AMPUTATION OF FOOT, BILATERAL, COMPLICATED
897.	TRAUMATIC AMPUTATION OF LEG(S) (COMPLETE) (PARTIAL)
897.0	TRAUMA AMPUTATION, LEG(S) UNILATERAL, BELOW KNEE, WO COMPLICATION
897.1	TRAUMATIC AMPUTATION, LEG, UNILATERAL, BELOW KNEE, COMPLICATED
897.2	TRAUMA AMPUTATION, LEG(S), UNILATERAL, AT OR ABOVE KNEE, WO COMPL
897.3	TRAUMATIC AMPUTATION, LEG, UNILATERL, AT/ABOVE KNEE, COMPLICATED
897.4	TRAUMATIC AMPUTATION, LEG(S), UNILATERAL, LEVEL NOS, W/O COMPL
897.5	TRAUMATIC AMPUTATION, LEG(S), UNILATERAL, LEVEL NOS, COMPLICATED
897.6	TRAUMA AMPUTATION, LEG(S), BILATERAL (ANY LEVEL), WO COMPLICATION
897.7	TRAUMATIC AMPUTATION, LEG(S), BILATERAL (ANY LEVEL), COMPLICATED
905.9	LATE EFFECT OF TRAUMATIC AMPUTATION
997.6	LATE AMPUTATION STUMP COMPLICATION
997.60	UNSPECIFIED LATE COMPLICATION OF AMPUTATION STUMP
997.61	NEUROMA OF AMPUTATION STUMP
997.62	INFECTION (CHRONIC) OF AMPUTATION STUMP
997.69	OTHER LATE AMPUTATION STUMP COMPLICATION

Number of Diagnoses: 38

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Crushing

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
906.4	LATE EFFECT OF CRUSHING
927.	CRUSHING INJURY OF UPPER LIMB
927.0	CRUSHING INJURY TO SHOULDER AND UPPER ARM
927.00	CRUSHING INJURY OF SHOULDER REGION
927.01	CRUSHING INJURY OF SCAPULAR REGION
927.02	CRUSHING INJURY OF AXILLARY REGION
927.03	CRUSHING INJURY OF UPPER ARM
927.09	CRUSHING INJURY OF MULTIPLE SITES OF UPPER ARM
927.1	CRUSHING INJURY TO ELBOW AND FOREARM
927.10	CRUSHING INJURY OF FOREARM
927.11	CRUSHING INJURY OF ELBOW
927.2	CRUSHING INJURY TO WRIST AND HAND EXCEPT DIGITS
927.20	CRUSHING INJURY OF HAND(S)
927.21	CRUSHING INJURY OF WRIST
927.3	CRUSHING INJURY OF FINGER(S)
927.8	CRUSHING INJURY OF MULTIPLE SITES OF UPPER LIMB
927.9	CRUSHING INJURY OF UNSPECIFIED SITE OF UPPER LIMB
928.	CRUSHING INJURY OF LOWER LIMB
928.0	CRUSHING INJURY TO HIP AND THIGH
928.00	CRUSHING INJURY OF THIGH
928.01	CRUSHING INJURY OF HIP
928.1	CRUSHING INJURY TO KNEE AND LOWER LEG
928.10	CRUSHING INJURY OF LOWER LEG
928.11	CRUSHING INJURY OF KNEE
928.2	CRUSHING INJURY TO ANKLE AND FOOT
928.20	CRUSHING INJURY OF FOOT
928.21	CRUSHING INJURY OF ANKLE
928.3	CRUSHING INJURY OF TOE(S)
928.8	CRUSHING INJURY OF MULTIPLE SITES OF LOWER LIMB
928.9	CRUSHING INJURY OF UNSPECIFIED SITE OF LOWER LIMB

Number of Diagnoses: 30

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

### Type of Diagnosis: Deep Burn to Extremity

#### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
943.39	BURN, 3D DEGREE NOS, MULTIPLE SITES, UPPER LIMB EXC WRIST, HAND
943.4	BURN, UPPER LIMB EXCEPT WRIST & HAND, 3D DEGREE, DEEP
943.40	BURN NECROSIS DEEP 3D DEGREE, UPPER LIMB EXCEPT WRIST & HAND
943.41	BURN NECROSIS DEEP 3D DEGREE, FOREARM
943.42	BURN NECROSIS DEEP 3D DEGREE, ELBOW
943.43	BURN NECROSIS DEEP 3D DEGREE, UPPER ARM
943.44	BURN NECROSIS DEEP 3D DEGREE, AXILLA
943.45	BURN NECROSIS DEEP 3D DEGREE, SHOULDER
943.46	BURN NECROSIS DEEP 3D DEGREE, SCAPULAR REGION
943.49	BURN NECROSIS DEEP 3D DEGREE, MULTI SITES, ARM EXC WRIST, HAND
943.5	BURN, UPPER LIMB EXCEPT WRIST & HAND, 3D DEG, BODY PART LOSS
943.50	BURN NECROSIS W BODY PART LOSS, UPPER LIMB EXCEPT WRIST, HAND
943.51	BURN NECROSIS W BODY PART LOSS, FOREARM
943.52	BURN NECROSIS W BODY PART LOSS, ELBOW
943.53	BURN NECROSIS W BODY PART LOSS, UPPER ARM
943.54	BURN NECROSIS W BODY PART LOSS, AXILLA
943.55	BURN NECROSIS W BODY PART LOSS, SHOULDER
943.56	BURN NECROSIS W BODY PART LOSS, SCAPULAR REGION
943.59	BURN NECROSIS, BODY PART LOSS, MULT UPPER LIMB EXC WRIST, HAND
944.30	BURN, 3D DEGREE NOS, UNSPECIFIED SITE OF HAND
944.38	BURN, 3D DEGREE NOS, MULTIPLE SITES OF WRIST(S) AND HAND(S)
944.4	BURN OF WRIST AND HAND, 3D DEGREE, DEEP
944.40	BURN NECROSIS DEEP 3D DEGREE, UNSPECIFIED SITE OF HAND
944.41	BURN NECROSIS DEEP 3D DEGREE, SINGLE FINGER (NOT THUMB)
944.42	BURN NECROSIS DEEP 3D DEGREE, THUMB AND NAIL
944.43	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE FINGERS EXCL THUMB
944.44	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE FINGERS INCL THUMB
944.45	BURN NECROSIS DEEP 3D DEGREE, PALM OF HAND
944.46	BURN NECROSIS DEEP 3D DEGREE, BACK OF HAND
944.47	BURN NECROSIS DEEP 3D DEGREE, WRIST
944.48	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE WRIST & HAND SITES
944.5	BURN OF WRIST AND HAND, 3D DEGREE WITH BODY PART LOSS
944.50	BURN NECROSIS W BODY PART LOSS, UNSPECIFIED SITE OF HAND
944.51	BURN NECROSIS W BODY PART LOSS, ONE FINGER EXCLUDING THUMB
944.52	BURN NECROSIS W BODY PART LOSS, THUMB AND NAIL
944.53	BURN NECROSIS W BODY PART LOSS, MULTIPLE FINGERS EXCL THUMB
944.54	BURN NECROSIS W BODY PART LOSS, MULTIPLE FINGERS INCL THUMB
944.55	BURN NECROSIS W BODY PART LOSS, PALM OF HAND
944.56	BURN NECROSIS W BODY PART LOSS, BACK OF HAND
944.57	BURN NECROSIS W BODY PART LOSS, WRIST
944.58	BURN NECROSIS W BODY PART LOSS, MULTIPLE WRIST & HAND SITES
945.30	BURN, 3D DEGREE NOS, UNSPECIFIED SITE OF LOWER LIMB
945.4	BURN OF LOWER LIMB, 3D DEGREE, DEEP
945.40	BURN NECROSIS DEEP 3D DEGREE, UNSPECIFIED SITE OF LOWER LIMB
945.41	BURN NECROSIS DEEP 3D DEGREE, TOE(S) NAIL(S)

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

### Type of Diagnosis: Deep Burn to Extremity

#### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
945.42	BURN NECROSIS DEEP 3D DEGREE, FOOT
945.43	BURN NECROSIS DEEP 3D DEGREE, ANKLE
945.44	BURN NECROSIS DEEP 3D DEGREE, LOWER LEG
945.45	BURN NECROSIS DEEP 3D DEGREE, KNEE
945.46	BURN NECROSIS DEEP 3D DEGREE, THIGH (ANY PART)
945.49	BURN NECROSIS DEEP 3D DEGREE, MULTIPLE SITES, LOWER LIMB(S)
945.5	BURN OF LOWER LIMB, 3D DEGREE WITH BODY PART LOSS
945.50	BURN NECROSIS W BODY PART LOSS, UNSPECIFIED SITE, LOWER LIMB
945.51	BURN NECROSIS WITH BODY PART LOSS, TOE(S)
945.52	BURN NECROSIS WITH BODY PART LOSS, FOOT
945.53	BURN NECROSIS WITH BODY PART LOSS, ANKLE
945.54	BURN NECROSIS WITH BODY PART LOSS, LOWER LEG
945.55	BURN NECROSIS WITH BODY PART LOSS, KNEE
945.56	BURN NECROSIS WITH BODY PART LOSS, THIGH
945.59	BURN NECROSIS W BODY PART LOSS, MULTIPLE SITES, LOWER LIMB(S)

Number of Diagnoses: 60

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Open FX or DXL

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
812.1	FRACTURE OF HUMERUS, UPPER END, OPEN
812.10	FRACTURE OF UNSPECIFIED PART OF UPPER END OF HUMERUS, OPEN
812.11	FRACTURE OF SURGICAL NECK OF HUMERUS, OPEN
812.12	FRACTURE OF ANATOMICAL NECK OF HUMERUS, OPEN
812.13	FRACTURE OF GREATER TUBEROSITY OF HUMERUS, OPEN
812.19	OTHER OPEN FRACTURE OF UPPER END OF HUMERUS
812.3	FRACTURE OF HUMERUS, SHAFT OR UNSPECIFIED PART, OPEN
812.30	FRACTURE OF UNSPECIFIED PART OF HUMERUS, OPEN
812.31	FRACTURE OF SHAFT OF HUMERUS, OPEN
812.5	FRACTURE OF HUMERUS, LOWER END, OPEN
812.50	FRACTURE OF UNSPECIFIED PART OF LOWER END OF HUMERUS, OPEN
812.51	SUPRACONDYLAR FRACTURE OF HUMERUS, OPEN
812.52	FRACTURE OF LATERAL CONDYLE OF HUMERUS, OPEN
812.53	FRACTURE OF MEDIAL CONDYLE OF HUMERUS, OPEN
812.54	FRACTURE OF UNSPECIFIED CONDYLE(S) OF HUMERUS, OPEN
812.59	OTHER FRACTURE OF LOWER END OF HUMERUS, OPEN
813.1	FRACTURE OF RADIUS AND ULNA, UPPER END, OPEN
813.10	OPEN FRACTURE OF UPPER END OF FOREARM, UNSPECIFIED
813.11	FRACTURE OF OLECRANON PROCESS OF ULNA, OPEN
813.12	FRACTURE OF CORONOID PROCESS OF ULNA, OPEN
813.13	MONTEGGIA'S FRACTURE, OPEN
813.14	OTHER & UNSPECIFIED OPEN FX OF PROXIMAL END OF ULNA (ALONE)
813.15	FRACTURE OF HEAD OF RADIUS, OPEN
813.16	FRACTURE OF NECK OF RADIUS, OPEN
813.17	OTH & UNSPECIFIED OPEN FX OF PROXIMAL END OF RADIUS (ALONE)
813.18	FRACTURE OF RADIUS WITH ULNA, UPPER END (ANY PART), OPEN
813.3	FRACTURE OF RADIUS AND ULNA, SHAFT, OPEN
813.30	FRACTURE OF SHAFT OF RADIUS OR ULNA, UNSPECIFIED, OPEN
813.31	FRACTURE OF SHAFT OF RADIUS (ALONE), OPEN
813.32	FRACTURE OF SHAFT OF ULNA (ALONE), OPEN
813.33	FRACTURE OF SHAFT OF RADIUS WITH ULNA, OPEN
813.5	FRACTURE OF RADIUS AND ULNA, LOWER END, OPEN
813.50	OPEN FRACTURE OF LOWER END OF FOREARM, UNSPECIFIED
813.51	COLLES' FRACTURE, OPEN
813.52	OTHER OPEN FRACTURES OF DISTAL END OF RADIUS (ALONE)
813.53	FRACTURE OF DISTAL END OF ULNA (ALONE), OPEN
813.54	FRACTURE OF LOWER END OF RADIUS WITH ULNA, OPEN
813.9	FRACTURE OF RADIUS AND ULNA, UNSPECIFIED PART, OPEN
813.90	FRACTURE OF UNSPECIFIED PART OF FOREARM, OPEN
813.91	FRACTURE OF UNSPECIFIED PART OF RADIUS (ALONE), OPEN
813.92	FRACTURE OF UNSPECIFIED PART OF ULNA (ALONE), OPEN
813.93	FRACTURE OF UNSPECIFIED PART OF RADIUS WITH ULNA, OPEN
814.1	FRACTURE OF CARPAL BONE(S), OPEN
814.10	OPEN FRACTURE OF CARPAL BONE, UNSPECIFIED
814.11	OPEN FRACTURE OF NAVICULAR (SCAPHOID) BONE OF WRIST

