Emergency Medical and Prehospital Care

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Introduction: The United States Air Forces, Pacific Command (PACAF), has nine medical treatment facilities (MTF) located in two states in the United States (Alaska, Hawaii), one United States territory (Guam) and two additional countries (Korea and Japan). The area of responsibility for PACAF covers >100 million square miles and includes climates ranging from moderate tropical to bitter cold. Each PACAF MTF has an integral ambulance service and emergency medical system with varying degrees of capability and complexity. Recognizing that civilian ambulance service systems in the United States have developed business and performance standards to improve clinical outcomes, the staff of the PACAF Command Surgeon was charged to survey the need for and establish uniform standards within the command.
Methods: A survey of all nine MTFs was conducted in December 2000 inquiring about current ambulance service practices and policies. The survey addressed issues commonly covered in civilian ambulance service standards.
Results: The survey revealed many areas in which there was no uniformity among the MTFs. Some of this variability was a consequence of the varied geography, climate and host states or countries in which the MTFs worked. Some of the variability was a consequence of minimal Air Force written guidance relating to ambulance services. The Command Surgeon, after seeing the survey results, asked that more uniform standards be developed and implemented within the Pacific Air Forces. Using available tested standards from varied sources and taking into consideration the limitations and challenges that the MTFs face, standards were written addressing several areas: 1) ambulance service management personnel, policies and plans; 2) communications needs; 3) biomedical equipment and supplies; 4) personnel training and certification; 5) emergency response times; and 6) program and performance evaluation plans and metrics. These new standards were then presented to all MTF commanders attending a conference in Hawaii in late January 2001. Among the many standards presented, emphasis was placed on appropriate levels of emergency medical personnel training and certification. Each MTF commander was to train his personnel to meet or exceed local civilian ambulance service standards. At one MTF in Fairbanks, Alaska, this required an increase in the level of expertise by the Air Force emergency medical technicians (EMT). Not long after the upgrade training was completed, the newly acquired training of the EMTs resulted in the advanced cardiac life support resuscitation of a visitor to the base. Other MTF ambulance services throughout the command have begun reviewing their policies and practices using the new standards, and are updating the command surgeon staff with their progress quarterly. Emergency medical personnel have expressed appreciation for the more detailed direction the new standards have provided them. We await further evidence of the benefits that these standards are expected to produce.
Conclusion: In an effort to improve the quality of ambulance services within the United States Pacific Air Forces, uniform standards covering planning, policies, training, equipment, communications and response times were introduced in early 2001. The standards have been well received by the personnel charged with adopting them and, despite occasional challenges, benefits from the standards have already been witnessed. Our experience joins that of many United States and international civilian emergency medical services that demonstrates the