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Open FX or DXL

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
814.12	OPEN FRACTURE OF LUNATE (SEMILUNAR) BONE OF WRIST
814.13	OPEN FRACTURE OF TRIQUETRAL (CUNEIFORM) BONE OF WRIST
814.14	OPEN FRACTURE OF PISIFORM BONE OF WRIST
814.15	OPEN FRACTURE OF TRAPEZIUM BONE (LARGER MULTANGULAR), WRIST
814.16	OPEN FRACTURE OF TRAPEZOID BONE (SMALLER MULTANGULAR), WRIST
814.17	OPEN FRACTURE OF CAPITATE BONE (OS MAGNUM) OF WRIST
814.18	OPEN FRACTURE OF HAMATE (UNCIFORM) BONE OF WRIST
814.19	OPEN FRACTURE OF OTHER BONE OF WRIST
815.1	FRACTURE OF METACARPAL BONE(S), OPEN
815.10	OPEN FRACTURE OF METACARPAL BONE(S), SITE UNSPECIFIED
815.11	OPEN FRACTURE OF BASE OF THUMB (FIRST) METACARPAL
815.12	OPEN FRACTURE OF BASE OF OTHER METACARPAL BONE(S)
815.13	OPEN FRACTURE OF SHAFT OF METACARPAL BONE(S)
815.14	OPEN FRACTURE OF NECK OF METACARPAL BONE(S)
815.19	OPEN FRACTURE OF MULTIPLE SITES OF METACARPUS
816.1	FRACTURE OF ONE OR MORE PHALANGES OF HAND, OPEN
816.10	OPEN FRACTURE OF PHALANX OR PHALANGES OF HAND, UNSPECIFIED
816.11	OPEN FX OF MIDDLE OR PROXIMAL PHALANX OR PHALANGES OF HAND
816.12	OPEN FRACTURE OF DISTAL PHALANX OR PHALANGES OF HAND
816.13	OPEN FX OF MULTIPLE SITES OF PHALANX OR PHALANGES OF HAND
817.1	MULTIPLE FRACTURE OF HAND BONES, OPEN
818.1	ILL-DEFINED FRACTURE OF UPPER LIMB, OPEN
819.1	MULTIPLE FRACTURE OF ARMS, ARM WITH RIB AND STERNUM, OPEN
820.1	FRACTURE OF NECK OF FEMUR, TRANSCERVICAL, OPEN
820.12	OPEN FRACTURE OF MIDCERVICAL SECTION OF FEMUR
820.13	OPEN FRACTURE OF BASE OF NECK OF FEMUR
820.19	OTHER OPEN TRANSCERVICAL FRACTURE OF FEMUR
820.3	FRACTURE OF NECK OF FEMUR, PERTROCHANTERIC, OPEN
820.30	OPEN FRACTURE OF UNSPECIFIED TROCHANTERIC, OPEN
820.31	OPEN FRACTURE OF INTERTROCHANTERIC SECTION OF FEMUR
820.32	OPEN FRACTURE OF SUBTROCHANTERIC SECTION OF FEMUR
820.9	UNSPECIFIED FRACTURE, PART OF NECK OF FEMUR, OPEN
821.1	FRACTURE OF FEMUR, SHAFT OR PART NOS, OPEN
821.10	OPEN FRACTURE OF UNSPECIFIED PART OF FEMUR
821.11	OPEN FRACTURE OF SHAFT OF FEMUR
821.3	FRACTURE OF FEMUR, LOWER END, OPEN
821.30	OPEN FRACTURE OF LOWER END OF FEMUR, UNSPECIFIED PART...
821.31	OPEN FRACTURE OF FEMORAL CONDYLE
821.32	OPEN FRACTURE OF LOWER EPIPHYSIS OF FEMUR
821.33	OPEN SUPRACONDYLAR FRACTURE OF FEMUR
821.39	OTHER OPEN FRACTURE OF LOWER END OF FEMUR
822.1	FRACTURE OF PATELLA, OPEN
823.1	FRACTURE TIBIA AND FIBULA, UPPER END, OPEN
823.10	OPEN FRACTURE OF UPPER END OF TIBIA
823.11	OPEN FRACTURE OF UPPER END OF FIBULA

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Open FX or DXL

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
823.12	OPEN FRACTURE OF UPPER END OF FIBULA WITH TIBIA
823.3	FRACTURE OF TIBIA AND FIBULA, SHAFT, OPEN
823.30	OPEN FRACTURE OF SHAFT OF TIBIA
823.31	OPEN FRACTURE OF SHAFT OF FIBULA
823.32	OPEN FRACTURE OF SHAFT OF FIBULA WITH TIBIA
823.9	FRACTURE OF TIBIA AND FIBULA, PART NOS, OPEN
823.90	OPEN FRACTURE OF UNSPECIFIED PART OF TIBIA
823.91	OPEN FRACTURE OF UNSPECIFIED PART OF FIBULA
823.92	OPEN FRACTURE OF UNSPECIFIED PART OF FIBULA WITH TIBIA
824.1	FRACTURE OF ANKLE, MEDIAL MALLEOLUS, OPEN
824.3	FRACTURE OF ANKLE, LATERAL MALLEOLUS, OPEN
824.5	FRACTURE OF ANKLE, BIMALLEOLAR, OPEN
824.7	FRACTURE OF ANKLE, TRIMALLEOLAR, OPEN
824.9	FRACTURE OF ANKLE, UNSPECIFIED, OPEN
825.1	FRACTURE OF CALCANEUS, OPEN
825.3	FRACTURE OF OTHER TARSAL AND METATARSAL BONES, OPEN
825.30	OPEN FRACTURE OF UNSPECIFIED BONE(S) OF FOOT (EXCEPT TOES)
825.31	OPEN FRACTURE OF ASTRAGALUS
825.32	OPEN FRACTURE OF NAVICULAR (SCAPHOID) BONE OF FOOT
825.33	OPEN FRACTURE OF CUBOID BONE
825.34	OPEN FRACTURE OF CUNEIFORM BONE OF FOOT
825.35	OPEN FRACTURE OF METATARSAL BONE(S)
825.39	OTHER OPEN FRACTURES OF TARSAL AND METATARSAL BONES
826.1	FRACTURE OF ONE OR MORE PHALANGES OF FOOT, OPEN
827.1	OTHER, MULTIPLE AND ILL-DEFINED FRACTURES OF LOWER LIMB, OPEN
828.1	MULTIPLE FRACTURE OF LEGS, LEG WITH ARM, RIB AND STERNUM, OPEN
831.10	OPEN DISLOCATION OF SHOULDER, UNSPECIFIED
831.11	OPEN ANTERIOR DISLOCATION OF HUMERUS
831.12	OPEN POSTERIOR DISLOCATION OF HUMERUS
831.13	OPEN INFERIOR DISLOCATION OF HUMERUS
831.14	OPEN DISLOCATION OF ACROMIOCLAVICULAR (JOINT)
832.1	DISLOCATION OF ELBOW, OPEN
832.10	OPEN DISLOCATION OF ELBOW, UNSPECIFIED SITE
832.11	OPEN ANTERIOR DISLOCATION OF ELBOW
832.12	OPEN POSTERIOR DISLOCATION OF ELBOW
832.13	OPEN MEDIAL DISLOCATION OF ELBOW
832.14	OPEN LATERAL DISLOCATION OF ELBOW
832.19	OPEN DISLOCATION OF OTHER SITE OF ELBOW
833.1	DISLOCATION OF WRIST, OPEN
833.10	OPEN DISLOCATION OF WRIST, UNSPECIFIED PART
833.11	OPEN DISLOCATION OF RADIOULNAR (JOINT), DISTAL
833.12	OPEN DISLOCATION OF RADIOCARPAL (JOINT)
833.13	OPEN DISLOCATION OF MIDCARPAL (JOINT)
833.14	OPEN DISLOCATION OF CARPOMETACARPAL (JOINT)
833.15	OPEN DISLOCATION OF METACARPAL (BONE), PROXIMAL END

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Open FX or DXL

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
833.19	OPEN DISLOCATION OF OTHER PART OF WRIST
834.1	DISLOCATION OF FINGER, OPEN
834.10	OPEN DISLOCATION OF FINGER, UNSPECIFIED PART
834.11	OPEN DISLOCATION OF METACARPOPHALANGEAL (JOINT)
834.12	OPEN DISLOCATION INTERPHALANGEAL (JOINT), HAND
835.1	DISLOCATION OF HIP, OPEN
835.10	OPEN DISLOCATION OF HIP, UNSPECIFIED SITE
835.11	OPEN POSTERIOR DISLOCATION OF HIP
835.12	OPEN OBTURATOR DISLOCATION OF HIP
835.13	OTHER OPEN ANTERIOR DISLOCATION OF HIP
836.4	DISLOCATION OF PATELLA, OPEN
836.6	OTHER DISLOCATION OF KNEE, OPEN
836.60	DISLOCATION OF KNEE, UNSPECIFIED PART, OPEN
836.61	ANTERIOR DISLOCATION OF TIBIA, PROXIMAL END, OPEN
836.62	POSTERIOR DISLOCATION OF TIBIA, PROXIMAL END, OPEN
836.63	MEDIAL DISLOCATION OF TIBIA, PROXIMAL END, OPEN
836.64	LATERAL DISLOCATION OF TIBIA, PROXIMAL END, OPEN
836.69	OTHER DISLOCATION OF KNEE, OPEN
837.1	DISLOCATION OF ANKLE, OPEN
838.1	DISLOCATION OF FOOT, OPEN
838.10	OPEN DISLOCATION OF FOOT, UNSPECIFIED PART
838.11	OPEN DISLOCATION OF TARSAL (BONE), JOINT UNSPECIFIED
838.12	OPEN DISLOCATION OF MIDTARSAL (JOINT)
838.13	OPEN DISLOCATION OF TARSOMETATARSAL (JOINT)
838.14	OPEN DISLOCATION OF METATARSAL (BONE), JOINT UNSPECIFIED
838.15	OPEN DISLOCATION OF METATARSOPHALANGEAL (JOINT)
838.16	OPEN DISLOCATION OF INTERPHALANGEAL (JOINT), FOOT
838.19	OPEN DISLOCATION OF OTHER PART OF FOOT

Number of Diagnoses: 163

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Other Complication

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
820.22	CLOSED FRACTURE OF SUBTROCHANTERIC SECTION OF FEMUR
820.8	UNSPECIFIED FRACTURE, PART OF NECK OF FEMUR, CLOSED
835.00	CLOSED DISLOCATION OF HIP, UNSPECIFIED SITE
836.3	DISLOCATION OF PATELLA, CLOSED
836.59	OTHER DISLOCATION OF KNEE, CLOSED
880.1	OPEN WOUND OF SHOULDER AND UPPER ARM, COMPLICATED
880.10	OPEN WOUND OF SHOULDER REGION, COMPLICATED
880.11	OPEN WOUND OF SCAPULAR REGION, COMPLICATED
880.12	OPEN WOUND OF AXILLARY REGION, COMPLICATED
880.13	OPEN WOUND OF UPPER ARM, COMPLICATED
880.19	OPEN WOUND, MULTIPLE SITES, SHOULDER, UPPER ARM, COMPLICATED
881.1	OPEN WOUND OF ELBOW, FOREARM AND WRIST, COMPLICATED
881.10	OPEN WOUND OF FOREARM, COMPLICATED
881.11	OPEN WOUND OF ELBOW, COMPLICATED
881.12	OPEN WOUND OF WRIST, COMPLICATED
882.1	OPEN WOUND OF HAND EXCEPT FINGERS ALONE, COMPLICATED
882.2	OPEN WOUND OF HAND EXCEPT FINGERS ALONE, W TENDON INVOLVEMENT
883.1	OPEN WOUND OF FINGERS, COMPLICATED
884.1	MULTIPLE & UNSPECIFIED OPEN WOUND OF UPPER LIMB, COMPLICATED
884.2	MULTIPLE & UNSPEC OPEN WOUND, UPPER LIMB, W TENDON INVOLVEMENT
890.1	OPEN WOUND OF HIP AND THIGH, COMPLICATED
891.1	OPEN WOUND OF KNEE, LEG (EXCEPT THIGH), & ANKLE, COMPLICATED
891.2	OPEN WOUND, KNEE, LEG (EXCEPT THIGH), ANKLE, W TENDON INVOLVEMENT
892.1	OPEN WOUND OF FOOT EXCEPT TOE(S) ALONE, COMPLICATED
892.2	OPEN WOUND OF FOOT EXCEPT TOE(S) ALONE, W TENDON INVOLVEMENT
893.1	OPEN WOUND OF TOE(S), COMPLICATED
893.2	OPEN WOUND OF TOE(S), WITH TENDON INVOLVEMENT
894.1	MULTIPLE & UNSPECIFIED OPEN WOUND OF LOWER LIMB, COMPLICATED
894.2	MULTIPLE/NOS OPEN WOUND OF LOWER LIMB, W TENDON INVOLVEMENT
904.1	INJURY TO SUPERFICIAL FEMORAL ARTERY
904.41	INJURY TO POPLITEAL ARTERY
906.1	LATE EFFECT OF OPEN WOUND OF EXTREMITIES
958.3	POSTTRAUMATIC WOUND INFECTION NOT ELSEWHERE CLASSIFIED
V09.0	INFECTION WITH MICROORGANISMS RESISTANT TO PENICILLINS

Number of Diagnoses: 34

## Center of Excellence for Extremity Trauma

### Applicable Diagnoses with Codes and Grouping

#### Type of Diagnosis: Prosthesis

##### Diagnosis

<u>Code</u>	<u>Diagnosis</u>
996.4	MECHANICAL COMPLICATION, INTERNAL ORTHOPEDC PROSTHESIS/GRAFT
996.52	MECHANICAL COMPLICATION DUE TO GRAFT OF OTH TISSUE, NEC
996.62	INFECTION/INFLAMM REACTION, OTH VAS DEVICE/IMPLANT/GRFT
996.66	INFECTION/INFLAMM REACTION, INTERNAL JOINT PROSTHESIS
996.69	INFECTION/INFLAMM REACTION, OTH INT PROSTH DEV//IMPL/GRFT
996.77	OTHER COMPLICATIONS, INTERNAL JOINT PROSTHESIS
996.78	OTHER COMPLICATION, OTHER INT ORTHO DEVICE/IMPLANT/GRAFT
V52.8	FITTING AND ADJUSTMENT OF OTHER SPECIFIED PROSTHETIC DEVICE

Number of Diagnoses: 8

Records printed: 333

## Catchment Area Codes Listing

Source: PASBA file dated August 27, 1994

<u>Catchment Code</u>	<u>Catchment Area</u>
A0101	TAMC, Oahu, HI
A0111	Ft Wainwright, AK
A1001	WRAMC, Washington, DC
A1021	Ft Belvoir, VA
A1031	WAMC, Fort Bragg, NC
A1041	Ft Devens, MA
A1051	Ft Dix, NJ
A1061	Ft Eustis, VA
A1071	Ft Knox, KY
A1081	Ft Lee, VA
A1091	Ft Meade, MD
A1111	Ft Monmouth, NY
A1121	West Point, NY
A1131	Ft Benjamin Harrison
A1201	FAMC, Denver, CO
A1211	Ft Carson, CO
A1221	Ft Leavenworth, KS
A1231	Ft Leonard Wood, MO
A1241	Ft Riley, KS
A1301	DDEAMC, Ft Gordon, GA
A1311	Ft Benning, GA
A1321	Ft Campbell, KY
A1331	Ft Jackson, SC
A1341	Ft McClellan, AL
A1351	Redstone Arsenal, AL
A1361	Ft Rucker, AL
A1371	Ft Stewart, GA
A1401	BAMC, Ft Sam Houston, TX
A1411	Ft Hood, TX
A1421	Ft Polk, LA
A1431	Ft Sill, OK
A1501	WBAMC, Ft Bliss, TX
A1511	Ft Huachuca, AZ
A1601	Presidio-SF, CA
A1611	Ft Ord, CA
A1631	Ft Irwin, CA
A1701	MAMC, Ft Lewis, WA
F0155	Maxwell AFB, AL
F0252	Elmendorf AFB, AK
F0451	Davis-Monthan AFB, AZ
F0452	Luke AFB, AZ
F0454	Williams AFB, AZ
F0553	Little Rock AFB, AR
F0652	Beale AFB, CA
F0653	Castle AFB, CA
F0654	Edwards AFB, CA

## Catchment Area Codes Listing

Source: PASBA file dated August 27, 1994

### Catchment Code

F0658  
F0661  
F0664  
F0670  
F0857  
F0860  
F1051  
F1252  
F1253  
F1256  
F1258  
F1263  
F1355  
F1356  
F1651  
F1752  
F1756  
F2252  
F2352  
F2451  
F2656  
F2851  
F2853  
F2954  
F3151  
F3251  
F3453  
F3551  
F3552  
F3554  
F3653  
F3663  
F3753  
F3851  
F3852  
F3954  
F4052  
F4057  
F4552  
F4651  
F4852  
F4857  
F4865  
F4869  
F4871  
F4877

### Catchment Area

March AFB, CA  
McClellan AFB, CA  
Travis AFB, CA  
Vandenberg AFB, CA  
USAF Academy, CO  
Peterson AFB, CO  
Dover AFB, DE  
Eglin AFB, FL  
MacDill AFB, FL  
Patrick AFB, FL  
Tyndall AFB, FL  
Homestead AFB, FL  
Moody AFB, GA  
Robins AFB, GA  
Mountain Home AFB, ID  
Chanute AFB, IL  
Scott AFB, IL  
Barksdale AFB, LA  
Loring AFB, ME  
Andrews AFB, MD  
Kl Sawyer AFB, MI  
Columbus AFB, MS  
Keesler AFB, MS  
Whiteman AFB, MO  
Offutt AFB, NE  
Nellis AFB, NV  
McGuire AFB, NJ  
Holloman AFB, NM  
Kirtland AFB, NM  
Cannon AFB, NM  
Griffiss AFB, NY  
Plattsburg AFB, NY  
Symr Johnson AFB, NC  
Grand Forks AFB, ND  
Minot AFB, ND  
Wright-Patterson AFB, OH  
Tinker AFB, OK  
Altus AFB, OK  
Shaw AFB, SC  
Ellsworth AFB, SD  
Bergstrom AFB, TX  
Carswell AFB, TX  
Lackland AFB, TX  
Reese AFB, TX  
Sheppard AFB, TX  
Laughlin AFB, TX

# Catchment Area Codes Listing

Source: PASBA file dated August 27, 1994

<u>Catchment Code</u>	<u>Catchment Area</u>
F4879	Dyess AFB, TX
F4951	Hill AFB, UT
F5151	Lanqley AFB, VA
F5351	Fairchild AFB, WA
F5652	FE Warren AFB, WY
N00183	Portsmouth, VA
N00203	Pensacola, FL
N00211	Great Lakes, IL
N00232	Jacksonville, FL
N00259	San Diego, CA
N00285	Corpus Christi, TX
N00619	Oakland, CA
N0498A	Bethesda, MD
N35949	Twentynine Palms, CA
N41338	Adak, AK
N60002	Millington, TN
N61337	Beaufort, SC
N61726	Groton, CT
N65428	NH Roosevelt Roads
N65492	Orlando, FL
N66094	Cherry Point, NC
N66095	Lemoore, CA
N66097	Oak Harbor, WA
N66098	Patuxent River, MD
N68084	Charleston, SC
N68086	Newport, RI
N68090	Long Beach, CA
N68093	Camp Lejeune, NC
N68094	Camp Pendleton, CA
N68095	Bremerton, WA
P190	USTF Baltimore
P192	USTF Nassau Bay
P194	USTF Seattle
ZZZZ	Non Catchment Area

Records printed: 126

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
000	INJURED BOARDING OR ALIGHTING FIXED-WING MILITARY AIRCRAFT
001	FX-WG MIL ACFT ACC IN TAXIING, TAKEOFF, LANDING ON CARRIER
002	FX-WG MIL ACFT ACC IN TAXIING, NOT ON CARRIER/UNSPECIFIED
003	FX-WG MIL ACFT ACC ON TAKEOFF, NOT ON CARRIER/UNSPECIFIED
004	FX-WG MIL ACFT ACC ON LANDING, NOT ON CARRIER/UNSPECIFIED
005	FX-WG MIL ACFT ACC ON TERMINATION OF FLIGHT NOT AT AIRFIELD
006	RADIATION INJURY OR NUCLEAR ACCIDENT IN FX-WG MIL AIRCRAFT
009	INJURED IN OTHER FIXED-WING MILITARY AIRCRAFT ACCIDENT
010	INJURED BOARDING OR ALIGHTING ROTARY-WING MILITARY AIRCRAFT
011	ROT-WG MIL ACFT ACC IN TAXIING, TAKEOFF, LANDING ON CARRIER
012	ROT-WG MIL ACFT ACC TAXIING/HOVERING, NOT ON CARRIER/UNSPEC
013	ROT-WG MIL ACFT ACC ON TAKEOFF, NOT ON CARRIER/UNSPECIFIED
014	ROT-WG MIL ACFT ACC ON LANDING, NOT ON CARRIER/UNSPECIFIED
015	ROTARY-WING MIL AIRCRAFT ACCIDENT ON TERMINATION OF FLIGHT
016	INJURED IN OTHER ROTARY-WINGED MILITARY AIRCRAFT ACCIDENT
017	INJURED IN OR BOARDING MILITARY GLIDER
018	INJURED IN OR BOARDING MILITARY LIGHTER-THAN-AIR CRAFT
019	INJURED IN OR BOARDING MILITARY PLATFORM (OR LIKE AIRCRAFT)
020	INJURED PARACHUTING FROM DAMAGED/FAILED MIL ACFT, ANY CAUSE
021	INJURED BY JETBLAST/PLANE PART IN PARACHUTING FROM MIL ACFT
022	INJURD BY PARACHUTE NOT OPENING IN PARACHUTING FROM MIL ACFT
023	INJURED BY OPENING SHOCK IN PARACHUTING FROM MIL AIRCRAFT
024	INJURED BY GROUND IMPACT AFTER PARACHUTING FROM MIL AIRCRAFT
025	INJ PARACHUTING MIL ACFT, DRAGGED BY OPEN CHUTE AFTER LANDING
026	INJ PARACHUTING MIL ACFT, OTHER OR UNSPECIFIED CIRCUMSTANCES
028	INJ INCIDENT TO MILITARY ACFT ACC, OCCURRED ON ACFT CARRIER
029	INJ INCIDENT TO MIL ACFT ACC, NOT SPEC OCCURRING ON ACFT CARR
030	INJ IN FLIGHT ON FIXED/UNSPEC-WING COMMERCIAL TRANSPORT ACFT
031	INJ IN FLIGHT ON OTH THAN FIXED-WING COMMERCIAL TRANS ACFT
032	INJ IN FLIGHT ON OTHER/UNSPEC NON-MIL FIXED/UNSPEC-WING ACFT
033	INJURED IN OTHER/UNSPECIFIED NON-MILITARY AIRCRAFT
034	INJURED BOARDING OR ALIGHTING FROM COMMERCIAL TRANSPORT ACFT
035	INJURED BOARDING OR ALIGHTING FROM OTHER NON-MILITARY ACFT
036	INJ INCIDENT TO FLIGHT INVOLVING COMMERCIAL TRANSPORT ACFT
037	INJ INCIDENT TO FLIGHT INVOLVING OTHER NON-MILITARY ACFT
038	PARACHUTING, NONMIL ACFT NOT DUE TO ACFT DAMAGE/FAILURE(90+)
039	INJ INCIDENT TO FLIGHT OF NON-MIL ACFT IN UNSPEC ACFT ACC
040	ASTRONAUT INJ IN SPACECRAFT BLAST-OFF ACC WITH NO ESCAPE
041	ASTRONAUT INJ IN SPACECRAFT BLAST-OFF ACCIDENT AND EJECTED
042	ASTRONAUT IN SPACECRAFT AND INJURED IN ACC DURING ASCENT
043	ASTRONAUT IN SPACECRAFT AND INJURED IN ACC WHILE IN ORBIT
044	ASTRONAUT IN SPACECRAFT AND INJURED IN ACC DURING RE-ENTRY
045	ASTRONAUT IN SPACECFT, INJ ON IMPACT AFTER RE-ENTRY, NO ESCAPE
046	ASTRONAUT IN SPACECFT, INJ ON IMPACT AFTER RE-ENTRY, ESCAPED

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
047	INJ INCIDENT TO SPACECFT FUEL HANDLING ACC INV GROUND CREW
048	INJURED INCIDENT TO SPACECFT EXPLOSION INV GROUND CREW
049	INJURED INCIDENT TO OTHER/UNSPEC ACCIDENT INV SPACECRAFT
051	ESCAPE SYS INJ ARISING FROM ACCELERATIVE FORCES ON FIRING
052	ESCAPE SYS INJ ARISING FROM IMPACT W/PARTS OF ACFT/SPACECFT
053	ESCAPE SYSTEM INJURIES ARISING FROM WINDBLAST
054	ESCAPE SYS INJ DURING FALL WHEN FREE FROM AIRCRAFT/SPACECFT
055	ESCAPE SYSTEM INJURIES ARISING FROM IMPACT ON LAND OR WATER
056	ESCAPE SYSTEM INJURIES ARISING FROM UNDERWATER EJECTION
057	ESCAPE SYSTEM INJURIES ARISING FROM OTH/UNSPEC CIRCUMSTANCES
100	DRIVER INJURED IN NON-MILITARY MOTOR VEHICLE ACCIDENT
101	PASSENGER INJURED IN NON-MILITARY MOTOR VEHICLE ACCIDENT
102	UNSPEC OCCUPANT INJURED IN NON-MILITARY MOTOR VEHICLE ACC
103	INJURED IN BOARDING OR ALIGHTING FROM NON-MILITARY VEHICLE
104	PEDESTRIAN INJURED IN NON-MILITARY VEHICLE ACCIDENT
105	PEDAL CYCLIST/RIDER INJURED IN NON-MILITARY VEHICLE ACCIDENT
106	MOTORCYCLIST/RIDER INJURED IN NON-MILITARY VEHICLE ACCIDENT
107	DRIVER/RIDER INJ IN TRACKED/SEMI-TRACKED NON-MIL VEHICLE ACC
109	INJURY TO OTHER OR UNSPECIFIED PERSON IN NON-MIL VEHICLE ACC
110	DRIVER INJURED IN MILITARY MOTOR VEHICLE ACCIDENT
111	PASSENGER INJURED IN MILITARY MOTOR VEHICLE ACCIDENT
112	UNSPEC OCCUPANT INJURED IN MILITARY MOTOR VEHICLE ACCIDENT
113	INJURED IN BOARDING OR ALIGHTING FROM MILITARY MOTOR VEHICLE
114	PEDESTRIAN INJURED IN A MILITARY MOTOR VEHICLE ACCIDENT
115	PEDAL CYCLIST/RIDER INJURED IN MILITARY VEHICLE TRAFFIC ACC
116	MOTORCYCLIST/RIDER INJURED IN MILITARY VEHICLE TRAFFIC ACC
117	DRIVER/RIDER INJ IN TRACKED/SEMI-TRACKED MIL VEHICLE ACC
119	OTHER/UNSPECIFIED PERSON INJURED IN MILITARY VEHICLE ACC
120	NONTRAFFIC INJ TO DRIVER, NONMIL VEHICLE, EXCEPT 126/127(90+)
121	NONTRAFFIC INJ TO PASSENGER, NONMIL VEHICLE, EXC 126/127(90+)
122	NONTRAFFIC INJURY TO UNSPEC OCCUPANT OF NONMIL VEHICLE (90+)
123	NONTRAFFIC INJ BOARDING/ALIGHTING FROM NONMIL VEHICLE (90+)
124	NONTRAFFIC INJURY TO PEDESTRIAN BY NONMILITARY VEHICLE (90+)
126	NONTRAFFIC INJ TO MOTOR CYCLIST BY NONMILITARY VEHICLE (90+)
127	NONTRAFFIC INJ TO OCCUPANT, NONMIL TRACK/SEMI-TRACK VEH (90+)
129	NONTRAFFIC INJURY TO OTHER/UNSPEC PERSON, NONMIL VEHICLE(90+)
130	NONTRAFFIC INJURY TO DRIVER, MIL VEHICLE, EXCL 126/127 (90+)
131	NONTRAFFIC INJ TO PASSENGER, MIL VEHICLE, EXCL 126/127 (90+)
132	NONTRAFFIC INJURY TO UNSPEC OCCUPANT OF MIL VEHICLE (90+)
133	NONTRAFFIC INJURY BOARDING/ALIGHTING FROM MIL VEHICLE (90+)
134	NONTRAFFIC INJURY TO PEDESTRIAN BY MILITARY VEHICLE (90+)
136	NONTRAFFIC INJURY TO MOTOR CYCLIST BY MILITARY VEHICLE (90+)
137	NONTRAFFIC INJ TO OCCUPANT, MIL TRACK/SEMI-TRACK VEHICLE(90+)
139	NONTRAFFIC INJURY TO OTHER/UNSPEC PERSON, MIL VEHICLE (90+)

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

140	INJURED IN RAILWAY ACCIDENT
149	INJURED IN OTHER SPECIFIED LAND TRANSPORT ACCIDENT
150	INJ BOARDING/ALIGHTING IN WATER TRANSPORT ACC INV SUBMERSION
151	INJ OCCUPANT OF SM BOAT IN WATER TRANSPORT ACC W/ SUBMERSION
159	OTHER INJURY IN WATER TRANSPORT ACCIDENT INV SUBMERSION
160	INJ IN FALL ON BOARDING/ALIGHTING IN WATER TRANSPORT ACCIDENT
161	TWIST,TURN,SLIP,RUN,W/O FALL IN BOARD/ALIGHT,WATER TRANS ACC
162	FALL ONE LEVEL TO ANOTHER NOT BOARD/ALIGHT, WATER TRANS ACC
163	FALL ON SAME LEVEL NOT IN BOARDING/ALIGHTING,WATER TRANS ACC
164	TWIST,TURN,SLIP,RUN,W/O FALL NOT BOARD/ALIGHT,WATR TRANS ACC
170	WATER TRANS ACC INVOLVING BOILERS AND GAUGES IN ENGINE ROOM
171	WATER TRANSPORT ACC INVOLVING OTHER MACHINERY IN ENGINE ROOM
172	WATER TRANSPORT ACCIDENT INVOLVING OTHER MACHINERY
190	INJURED BOARDING/ALIGHTING IN OTHER WATER TRANSPORT ACCIDENT
191	INJURED BY NOXIOUS FUMES IN WATER TRANSPORT ACCIDENT
192	INJ BY EXCESSIVE HEAT, ENGINE/BOILER ROOM IN WATER TRANS ACC
193	INJURED DUE TO INADEQUATE VENTILATION IN WATER TRANSPORT ACC
194	EFFECTS OF ROUGH WEATHER,NEC(NOT SEASICKNES),WATER TRANS ACC
195	WATER TRANSPORT DIVING ACCIDENT (EXCLUDES 861 AND 961) (90+)
196	INJ DUE TO WATERTIGHT DOORS & HATCH COVERS, WATER TRANS ACC
197	RADIATION OR NUCLEAR ACC INJURY, WATER TRANSPORT ACCIDENT
199	INJ DUE TO OTHER NAUTICAL HAZARD IN WATER TRANSPORT ACCIDENT
201	BASKETBALL INJURY OCCURRING ON BOARD SHIP
203	BOXING INJURY OCCURRING ON BOARD SHIP
204	CALISTHENICS/GYMNASTICS (PT) INJURY OCCURRING ON BOARD SHIP
207	HANDBALL, FIVES, SQUASH,JAI ALAI INJ OCCURRING ON BOARD SHIP
212	SOFTBALL OR ROUNDERS INJURY OCCURRING ON BOARD SHIP
213	SWIMMING OR DIVING INJURY OCCURRING ON BOARD SHIP
214	TENNIS OR BADMINTON INJURY OCCURRING ON BOARD SHIP
216	WRESTLING OR JUDO INJURY OCCURRING ON BOARD SHIP
219	OTHER ATHLETICS AND SPORTS INJURIES OCCURRING ON BOARD SHIP
220	BASEBALL INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
221	BASKETBALL INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
222	BOATING INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
223	BOXING INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
224	CALISTHENICS/GYMNASTIC (PT) INJ AT OTHER/UNSPECIFIED PLACE
225	CRICKET INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
226	FOOTBALL (AMERICAN) INJ OCCURRING AT OTHER/UNSPECIFIED PLACE
227	HANDBALL,FIVES,SQUASH,JAI ALAI INJ AT OTH/UNSPECIFIED PLACE
228	HOCKEY INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
229	MOUNTAINEERING,ROCK CLIMBING,SKIING,TOBOGGANING INJURY (90+)
230	RUGGER INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
231	SOCCER AND FOOTBALL (UNSPEC) INJURY AT OTHER/UNSPEC PLACE
232	SOFTBALL AND ROUNDERS INJURY AT OTHER/UNSPECIFIED PLACE

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

233	SWIMMING,DIVING,WATER POLO INJURY AT OTHER/UNSPECIFIED PLACE
234	TENNIS/BADMINTON INJURY OCCURRING AT OTHER/UNSPECIFIED PLACE
235	TRACK AND FIELD EVENTS INJURY AT OTHER/UNSPECIFIED PLACE
236	WRESTLING, JUDO, UNARMED COMBAT TRAINING INJ, UNSPEC PLACE
237	HORSEMANSHIP INJURY OCCURRING AT UNSPECIFIED PLACE
239	OTHER ATHLETICS AND SPORTS INJURY (EXCLUDES OBSTACLE COURSE)
250	POSTVACCINAL ENCEPHALITIS FOLLOWING PROPHYLACTIC INOCULATION
251	SMALLPOX VACCINATION REACTION OTHER THAN ENCEPHALITIS
252	TYPHOID AND/OR PARATYPHOID VACCINE REACTION
253	TETANUS TOXIN/ANTITOXIN REACTION FOLLOWING INOCULATION
254	TETANUS TOXOID REACTION FOLLOWING PROPHYLACTIC INOCULATION
255	DIPHThERIA ANTITOXIN OR DIPHThERIA TOXOID REACTION
256	BCG REACTION FOLLOWING PROPHYLACTIC INOCULATION
257	REACTION TO PROPHYLACTIC USE OF ANTIBIOTICS
265	OTHER SPECIFIED SINGLE VACCINE REACTION
266	OTHER SPECIFIED SINGLE TOXOID OR ANTITOXIN REACTION
267	UNSPECIFIED VACCINE, TOXOID, OR ANTITOXIN REACTION
268	REACTION TO COMBINATION OF TWO/MORE VACCINE,TOXOID,ANTITOXIN
269	REACTION TO OTHER BIOLOGICAL SUBSTANCES OR IMMUNE SERUM
273	COMPLI OF ANESTHESIA ADMIN W DIAG/NONThERAPEUTIC PROCEDURES
274	COMPLICATIONS OF SURGICAL PROCEDURES, EXCEPT IN ThERAPY
275	COMPLICATIONS OF DIAGNOSTIC USE OF X-RAY/RADIOACTIVE ISOTOPE
276	COMPLICATIONS OF DIAGNOSTIC SPINAL TAP
279	COMPLICATIONS OF OTHER NONThERAPEUTIC TEST OR PROCEDURE
280	COMPLI BLOOD TRANSFUSION, BLOOD SERUM, PLASMA, OR SUBSTITUTE
281	COMPLICATIONS OF ThERAPEUTIC ADMINISTRATION OF ANTIBIOTICS
282	COMPLI ThERAPEUTIC ADMINISTRATION OF OTHER DRUGS/BIOLOGICALS
283	COMPLI ANESTHESIA USED IN CONNECTION W/ThERAPEUTIC PROCEDURE
284	COMPLICATIONS OF ThERAPEUTIC PROCEDURE IN SURGICAL TREATMENT
285	COMPLI OF TREATMENT BY X-RAY,RADIUM, OR RADIOACTIVE ISOTOPES
286	COMPLICATIONS OF ThERAPEUTIC SPINAL TAP
287	COMPLICATIONS OF OTHER SPECIFIED ThERAPY
289	COMPLICATIONS OF UNSPECIFIED MED/SURG ThERAPEUTIC PROCEDURE
299	LATE COMPLICATIONS OR LATE EFFECTS OF OLD INJURIES
300	INJ IN BLAST AT TIME OF ENEMY NUCLEAR EXPLOSION, DIR EFFECTS
301	INJ BY HEAT AT TIME OF ENEMY NUCLEAR EXPLOSION, DIR EFFECTS
302	EXPOSURE PROMPT IONIZING RADIATION, ENEMY NUCLEAR EXPLOSION
303	INJURED BY SECONDARY MISSILE FROM ENEMY NUCLEAR EXPLOSION
304	INJURED BY FIRE SECONDARY TO ENEMY NUCLEAR EXPLOSION
305	OTH SPEC SECONDARY EFFECT AT TIME OF ENEMY NUCLEAR EXPLOSION
309	UNSPECIFIED DIRECT EFFECTS OF ENEMY NUCLEAR EXPLOSION
310	EXPOSURE TO RESIDUAL RADIATION AFTER ENEMY NUCLEAR EXPLOSION
311	INGESTION/INHALATION RADIOACTIVE PRODUCT OF ENEMY NUCL EXPLO
320	INJURED BY ENEMY LUNG IRRITANTS AND IRRITANT SMOKES

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
321	INJURED BY VESICANTS OF ENEMY CHEMICAL WARFARE
322	INJURED BY ENEMY'S NERVE GASES
330	INJURED BY ENEMY LACRIMATORS AND SCREENING SMOKES
339	INJ BY OTHER ENEMY CHEMICAL WARFARE AGENT (NOT INCENDIARIES)
359	INJURED BY ENEMY BIOLOGICAL WARFARE AGENTS
400	INJURED IN AIRCRAFT BY ENEMY ARTILLERY SHELL
401	INJURED IN AIRCRAFT BY ENEMY ROCKET
402	INJURED IN AIRCRAFT BY ENEMY BALLISTIC MISSILE
409	INJURED IN AIRCRAFT BY ENEMY SHELL FRAGMENT OTHERWISE UNSPEC
410	INJ IN ACFT, ENEMY BULLET(NONEXPLOSIVE, NONINCENDIARY, UNSPEC)
411	INJURED IN AIRCRAFT BY ENEMY EXPLOSIVE BULLET
412	INJURED IN AIRCRAFT BY ENEMY INCENDIARY BULLET
418	INJ IN AIRCRAFT BY OTHER SPECIFIED ENEMY CONVENTIONAL WEAPON
419	INJ IN ACFT BY UNSPEC ENEMY WEAPON, PRESUMABLY CONVENTIONAL
420	INJURED ON BOARD SHIP BY ENEMY ARTILLERY SHELL
421	INJURED ON BOARD SHIP BY ENEMY ROCKET
422	INJURED ON BOARD SHIP BY ENEMY BALLISTIC MISSILE
423	INJURED ON BOARD SHIP BY ENEMY FREE-FALLING BOMB
426	INJURED ON BOARD SHIP BY ENEMY CONTACT MINE OR TORPEDO
427	INJURED ON BOARD SHIP BY ENEMY UNDERWATER BLAST
429	INJ ON BOARD SHIP BY ENEMY SHELL FRAGMENT, OTHER/UNSPECIFIED
430	INJ ON SHIP, ENEMY BULLET, NONEXPLOSIVE, NONINCENDIARY, UNSPEC
431	INJURED ON BOARD SHIP BY ENEMY EXPLOSIVE BULLET
432	INJURED ON BOARD SHIP BY ENEMY INCENDIARY BULLET
438	INJURED ON BOARD SHIP BY OTH ENEMY SPEC CONVENTIONAL WEAPON
439	INJ ON SHIP BY UNSPEC ENEMY WEAPON, PRESUMABLY CONVENTIONAL
440	INJURED ON LAND/UNSPEC LOCATION BY ENEMY ARTILLERY SHELL
441	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY ROCKET
442	INJURED ON LAND/UNSPEC LOCATION BY ENEMY BALLISTIC MISSILE
443	INJURED ON LAND/UNSPEC LOCATION BY ENEMY FREE-FALLING BOMB
444	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY MORTAR
445	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY BAZOOKA
446	INJURED ON LAND BY ENEMY ANTIPERSONNEL MINE, BOOBY TRAP, ETC
447	INJURED ON LAND/UNSPEC LOCATION BY OTHER/UNSPEC ENEMY MINE
448	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY GRENADE
449	INJURED ON LAND/UNSPEC BY ENEMY SHELL FRAGMENT, OTH/UNSPEC
450	INJURED BY ENEMY BULLET, NONEXPLOSIVE, NONINCENDIARY, UNSPEC
451	INJURED ON LAND/UNSPEC LOCATION BY ENEMY EXPLOSIVE BULLET
452	INJURED ON LAND/UNSPEC LOCATION BY ENEMY INCENDIARY BULLET
453	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY FLAMETHROWER
454	INJ BY OTHER ENEMY INCENDIARIES (INCLUDES INCENDIARY BOMB)
455	INJURED ON LAND/UNSPECIFIED LOCATION BY ENEMY BAYONET, ETC.
456	PUNJI STICK INJURY (DELETED 1 JAN 90)
458	INJURED ON LAND BY OTHER ENEMY SPECIFIED CONVENTIONAL WEAPON

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
459	INJ ON LAND BY UNSPEC ENEMY WEAPON, PRESUMABLY CONVENTIONAL
460	INJURED IN AIRCRAFT CRASH OR DESTRUCTION CAUSED BY ENEMY
461	INJURED IN SINKING OF VESSEL CAUSED BY ENEMY
462	INJURED IN FIRE ON AIRCRAFT CAUSED BY ENEMY
463	INJURED IN FIRE ON SHIP CAUSED BY ENEMY
464	INJURED IN FIRE ON LAND CAUSED BY ENEMY
465	INJURED IN EXPLOSION ON AIRCRAFT CAUSED BY ENEMY
466	INJURED IN EXPLOSION ON SHIP CAUSED BY ENEMY
467	INJURED IN EXPLOSION ON LAND CAUSED BY ENEMY
477	INJURED BY OTH SECONDARY EFFECTS IN AIRCRFT CAUSED BY ENEMY
478	INJURED BY OTHER SECONDARY EFFECTS ON SHIP CAUSED BY ENEMY
479	INJURED BY OTHER SECONDARY EFFECTS ON LAND CAUSED BY ENEMY
480	INJ BY OWN NUCLEAR WEAPONS IN WARTIME USED AS INSTRS OF WAR
481	INJ BY OWN CHEMICAL WARFARE AGENTS, WARTIME INSTRS OF WAR
482	INJ BY OWN BIOLOGICAL WARFARE AGENTS, WARTIME INSTRS OF WAR
486	INJURED BY OWN ROCKETS, MISSILES, ETC, WARTIME INSTRS OF WAR
487	INJ BY LAUNCHING OF OWN ROCKETS, ETC, WARTIME INSTRS OF WAR
488	INJURED BY OWN BOMBS, ARTILLERY, ETC, WARTIME INSTRS OF WAR
489	INJ BY MECHANISMS OF OWN ARTILLERY,ETC,WARTIME INSTRS OF WAR
490	INJ BY OWN MINES,BOOBYTRAPS,GRENADES,ETC. INSTRS OF WARTIME
491	INJ BY OWN SMALL ARMS FIRE, WARTIME INSTRUMENTALITIES OF WAR
492	INJ BY EXPLOSION OF OWN MUNITIONS IN HANDLING, STORAGE, ETC
493	INJ BY EXPLOSION OF OWN WEAPONS, WARTIME INSTRS OF WAR
494	INJ BY EXPLOSION OF DISCHARGE, OWN WPN, INTSTRS OF WARTIME
495	INJ BY MECHANISM OF OWN SMALL ARMS WPNS, INSTRS OF WARTIME
496	OTH INJ HANDLING OWN WEAPONS/MUNITIONS,WARTIME INSTRS OF WAR
499	UNSPEC INJ FROM OWN INSTRS WAR, EMPLOYED AS SUCH IN WARTIME
500	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
501	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON SHIP OR IN WATER
502	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND AT AIRFIELD
503	INJURED BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND AT DOCK
504	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND AT IND PLANT
505	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND,FIRING RANGE
506	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND,OBSTACLE CRS
507	INJ BY NUCLEAR WEAPONS(NOT INSTRS WAR) ON LAND,MESS FACILITY
508	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND,IN HOME/QTRS
509	INJ BY NUCLEAR WEAPONS (NOT INSTRS WAR) ON LAND,OTHER/UNSPEC
510	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
511	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON SHIP OR IN WATER
512	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND AT AIRFIELD
513	INJURED BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND AT DOCK
514	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND AT IND PLANT
515	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND,FIRING RANGE
516	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND,OBSTACLE CRS

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
517	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND, MESS FACILITY
518	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
519	INJ BY CHEM WAR AGENTS (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
520	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
521	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON SHIP OR IN WATER
522	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND AT AIRFIELD
523	INJURED BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND AT DOCK
524	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND AT IND PLANT
525	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND, FIRING RANGE
526	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
527	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND, MESS FACILITY
528	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
529	INJ BY BIO WAR AGENTS (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
530	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
531	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON SHIP OR IN WATER
532	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND AT AIRFIELD
533	INJURED BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND AT DOCK
534	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND AT IND PLANT
535	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND, FIRING RANGE
536	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
537	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND, MESS FACILITY
538	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
539	INJ BY ROCKET/MISSILE (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
540	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
541	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON SHIP OR IN WATER
542	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND AT AIRFIELD
543	INJURED BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND AT DOCK
544	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND AT IND PLANT
545	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND, FIRING RANGE
546	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
547	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND, MESS FACILITY
548	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
549	INJ BY BOMB/ARTILLERY (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
550	INJ BY MINES (NOT INSTRS WAR) IN AIR/SPACECFT OR AIR/SPACE
551	INJURED BY MINES (NOT INSTRS WAR) ON SHIP OR IN WATER
552	INJURED BY MINES (NOT INSTRS WAR) ON LAND AT AIRFIELD
553	INJURED BY MINES (NOT INSTRS WAR) ON LAND AT DOCK
554	INJURED BY MINES (NOT INSTRS WAR) ON LAND AT IND PLANT
555	INJURED BY MINES (NOT INSTRS WAR) ON LAND, FIRING RANGE
556	INJURED BY MINES (NOT INSTRS WAR) ON LAND, OBSTACLE COURSE
557	INJURED BY MINES (NOT INSTRS WAR) ON LAND, MESS FACILITY
558	INJURED BY MINES (NOT INSTRS WAR) ON LAND, IN HOME/QUARTERS
559	INJURED BY MINES (NOT INSTRS WAR) ON LAND, OTHER/UNSPECIFIED
560	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) IN AIR/SPACECFT, AIR

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

561	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON SHIP OR IN WATER
562	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND AT AIRFIELD
563	INJURED BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND AT DOCK
564	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, IND PLANT
565	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, FIRING RANGE
566	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
567	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, MESS FACILITY
568	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
569	INJ BY BULLET/OTH PROJ (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
570	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
571	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON SHIP OR IN WATER
572	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND AT AIRFIELD
573	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND AT DOCK
574	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND AT IND PLANT
575	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND, FIRING RANGE
576	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
577	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND, MESS FACILITY
578	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
579	INJ BY EXPLO HDLG AMMO (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
580	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
581	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON SHIP OR IN WATER
582	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND AT AIRFIELD
583	INJURED BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND AT DOCK
584	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, IND PLANT
585	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, FIRING RANGE
586	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
587	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, MESS FACILITY
588	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
589	INJ BY SA WPN MECHANISM (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
590	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) IN AIR/SPACECFT, AIR
591	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON SHIP OR IN WATER
592	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND AT AIRFIELD
593	INJURED BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND AT DOCK
594	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND AT IND PLANT
595	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND, FIRING RANGE
596	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND, OBSTACLE CRS
597	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND, MESS FACILITY
598	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND, IN HOME/QTRS
599	INJ BY OTHER/UNSPEC GUN (NOT INSTRS WAR) ON LAND, OTHER/UNSPEC
600	INJURED BY MACHINERY IN AIRCRAFT/SPACECRAFT OR AIR/SPACE
601	INJURED BY MACHINERY ON SHIP OR IN WATER
602	INJURED BY MACHINERY ON LAND AT AIRFIELD
603	INJURED BY MACHINERY ON LAND AT DOCK
604	INJURED BY MACHINERY ON LAND AT INDUSTRIAL PLANT

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

605	INJURED BY MACHINERY ON LAND AT FIRING RANGE
606	INJURED BY MACHINERY ON LAND AT OBSTACLE COURSE
607	INJURED BY MACHINERY ON LAND AT MESS FACILITY
608	INJURED BY MACHINERY ON LAND IN HOME OR QUARTERS
609	INJURED BY MACHINERY ON LAND, OTHER/UNSPECIFIED
610	INJ BY POWER OR HAND TOOLS IN AIRCFT/SPACECFT OR AIR/SPACE
611	INJURED BY POWER OR HAND TOOLS ON SHIP OR IN WATER
612	INJURED BY POWER OR HAND TOOLS ON LAND AT AIRFIELD
613	INJURED BY POWER OR HAND TOOLS ON LAND AT DOCK
614	INJURED BY POWER OR HAND TOOLS ON LAND AT INDUSTRIAL PLANT
615	INJURED BY POWER OR HAND TOOLS ON LAND AT FIRING RANGE
616	INJURED BY POWER OR HAND TOOLS ON LAND AT OBSTACLE COURSE
617	INJURED BY POWER OR HAND TOOLS ON LAND AT MESS FACILITY
618	INJURED BY POWER OR HAND TOOLS ON LAND IN HOME OR QUARTERS
619	INJURED BY POWER OR HAND TOOLS ON LAND, OTHER/UNSPECIFIED
620	INJURED BY ELECTRIC CURRENT IN AIRCFT/SPACECFT OR AIR/SPACE
621	INJURED BY ELECTRIC CURRENT ON SHIP OR IN WATER
622	INJURED BY ELECTRIC CURRENT ON LAND AT AIRFIELD
623	INJURED BY ELECTRIC CURRENT ON LAND AT DOCK
624	INJURED BY ELECTRIC CURRENT ON LAND AT INDUSTRIAL PLANT
625	INJURED BY ELECTRIC CURRENT ON LAND AT FIRING RANGE
626	INJURED BY ELECTRIC CURRENT ON LAND AT OBSTACLE COURSE
627	INJURED BY ELECTRIC CURRENT ON LAND AT MESS FACILITY
628	INJURED BY ELECTRIC CURRENT ON LAND IN HOME OR QUARTERS
629	INJURED BY ELECTRIC CURRENT ON LAND, OTHER/UNSPECIFIED
630	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE IN AIR/SPACECRAFT,AIR
631	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON SHIP OR IN WATER
632	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND AT AIRFIELD
633	INJURED BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND AT DOCK
634	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND AT IND PLANT
635	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND, FIRING RANGE
636	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND, OBSTACLE CRS
637	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND,MESS FACILITY
638	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND IN HOME/QTRS
639	INJ BY X-RAY/OTH RADIOACTIVE SUBSTANCE ON LAND, OTHER/UNSPEC
640	INJ BY CUTTING/PIERCING INSTRUMENTS IN AIR/SPACECRAFT OR AIR
641	INJURED BY CUTTING/PIERCING INSTRUMENTS ON SHIP OR IN WATER
642	INJURED BY CUTTING/PIERCING INSTRUMENTS ON LAND AT AIRFIELD
643	INJURED BY CUTTING/PIERCING INSTRUMENTS ON LAND AT DOCK
644	INJURED BY CUTTING/PIERCING INSTRUMENTS ON LAND AT IND PLANT
645	INJ BY CUTTING/PIERCING INSTRUMENTS ON LAND AT FIRING RANGE
646	INJ BY CUTTING/PIERCING INSTRUMENTS ON LAND AT OBSTACLE CRS
647	INJ BY CUTTING/PIERCING INSTRUMENTS ON LAND AT MESS FACILITY
648	INJ BY CUTTING/PIERCING INSTRUMENTS ON LAND IN HOME/QUARTERS

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

649	INJ BY CUTTING/PIERCING INSTRUMENTS ON LAND, OTHER/UNSPEC
650	INJ BY EXPLOSION PRESSURE VESSEL IN AIR/SPACECFT, AIR/SPACE
651	INJURED BY EXPLOSION PRESSURE VESSEL ON SHIP OR IN WATER
652	INJURED BY EXPLOSION PRESSURE VESSEL ON LAND AT AIRFIELD
653	INJURED BY EXPLOSION PRESSURE VESSEL ON LAND AT DOCK
654	INJ BY EXPLOSION PRESSURE VESSEL ON LAND AT INDUSTRIAL PLANT
655	INJ BY EXPLOSION PRESSURE VESSEL ON LAND AT FIRING RANGE
656	INJ BY EXPLOSION PRESSURE VESSEL ON LAND AT OBSTACLE COURSE
657	INJ BY EXPLOSION PRESSURE VESSEL ON LAND AT MESS FACILITY
658	INJ BY EXPLOSION PRESSURE VESSEL ON LAND IN HOME/QUARTERS
659	INJ BY EXPLOSION PRESSURE VESSEL ON LAND, OTHER/UNSPECIFIED
660	INJ BY FALLING/PROJECTED OBJECT IN AIR/SPACECFT OR AIR/SPACE
661	INJURED BY FALLING/PROJECTED OBJECT ON SHIP OR IN WATER
662	INJURED BY FALLING/PROJECTED OBJECT ON LAND AT AIRFIELD
663	INJURED BY FALLING/PROJECTED OBJECT ON LAND AT DOCK
664	INJ BY FALLING/PROJECTED OBJECT ON LAND AT INDUSTRIAL PLANT
665	INJURED BY FALLING/PROJECTED OBJECT ON LAND AT FIRING RANGE
666	INJ BY FALLING/PROJECTED OBJECT ON LAND AT OBSTACLE COURSE
667	INJURED BY FALLING/PROJECTED OBJECT ON LAND AT MESS FACILITY
668	INJURED BY FALLING/PROJECTED OBJECT ON LAND IN HOME/QUARTERS
669	INJURED BY FALLING/PROJECTED OBJECT ON LAND, OTHER/UNSPEC
670	INJURED BY STATIC OBJECT IN AIRCFT/SPACECFT OR AIR/SPACE
671	INJURED BY STATIC OBJECT ON SHIP OR IN WATER
672	INJURED BY STATIC OBJECT ON LAND AT AIRFIELD
673	INJURED BY STATIC OBJECT ON LAND AT DOCK
674	INJURED BY STATIC OBJECT ON LAND AT INDUSTRIAL PLANT
675	INJURED BY STATIC OBJECT ON LAND AT FIRING RANGE
676	INJURED BY STATIC OBJECT ON LAND AT OBSTACLE COURSE
677	INJURED BY STATIC OBJECT ON LAND AT MESS FACILITY
678	INJURED BY STATIC OBJECT ON LAND IN HOME/QUARTERS
679	INJURED BY STATIC OBJECT ON LAND, OTHER/UNSPECIFIED
680	INJ BY FOREIGN OBJ ENTER BODY ORIFICE IN AIR/SPACECFT OR AIR
681	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON SHIP OR IN WATER
682	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND AT AIRFIELD
683	INJURED BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND AT DOCK
684	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND AT IND PLANT
685	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND, FIRING RANGE
686	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND, OBSTACLE CRS
687	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND, MESS FACILITY
688	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND IN HOME/QTRS
689	INJ BY FOREIGN OBJ ENTER BODY ORIFICE ON LAND, OTHER/UNSPEC
690	INJ BY SHOES, CLOTHING, ETC. IN AIRCFT/SPACECFT IN AIR/SPACE
691	INJURED BY SHOES, CLOTHING, ETC., ON SHIP OR IN WATER
692	INJURED BY SHOES, CLOTHING, ETC., ON LAND AT AIRFIELD

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

<u>Injury Code</u>	<u>Cause of Injury</u>
693	INJURED BY SHOES, CLOTHING, ETC., ON LAND AT DOCK
694	INJURED BY SHOES, CLOTHING, ETC. ON LAND AT INDUSTRIAL PLANT
695	INJURED BY SHOES, CLOTHING, ETC., ON LAND AT FIRING RANGE
696	INJURED BY SHOES, CLOTHING, ETC., ON LAND AT OBSTACLE COURSE
697	INJURED BY SHOES, CLOTHING, ETC., ON LAND AT MESS FACILITY
698	INJURED BY SHOES, CLOTHING, ETC., ON LAND IN HOME/QUARTERS
699	INJURED BY SHOES, CLOTHING, ETC., ON LAND, OTHER/UNSPECIFIED
700	POISONED BY INGESTION OF TOXIC SUBST IN AIR/SPACECFT OR AIR
701	POISONED BY INGESTION OF TOXIC SUBST ON SHIP OR IN WATER
702	POISONED BY INGESTION OF TOXIC SUBST ON LAND AT AIRFIELD
703	POISONED BY INGESTION OF TOXIC SUBSTANCE ON LAND AT DOCK
704	POISONED BY INGESTION OF TOXIC SUBST ON LAND AT IND PLANT
705	POISONED BY INGESTION OF TOXIC SUBST ON LAND AT FIRING RANGE
706	POISONED BY INGESTION OF TOXIC SUBST ON LAND AT OBSTACLE CRS
707	POISONED BY INGESTION OF TOXIC SUBST ON LAND, MESS FACILITY
708	POISONED BY INGESTION OF TOXIC SUBST ON LAND, HOME/QTRS
709	POISONED BY INGESTION OF TOXIC SUBST ON LAND, OTHER/UNSPEC
710	POISONED BY INHALATION OF TOXIC SUBST IN AIR/SPACECFT OR AIR
711	POISONED BY INHALATION OF TOXIC SUBST ON SHIP OR IN WATER
712	POISONED BY INHALATION OF TOXIC SUBST ON LAND AT AIRFIELD
713	POISONED BY INHALATION OF TOXIC SUBSTANCE ON LAND AT DOCK
714	POISONED BY INHALATION OF TOXIC SUBST ON LAND AT IND PLANT
715	POISONED BY INHALATION OF TOXIC SUBST ON LAND, FIRING RANGE
716	POISONED BY INHALATION OF TOXIC SUBST ON LAND, OBSTACLE CRS
717	POISONED BY INHALATION OF TOXIC SUBST ON LAND, MESS FACILITY
718	POISONED BY INHALATION OF TOXIC SUBST ON LAND IN HOME/QTRS
719	POISONED BY INHALATION OF TOXIC SUBST ON LAND, OTHER/UNSPEC
720	SYSTEMATIC/SKIN REACTION TOXIC SUBST IN AIR/SPACECFT OR AIR
721	SYSTEMATIC/SKIN REACTION TOXIC SUBSTANCE ON SHIP OR IN WATER
722	SYSTEMATIC/SKIN REACTION TOXIC SUBSTANCE ON LAND AT AIRFIELD
723	SYSTEMATIC/SKIN REACTION TOXIC SUBSTANCE ON LAND AT DOCK
724	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND AT IND PLANT
725	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND AT FIRING RANGE
726	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND AT OBSTACLE CRS
727	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND, MESS FACILITY
728	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND IN HOME/QTRS
729	SYSTEMATIC/SKIN REACTION TOXIC SUBST ON LAND, OTHER/UNSPEC
730	STING OR BITE OF VENOMOUS REPTILE IN AIR/SPACECRAFT OR AIR
731	STING OR BITE OF VENOMOUS REPTILE ON SHIP OR IN WATER
732	STING OR BITE OF VENOMOUS REPTILE ON LAND AT AIRFIELD
733	STING OR BITE OF VENOMOUS REPTILE ON LAND AT DOCK
734	STING OR BITE OF VENOMOUS REPTILE ON LAND AT IND PLANT
735	STING OR BITE OF VENOMOUS REPTILE ON LAND AT FIRING RANGE
736	STING OR BITE OF VENOMOUS REPTILE ON LAND AT OBSTACLE COURSE

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

737	STING OR BITE OF VENOMOUS REPTILE ON LAND AT MESS FACILITY
738	STING OR BITE OF VENOMOUS REPTILE ON LAND IN HOME/QUARTERS
739	STING OR BITE OF VENOMOUS REPTILE ON LAND, OTHER/UNSPECIFIED
740	STING OR BITE OF VENOMOUS ARTHROPOD IN AIR/SPACECRAFT OR AIR
741	STING OR BITE OF VENOMOUS ARTHROPOD ON SHIP OR IN WATER
742	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT AIRFIELD
743	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT DOCK
744	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT IND PLANT
745	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT FIRING RANGE
746	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT OBSTACLE CRS
747	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND AT MESS FACILITY
748	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND IN HOME/QUARTERS
749	STING OR BITE OF VENOMOUS ARTHROPOD ON LAND, OTHER/UNSPEC
750	INJ BY FIRE/EXPLOSION WITH FIRE IN AIR/SPACECFT OR AIR/SPACE
751	INJURED BY FIRE/EXPLOSION WITH FIRE ON SHIP OR IN WATER
752	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND AT AIRFIELD
753	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND AT DOCK
754	INJ BY FIRE/EXPLOSION WITH FIRE ON LAND AT INDUSTRIAL PLANT
755	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND AT FIRING RANGE
756	INJ BY FIRE/EXPLOSION WITH FIRE ON LAND AT OBSTACLE COURSE
757	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND AT MESS FACILITY
758	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND IN HOME/QUARTERS
759	INJURED BY FIRE/EXPLOSION WITH FIRE ON LAND, OTHER/UNSPEC
760	INJURED BY HOT LIQUIDS OR STEAM IN AIR/SPACECFT OR AIR/SPACE
761	INJURED BY HOT LIQUIDS OR STEAM ON SHIP OR IN WATER
762	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT AIRFIELD
763	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT DOCK
764	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT INDUSTRIAL PLANT
765	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT FIRING RANGE
766	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT OBSTACLE COURSE
767	INJURED BY HOT LIQUIDS OR STEAM ON LAND AT MESS FACILITY
768	INJURED BY HOT LIQUIDS OR STEAM ON LAND IN HOME/QUARTERS
769	INJURED BY HOT LIQUIDS OR STEAM ON LAND, OTHER/UNSPECIFIED
770	INJ BY EXTERNAL CHEMICAL BURNS IN AIR/SPACECFT OR AIR/SPACE
771	INJURED BY EXTERNAL CHEMICAL BURNS ON SHIP OR IN WATER
772	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND AT AIRFIELD
773	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND AT DOCK
774	INJ BY EXTERNAL CHEMICAL BURNS ON LAND AT INDUSTRIAL PLANT
775	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND AT FIRING RANGE
776	INJ BY EXTERNAL CHEMICAL BURNS ON LAND AT OBSTACLE COURSE
777	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND AT MESS FACILITY
778	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND IN HOME/QUARTERS
779	INJURED BY EXTERNAL CHEMICAL BURNS ON LAND, OTHER/UNSPEC
780	INJ BY HOT SOLIDS/OTHER HOT OBJECTS IN AIR/SPACECRAFT OR AIR

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

781	INJURED BY HOT SOLIDS/OTHER HOT OBJECTS ON SHIP OR IN WATER
782	INJURED BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT AIRFIELD
783	INJURED BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT DOCK
784	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT IND PLANT
785	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT FIRING RANGE
786	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT OBSTACLE CRS
787	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND AT MESS FACILITY
788	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND IN HOME/QUARTERS
789	INJ BY HOT SOLIDS/OTHER HOT OBJECTS ON LAND, OTHER/UNSPEC
800	INJ BY EXCESSIVE HEAT OR INSOLATION IN AIR/SPACECRAFT OR AIR
801	INJURED BY EXCESSIVE HEAT OR INSOLATION ON SHIP OR IN WATER
802	INJURED BY EXCESSIVE HEAT OR INSOLATION ON LAND AT AIRFIELD
803	INJURED BY EXCESSIVE HEAT OR INSOLATION ON LAND AT DOCK
804	INJURED BY EXCESSIVE HEAT OR INSOLATION ON LAND AT IND PLANT
805	INJ BY EXCESSIVE HEAT OR INSOLATION ON LAND AT FIRING RANGE
806	INJ BY EXCESSIVE HEAT OR INSOLATION ON LAND AT OBSTACLE CRS
807	INJ BY EXCESSIVE HEAT OR INSOLATION ON LAND AT MESS FACILITY
808	INJ BY EXCESSIVE HEAT OR INSOLATION ON LAND IN HOME/QUARTERS
809	INJ BY EXCESSIVE HEAT OR INSOLATION ON LAND, OTHER/UNSPEC
810	INJ BY EXCESSIVE COLD IN AIRCRAFT/SPACECRAFT OR AIR/SPACE
811	INJURED BY EXCESSIVE COLD ON SHIP OR IN WATER
812	INJURED BY EXCESSIVE COLD ON LAND AT AIRFIELD
813	INJURED BY EXCESSIVE COLD ON LAND AT DOCK
814	INJURED BY EXCESSIVE COLD ON LAND AT INDUSTRIAL PLANT
815	INJURED BY EXCESSIVE COLD ON LAND AT FIRING RANGE
816	INJURED BY EXCESSIVE COLD ON LAND AT OBSTACLE COURSE
817	INJURED BY EXCESSIVE COLD ON LAND AT MESS FACILITY
818	INJURED BY EXCESSIVE COLD ON LAND IN HOME/QUARTERS
819	INJURED BY EXCESSIVE COLD ON LAND, OTHER/UNSPECIFIED
820	INJ BY HIGH OR LOW PRESSURE IN AIR/SPACECRAFT OR AIR/SPACE
821	INJURED BY HIGH OR LOW PRESSURE ON SHIP OR IN WATER
822	INJURED BY HIGH OR LOW PRESSURE ON LAND AT AIRFIELD
823	INJURED BY HIGH OR LOW PRESSURE ON LAND AT DOCK
824	INJURED BY HIGH OR LOW PRESSURE ON LAND AT INDUSTRIAL PLANT
825	INJURED BY HIGH OR LOW PRESSURE ON LAND AT FIRING RANGE
826	INJURED BY HIGH OR LOW PRESSURE ON LAND AT OBSTACLE COURSE
827	INJURED BY HIGH OR LOW PRESSURE ON LAND AT MESS FACILITY
828	INJURED BY HIGH OR LOW PRESSURE ON LAND IN HOME/QUARTERS
829	INJURED BY HIGH OR LOW PRESSURE ON LAND, OTHER/UNSPECIFIED
830	INJURED BY EXCESSIVE NOISE IN AIR/SPACECRAFT OR AIR/SPACE
831	INJURED BY EXCESSIVE NOISE ON SHIP OR IN WATER
832	INJURED BY EXCESSIVE NOISE ON LAND AT AIRFIELD
833	INJURED BY EXCESSIVE NOISE ON LAND AT DOCK
834	INJURED BY EXCESSIVE NOISE ON LAND AT INDUSTRIAL PLANT

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

835	INJURED BY EXCESSIVE NOISE ON LAND AT FIRING RANGE
836	INJURED BY EXCESSIVE NOISE ON LAND AT OBSTACLE COURSE
837	INJURED BY EXCESSIVE NOISE ON LAND AT MESS FACILITY
838	INJURED BY EXCESSIVE NOISE ON LAND IN HOME/QUARTERS
839	INJURED BY EXCESSIVE NOISE ON LAND, OTHER/UNSPECIFIED
840	INJ BY HUNGER, THIRST, OR EXPOSURE IN AIR/SPACECRAFT OR AIR
841	INJURED BY HUNGER, THIRST, OR EXPOSURE ON SHIP OR IN WATER
842	INJURED BY HUNGER, THIRST, OR EXPOSURE ON LAND AT AIRFIELD
843	INJURED BY HUNGER, THIRST, OR EXPOSURE ON LAND AT DOCK
844	INJURED BY HUNGER, THIRST, OR EXPOSURE ON LAND AT IND PLANT
845	INJ BY HUNGER, THIRST, OR EXPOSURE ON LAND AT FIRING RANGE
846	INJ BY HUNGER, THIRST, OR EXPOSURE ON LAND AT OBSTACLE CRS
847	INJ BY HUNGER, THIRST, OR EXPOSURE ON LAND AT MESS FACILITY
848	INJ BY HUNGER, THIRST, OR EXPOSURE ON LAND IN HOME/QUARTERS
849	INJ BY HUNGER, THIRST, OR EXPOSURE ON LAND, OTHER/UNSPEC
850	INJ BY LIGHTNING OR CATAclySM IN AIR/SPACECFT OR AIR/SPACE
851	INJURED BY LIGHTNING OR CATAclySM ON SHIP OR IN WATER
852	INJURED BY LIGHTNING OR CATAclySM ON LAND AT AIRFIELD
853	INJURED BY LIGHTNING OR CATAclySM ON LAND AT DOCK
854	INJ BY LIGHTNING OR CATAclySM ON LAND AT INDUSTRIAL PLANT
855	INJURED BY LIGHTNING OR CATAclySM ON LAND AT FIRING RANGE
856	INJURED BY LIGHTNING OR CATAclySM ON LAND AT OBSTACLE COURSE
857	INJURED BY LIGHTNING OR CATAclySM ON LAND AT MESS FACILITY
858	INJURED BY LIGHTNING OR CATAclySM ON LAND IN HOME/QUARTERS
859	INJURED BY LIGHTNING OR CATAclySM ON LAND, OTHER/UNSPECIFIED
860	INJ BY DROWNING OR SUBMERSION, NEC, IN AIR/SPACECFT, AIR/SPACE
861	INJURED BY DROWNING OR SUBMERSION, NEC, ON SHIP OR IN WATER
862	INJURED BY DROWNING OR SUBMERSION, NEC, ON LAND AT AIRFIELD
863	INJURED BY DROWNING OR SUBMERSION, NEC, ON LAND AT DOCK
864	INJURED BY DROWNING OR SUBMERSION, NEC, ON LAND AT IND PLANT
865	INJ BY DROWNING OR SUBMERSION, NEC, ON LAND AT FIRING RANGE
866	INJ BY DROWNING OR SUBMERSION, NEC, ON LAND AT OBSTACLE CRS
867	INJ BY DROWNING OR SUBMERSION, NEC, ON LAND AT MESS FACILITY
868	INJ BY DROWNING OR SUBMERSION, NEC, ON LAND IN HOME/QUARTERS
869	INJ BY DROWNING OR SUBMERSION, NEC, ON LAND, OTHER/UNSPEC
870	MOTION SICKNESS IN AIRCRAFT/SPACECRAFT OR IN AIR/SPACE
871	MOTION SICKNESS ON SHIP OR IN WATER
872	MOTION SICKNESS ON LAND AT AIRFIELD
873	MOTION SICKNESS ON LAND AT DOCK
874	MOTION SICKNESS ON LAND AT INDUSTRIAL PLANT
875	MOTION SICKNESS ON LAND AT FIRING RANGE
876	MOTION SICKNESS ON LAND AT OBSTACLE COURSE
877	MOTION SICKNESS ON LAND AT MESS FACILITY
878	MOTION SICKNESS ON LAND IN HOME/QUARTERS

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

879	MOTION SICKNESS ON LAND, OTHER/UNSPECIFIED
880	INJ BY ANIMALS, NEC, IN AIRCRAFT/SPACECRAFT OR AIR/SPACE
881	INJURED BY ANIMALS, NEC, ON SHIP OR IN WATER
882	INJURED BY ANIMALS, NEC, ON LAND AT AIRFIELD
883	INJURED BY ANIMALS, NEC, ON LAND AT DOCK
884	INJURED BY ANIMALS, NEC, ON LAND AT INDUSTRIAL PLANT
885	INJURED BY ANIMALS, NEC, ON LAND AT FIRING RANGE
886	INJURED BY ANIMALS, NEC, ON LAND AT OBSTACLE COURSE
887	INJURED BY ANIMALS, NEC, ON LAND AT MESS FACILITY
888	INJURED BY ANIMALS, NEC, ON LAND IN HOME/QUARTERS
889	INJURED BY ANIMALS, NEC, ON LAND, OTHER/UNSPECIFIED
900	INJ IN FALL ON/FROM STAIRS OR LADDER IN AIR/SPACECFT OR AIR
901	INJURED IN FALL ON/FROM STAIRS OR LADDER ON SHIP OR IN WATER
902	INJURED IN FALL ON/FROM STAIRS OR LADDER ON LAND AT AIRFIELD
903	INJURED IN FALL ON/FROM STAIRS OR LADDER ON LAND AT DOCK
904	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND AT IND PLANT
905	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND AT FIRING RANGE
906	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND AT OBSTACLE CRS
907	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND, MESS FACILITY
908	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND IN HOME/QTRS
909	INJ IN FALL ON/FROM STAIRS OR LADDER ON LAND, OTHER/UNSPEC
910	OTH FALL/JUMP, ONE LEVEL TO ANOTHER, IN AIR/SPACECFT OR AIR
911	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON SHIP OR IN WATER
912	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND AT AIRFIELD
913	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND AT DOCK
914	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND AT IND PLANT
915	OTH FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND AT FIRING RANGE
916	OTH FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND AT OBSTACLE CRS
917	OTH FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND, MESS FACILITY
918	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND IN HOME/QTRS
919	OTHER FALL/JUMP, ONE LEVEL TO ANOTHER, ON LAND, OTHER/UNSPEC
920	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC IN AIR/SPACECFT OR AIR
921	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON SHIP OR IN WATER
922	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND AT AIRFIELD
923	OTHER FALL/JUMP ON SAME LEVEL/UNSPECIFIED ON LAND AT DOCK
924	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND AT IND PLANT
925	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND AT FIRING RANGE
926	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND AT OBSTACLE CRS
927	OTH FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND AT MESS FACILITY
928	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND IN HOME/QTRS
929	OTHER FALL/JUMP ON SAME LEVEL/UNSPEC ON LAND, OTHER/UNSPEC
930	INJ MARCHING/DRILLING, NEC, IN AIR/SPACECRAFT OR AIR/SPACE
931	INJURED MARCHING/DRILLING, NEC, ON SHIP OR IN WATER
932	INJURED MARCHING/DRILLING, NEC, ON LAND AT AIRFIELD

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

933	INJURED MARCHING/DRILLING, NEC, ON LAND AT DOCK
934	INJURED MARCHING/DRILLING, NEC, ON LAND AT INDUSTRIAL PLANT
935	INJURED MARCHING/DRILLING, NEC, ON LAND AT FIRING RANGE
936	INJURED MARCHING/DRILLING, NEC, ON LAND AT OBSTACLE COURSE
937	INJURED MARCHING/DRILLING, NEC, ON LAND AT MESS FACILITY
938	INJURED MARCHING/DRILLING, NEC, ON LAND IN HOME/QUARTERS
939	INJURED MARCHING/DRILLING, NEC, ON LAND, OTHER/UNSPECIFIED
940	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL IN AIR/SPACECFT OR AIR
941	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON SHIP OR IN WATER
942	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND AT AIRFIELD
943	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND AT DOCK
944	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND AT IND PLANT
945	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND AT FIRING RANGE
946	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND AT OBSTACLE CRS
947	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND, MESS FACILITY
948	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND IN HOME/QTRS
949	TWIST,TURN,SLIP,RUN,ETC,NEC,W/O FALL ON LAND, OTHER/UNSPEC
950	INJ LIFTING, PUSHING, PULLING IN AIR/SPACECFT OR AIR/SPACE
951	INJURED LIFTING, PUSHING, PULLING ON SHIP OR IN WATER
952	INJURED LIFTING, PUSHING, PULLING ON LAND AT AIRFIELD
953	INJURED LIFTING, PUSHING, PULLING ON LAND AT DOCK
954	INJ LIFTING, PUSHING, PULLING ON LAND AT INDUSTRIAL PLANT
955	INJURED LIFTING, PUSHING, PULLING ON LAND AT FIRING RANGE
956	INJURED LIFTING, PUSHING, PULLING ON LAND AT OBSTACLE COURSE
957	INJURED LIFTING, PUSHING, PULLING ON LAND AT MESS FACILITY
958	INJURED LIFTING, PUSHING, PULLING ON LAND IN HOME/QUARTERS
959	INJURED LIFTING, PUSHING, PULLING ON LAND, OTHER/UNSPECIFIED
960	HANGING, SUFFOCATION, STRANGULATION IN AIR/SPACECRAFT OR AIR
961	HANGING, SUFFOCATION, STRANGULATION ON SHIP OR IN WATER
962	HANGING, SUFFOCATION, STRANGULATION ON LAND AT AIRFIELD
963	HANGING, SUFFOCATION, STRANGULATION ON LAND AT DOCK
964	HANGING, SUFFOCATION, STRANGULATION ON LAND AT IND PLANT
965	HANGING, SUFFOCATION, STRANGULATION ON LAND AT FIRING RANGE
966	HANGING, SUFFOCATION, STRANGULATION ON LAND AT OBSTACLE CRS
967	HANGING, SUFFOCATION, STRANGULATION ON LAND AT MESS FACILITY
968	HANGING, SUFFOCATION, STRANGULATION ON LAND IN HOME/QTRS
969	HANGING, SUFFOCATION, STRANGULATION ON LAND, OTHER/UNSPEC
970	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,ACFT/SPCFT,AIR/SP(90+)
971	FIGHT INJ,NEC,INCL HORSEPLAY/JEU BRUTAL, SHIP/IN WATER (90+)
972	FIGHT INJ,NEC,INCL HORSEPLAY/JEU BRUTAL, LAND, AIRFIELD(90+)
973	FIGHT INJ,NEC,INCL HORSEPLAY/JEU BRUTAL, LAND AT DOCK (90+)
974	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,INDUSTRIAL PLANT(90+)
975	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,LAND FIRING RANGE(90+)
976	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,LAND OBST COURSE(90+)

# Cause of Injury Code Listing

Source: PASBA Data File dated August 27, 1994

## Injury Code

## Cause of Injury

977	FIGHT INJ,NEC,INCL HORSEPLAY/JEU BRUTAL, MESS FACILITY (90+)
978	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,LAND, HOME/QTRS (90+)
979	FIGHT INJ,NEC,INC HORSEPLAY/JEU BRUTAL,LAND OTHER/UNSPC(90+)
980	INJ BY OTHER SPEC AGENTS, NEC, IN AIR/SPACECFT OR AIR/SPACE
981	INJURED BY OTHER SPECIFIED AGENTS, NEC, ON SHIP OR IN WATER
982	INJURED BY OTHER SPECIFIED AGENTS, NEC, ON LAND AT AIRFIELD
983	INJURED BY OTHER SPECIFIED AGENTS, NEC, ON LAND AT DOCK
984	INJ BY OTHER SPEC AGENTS, NEC, ON LAND AT INDUSTRIAL PLANT
985	INJ BY OTHER SPECIFIED AGENTS, NEC, ON LAND AT FIRING RANGE
986	INJ BY OTHER SPEC AGENTS, NEC, ON LAND AT OBSTACLE COURSE
987	INJ BY OTHER SPECIFIED AGENTS, NEC, ON LAND AT MESS FACILITY
988	INJ BY OTHER SPECIFIED AGENTS, NEC, ON LAND IN HOME/QUARTERS
989	INJ BY OTHER SPECIFIED AGENTS, NEC, ON LAND, OTHER/UNSPEC
990	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT IN AIR/SPACECFT OR AIR
991	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON SHIP OR IN WATER
992	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND AT AIRFIELD
993	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND AT DOCK
994	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND AT IND PLANT
995	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND, FIRING RANGE
996	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND, OBSTACLE CRS
997	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND, MESS FACILITY
998	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND IN HOME/QTRS
999	INJ BY UNSPEC/UNKNOWN CAUSATIVE AGENT ON LAND, OTHER/UNSPEC

Records printed: 727

## ICD 9 Procedural Codes with Descriptions Extremity Trauma Related

Source: PASBA Procedural Code Files

<u>ICD 9 Code</u>	<u>Procedure Code Description</u>
840.	AMPUTATION OF UPPER LIMB
840.0	UPPER LIMB AMPUTATION, NOT OTHERWISE SPECIFIED
840.3	AMPUTATION THROUGH HAND
840.5	AMPUTATION THROUGH FOREARM
840.7	AMPUTATION THROUGH HUMERUS
841.	AMPUTATION OF LOWER LIMB
841.0	LOWER LIMB AMPUTATION, NOT OTHERWISE SPECIFIED
841.2	AMPUTATION THROUGH FOOT
841.4	AMPUTATION OF ANKLE THROUGH MALLEOLI OF TIBIA AND FIBULA
841.5	OTHER AMPUTATION BELOW KNEE
841.7	AMPUTATION ABOVE KNEE
843.	REVISION OF AMPUTATION STUMP
849.1	AMPUTATION, NOT OTHERWISE SPECIFIED

Records printed: 13

# Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
A00A1	316TH STATION HOSP
A00B1	365TH EVAC HOSP
A00C1	350TH EVAC HOSP
A00D1	330TH GEN HOSP
A00E1	377TH CSH
A00F1	912TH MASH
A00G1	807TH MASH
A00H1	382D FLD HOSP
A00I1	300TH FLD HOSP
A00J1	45TH STATION HOSP
A00K1	50TH GEN HOSP
A00L1	306TH FLD HOSP
A00M1	311TH EVAC HOSP
A00N1	129TH EVAC HOSP
A00O1	403D CSH
A00P1	410TH EVAC HOSP
A00Q1	114TH EVAC HOSP
A00R1	94TH GEN HOSP
A00S1	44TH EVAC HOSP
A00T1	345TH CSH
A0101	TAMC
A0111	WAINWRIGHT
A0121	GORGAS
A0131	COCO SOLO
A0141	RICHARDSON
A0151	GREELY
A0161	COROZAL
A01A1	ALASKA--CSH
A01B1	ALASKA--CSH
A01C1	ALASKA--CSH
A01D1	ALASKA--CSH
A01E1	ALASKA--CSH
A01F1	TAMC--CSH
A01G1	TAMC--CSH
A01H1	TAMC--CSH
A01I1	TAMC--CSH
A01J1	TAMC--CSH
A01K1	HONDURAS
A01L1	PANAMA--CSH
A01M1	PANAMA--CSH
A01N1	PANAMA--CSH
A01P1	PANAMA--CSH
A0211	SHAPE

# Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
A0311	BERLIN
A0321	BREMERHAVEN
A0331	FRANKFURT
A0341	HEIDELBERG
A0351	LANDSTUHL
A0361	NUERNBERG
A0371	CANNSTATT
A0381	WUERZBURG
A0391	AUGSBURG
A03A1	7TH CSH
A03B1	30TH FLD HOSP
A03C1	31ST CSH
A03D1	32ND CSH
A03E1	67 EVAC
A03F1	128 CSH
A03G1	130TH GEN HOSP
A03H1	56TH GEN HOSP
A03I1	225TH STATION HOSP
A03J1	279TH STATION HOSP
A03K1	212TH MASH
A03M1	502D MASH
A03T1	NEUBRUCKE
A03V1	MUNICH
A0411	LEGHORN
A0421	VICENZA
A0431	BAD KREUZNACH
A0441	TASCOM
A0451	SASCOM
A0511	TEHERAN
A0521	ETHIOPA
A05Z1	OTHER EUROPE
A0611	KOREA
A0621	SEOUL
A0631	11 EVAC
A0641	44 SURG
A0651	2INF DIV
A0661	7INF DIV
A0671	MED DETACH
A06C1	KOREA--CSH
A06D1	KOREA--CSH
A06E1	KOREA--CSH
A0711	USAH JAPAN
A08J1	312TH EVAC HOSP

## Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
A09A1	115TH MASH
A09B1	109TH EVAC HOSP
A09C1	201ST EVAC HOSP
A09D1	300TH MASH
A09E1	144TH EVAC HOSP
A09F1	251ST EVAC HOSP
A09G1	475TH MASH
A09H1	13TH EVAC HOSP
A09I1	207TH EVAC HOSP
A09J1	148TH EVAC HOSP
A09K1	159TH MASH
A09L1	217TH EVAC HOSP
A1001	WRAMC
A1011	DRUM
A1021	BELVOIR
A1031	BRAGG
A1041	DEVENS
A1051	DIX
A1061	EUSTIS
A1071	KNOX
A1081	LEE
A1091	MEADE
A1111	MONMOUTH
A1121	WEST POINT
A1131	BEN HARRISON
A11A1	5TH MASH BRAGG
A11D1	28TH COMBAT SUPP BRAGG
A11E1	42D FLD HOSP KNOX
A11F1	46TH COMBAT SUPP DEVENS
A11G1	85TH EVAC LEE
A11H1	322D GEN HOSP
A11I1	339TH GEN HOSP
A1201	FAMC
A1211	CARSON
A1221	LEAVENWORTH
A1231	LEONARD WOOD
A1241	RILEY
A1251	FT SHERIDAN, IL
A12A1	16TH MASH RILEY
A12B1	93D EVAC LEONARD WOOD
A12C1	328TH GEN DOUGLAS
A12D1	38TH GEN RILEY
A12F1	10TH MASH CARSON

# Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
A1301	DDEAMC
A1311	BENNING
A1321	CAMPBELL
A1331	JACKSON
A1341	MCCLELLAN
A1351	REDSTONE
A1361	RUCKER
A1371	STEWART
A13A1	2D COMBAT SUPP BENNING
A13B1	4TH CSH MCCLELLAN
A13C1	86TH EVAC
A13D1	101ST ABN DIV
A13E1	DDEAMC--CSH
A1401	BAMC
A1411	HOOD
A1421	POLK
A1431	SILL
A1441	WOLTERS
A14A1	21ST EVAC HOOD
A14B1	41ST CSH FT SAM HOUSTON
A14C1	47TH FLD HOSP SILL
A14D1	FT SAM--CSH
A14E1	FT SAM--CSH
A14F1	15TH EVAC POLK
A1501	WBAMC
A1511	HUACHUCA
A15A1	WRAMC--CSH
A15B1	WRAMC--CSH
A15C1	WRAMC--CSH
A15D1	WRAMC--CSH
A15E1	WRAMC--CSH
A1601	LAMC
A1611	ORD
A1631	IRWIN
A16A1	8TH EVAC ORD
A16B1	PRESIDIO--CSH
A16C1	PRESIDIO--CSH
A16D1	PRESIDIO--CSH
A16E1	PRESIDIO--CSH
A1701	MAMC
A17A1	47TH CSH FT LEWIS
A17B1	MAMC--CSH
A17C1	MAMC--CSH

# Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
A17D1	MAMC--CSH
A17E1	MAMC--CSH
A1991	UNKNOWN
A9998	UNKNOWN
A9999	UNKNOWN
F0155	Maxwell AFB, AL
F0252	Elmendorf AFB, AK
F0451	Davis
F0452	Luke AFB, AZ
F0454	Williams AFB, AZ
F0457	832 TAC Hosp (ATH)
F0553	Little Rock AFB, AR
F0652	Beale AFB, CA
F0653	Castle AFB, CA
F0654	Edwards AFB, CA
F0658	March AFB, CA
F0659	Mather AFB, CA
F0664	Travis AFB, CA
F0670	Vandenberg AFB, CA
F0857	USAF Academy, CO
F0860	Peterson AFB, CO
F1051	Dover AFB, DE
F1252	Eglin AFB, FL
F1253	MacDill AFB, FL
F1256	Patrick AFB, FL
F1258	Tyndall AFB, FL
F1263	Homestead AFB, FL
F1265	56 TAC Hosp (ATH)
F1355	Moody AFB, GA
F1356	Robins AFB, GA
F1651	Mountain Home AFB, ID
F1652	366th ATH
F1752	Chanute AFB, IL
F1756	Scott AFB, IL
F2252	Barksdale AFB, LA
F2256	23 TAC Hosp (ATH)
F2352	Loring AFB, ME
F2451	Andrews AFB, MD
F2656	KI Sawyer AFB, MI
F2851	Columbus AFB, MS
F2853	Keesler AFB, MS
F2954	Whiteman AFB, MO
F3151	Offutt AFB, NE

# Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
F3251	Nellis AFB, NV
F3453	Walson Army Hosp, Dix
F3551	Holloman AFB, NM
F3552	Kirtland AFB, NM
F3554	Cannon AFB, NM
F3558	833 TAC Hosp (ATH)
F3653	Griffiss AFB, NY
F3663	Plattsburg AFB, NY
F3753	Symr Johnson AFB, NC
F3851	Grand Forks AFB, ND
F3852	Minot AFB, ND
F4052	Tinker AFB, OK
F4057	Altus AFB, OK
F4552	Shaw AFB, SC
F4555	354 TAC Hosp (ATH)
F4651	Ellsworth AFB, SD
F4852	Bergstrom AFB, TX
F4857	Carswell AFB, TX
F4865	Lackland AFB, TX
F4869	Reese AFB, TX
F4871	Sheppard AFB, TX
F4877	Laughlin AFB, TX
F4879	Dyess AFB, TX
F4951	Hill AFB, UT
F5151	Lanqley AFB, VA
F5152	1 TAC Hosp (ATH)
F5351	Fairchild AFB, WA
F5652	FE Warren AFB, WY
F9998	Unknown Air Force MTF
F9999	Unknown Air Force MTF
FGE78	316 TAC Hosp (ATH)
FGM76	36th ATH, Bitburg
FJA71	655 TAC Hosp (ATH)
FRP54	656 TAC Hosp (ATH)
FRP55	657 TAC Hosp (ATH)
FSP74	401 TAC Hosp (ATH)
FUK81	48 TAC Hosp (ATH)
N0018	Portsmouth, VA
N0020	Pensacola, FL
N0021	Great Lakes, IL
N0023	Jacksonville, FL
N0025	San Diego, CA
N0028	Corpus Christi, TX

## Medical Treatment Codes

Sorted by MTF Codes

<u>MTF RPRT</u>	<u>MTF NAME</u>
N0061	Oakland, CA
N0498	Bethesda, MD
N3594	Twentynine Palms, CA
N4133	Adak, AK
N6000	Millington, TN
N6133	Beaufort, SC
N6172	Groton, CT
N6542	NH Roosevelt Roads
N6549	Orlando, FL
N6609	Cherry Point, NC
N6609	Lemoore, CA
N6609	Oak Harbor, WA
N6609	Patuxent River, MD
N6808	Charleston, SC
N6808	Newport, RI
N6809	Long Beach, CA
N6809	Camp Lejeune, NC
N6809	Camp Pendleton, CA
N6809	Bremerton, WA
N9998	Unknown Navy MTF
N9999	Unknown Navy MTF

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## Patient Category Codes

### Used in PASBA Reports organized by Patient Code

<u>Category Code</u>	<u>Patient Category</u>
A11	Active duty Army
A12	Reserve
A13	AD Recruit
A14	Cadet
A15	National Guard
A21	ROTC
A22	Reserve-IADT
A23	National Guard-IADT
A24	F'mer AD Trans Asst Act
A25	Dep-F'mer AD Trans Act
A26	Applicant/Registrant
A27	F'mer Serv Mem Maternity
A28	Newborn-F'mer Serv Mem
A31	LOS-Retirees
A32	PDRL
A33	TDRL
A41	Dep-AD,Excl F'mer Spouse
A43	Dep-Liv Ret,Excl F'mr Sp
A45	Dep-Dec AD,Excl F'mer Sp
A47	Dep-Dec Ret,Excl F'mr Sp
A48	Unremarried F'mer Spouse
A49	Dep-Unmar'd F'mer Spouse
B11	AD (Ext AD) NOAA
B31	LOS Retirees
B32	PDRL
B33	TDRL
B41	Dep-AD,Excl F'mer Spouse
B43	Dep-Liv Ret,Excl F'mr Sp
B45	Dep-Dec AD,Excl F'mer Sp
B47	Dep-Dec Ret,Excl F'mr Sp
B48	Unremarried Former Spous
B49	Dep-Unmar'd Former Spous
C11	AD (Ext AD) Coast Guard
C12	Reserve
C13	AD Reserve
C14	Cadet
C21	ROTC
C22	Reserve-IADT
C24	F'mer AD Trans Asst Act
C25	Dep-F'mer AD Trans Act
C26	Applicant/Registrant

## Patient Category Codes

### Used in PASBA Reports organized by Patient Code

<u>Category Code</u>	<u>Patient Category</u>
C27	F'mer Serv Mem-Maternity
C28	Newborn-F'mer Serv Mem
C31	LOS Retirees
C32	PDRL
C33	TDRL
C41	Dep-AD,Excl F'mer Spouse
C43	Dep-Liv Ret,Excl F'mr Sp
C45	Dep-Dec AD,Excl F'mer Sp
C47	Dep-Dec Ret,Excl F'mr Sp
C48	Unremarried Former Spous
C49	Dep-Unmar'd Former Spous
F11	AD (Ext AD) Air Force
F12	Reserve
F13	AD Recruit
F14	Cadet
F15	National Guard
F21	ROTC
F22	Reserve-IADT
F23	National Guard-IADT
F24	F'mer AD Trans Asst Act
F25	Dep-F'mer AD Trans Act
F26	Applicant/Registrant
F27	F'mer Serv Mem-Maternity
F28	Newborn-F'mer Serv Mem
F31	LOS-Retiree
F32	PDRL
F33	TDRL
F41	Dep-AD,Excl F'mer Spouse
F43	Dep-Liv Ret,Excl F'mr Sp
F45	Dep-Dec AD,Excl F'mer Sp
F47	Dep-Dec Ret,Excl F'mr Sp
F48	Unremarried Former Spous
F49	Dep-Unmar'd Former Spous
K51	State Dept EmPLY-Oversea
K52	State Dept Dep-Overseas
K53	Oth Fed Agen/Depts EmPLY
K54	Oth Fed Agen/Depts Dep
K55	DOD Rem Area EmPLY-CONUS
K56	DOD Rem Area Dep-CONUS
K57	DOD Occupational Health
K58	Disab Retirement Exam

## Patient Category Codes

### Used in PASBA Reports organized by Patient Code

<u>Category Code</u>	<u>Patient Category</u>
K59	Other
K61	Veterans Administration
K62	Office of Worker's Comp
K63	Serv Home not Mil Retire
K64	Oth Fed Agencies/Depts
K65	Contract Employee
K66	Federal Prisoner
K67	Amer Indian,Aleut,Eskimo
K68	Microne,Samoan,Trust Ter
K69	Other-Incl H School ROTC
K71	IMET/SALES
K72	NATO Military Personnel
K73	NATO Family Member
K74	Non-NATO Mil Personnel
K75	Non-NATO Family Member
K76	Foreign Civilian
K77	Foreign Civil Family Mem
K78	Prisoner of War/Internee
K79	Other
K81	Desig-US Secrety, Defens
K82	Desig-US Secretary, Army
K83	Desig-US Secretary, Navy
K84	Desig-US Secretary, AF
K91	Civil,No Gov't,Humanitar
K92	Civil,No Gov't,Emergency
K99	Patients NEC, Other
M11	AD (Ext AD) Marine
M12	Reserve
M13	AD Recruit
M22	Reserve-IADT
M24	F'mer AD Trans Asst Act
M25	Dep-F'mer AD Trans Act
M26	Applicant/Registrant
M27	F'mer Serv Mem-Maternity
M28	Newborn-F'mer Serv Mem
M31	LOS-Retiree
M32	PDRL
M33	TDRL
M41	Dep-AD,Excl F'mer Spouse
M43	Dep-Liv Ret,Excl F'mr Sp
M45	Dep-Dec AD,Excl F'mer Sp

## Patient Category Codes

### Used in PASBA Reports organized by Patient Code

<u>Category Code</u>	<u>Patient Category</u>
M47	Dep-Dec Ret,Excl F'mr Sp
M48	Unremarried Former Spous
M49	Dep-Unmar'd F'mer Spouse
N11	AD (Ext AD) Navy
N12	Reserve
N13	AD Recruit
N14	Cadet
N21	ROTC
N22	Reserve-IADT
N24	F'mer AD Trans Asst Act
N25	Dep-F'mer AD Trans Act
N26	Applicant/Registrant
N27	F'mer Serv Mem-Maternity
N28	Newborn-F'mer Serv Mem
N31	LOS-Retiree
N32	PDRL
N33	TDRL
N41	Dep-AD,Excl F'mer Spouse
N43	Dep-Liv Ret,Excl F'mr Sp
N45	Dep-Dec AD,Excl F'mer Sp
N47	Dep-Dec Ret,Excl F'mr Sp
N48	Unremarried Former Spous
N49	Dep-Unmar'd F'mer Spouse
P11	AD (Ext AD) Pub Hlth Ser
P12	Reserve
P22	Reserve-IADT
P31	LOS-Retiree
P32	PDRL
P33	TDRL
P41	Dep-AD,Excl F'mer Spouse
P43	Dep-Liv Ret,Excl F'mr Sp
P45	Dep-Dec AD,Excl F'mer Sp
P47	Dep-Dec Ret,Excl F'mr Sp
P48	Unremarried Former Spous
P49	Dep-Unmar'd F'mer Spouse

## Disposition Code Listing in Code Order

### Source: PASBA

<u>Disposition Code</u>	<u>Disposition</u>
01	Returned to duty
02	Duty from TDRL-incl CRO
03	PDRL from TDRL-incl CRO
04	AWOL-Dropped from Rolls
05	Discharged Home
06	Left-AMA
10	Sep/Ret--PDRL-Incl CRO
11	Sep/Ret--TDRL-Incl CRO
12	Sep W/Sev pay-Incl CRO
13	Sep WO/Sev pay-Incl CRO
14	Ndisabil sep-drug/alcoh
15	Sep-fail-meet med stand
21	Transf'd-Army MTF
22	Transf'd-Navy MTF
23	Transf'd-Air Force MTF
24	Disch-oth fed facility
25	Disch-civilian facility
26	Disc_civ acute care fac
27	Disc_civ nurs fac/psych
28	Dis_civ res/int fac/reh
30	Died-inpatient stay
41	CRO-Died out of/DOA
42	CRO-ER Death
50	CRO-Other
51	CRO-KIA

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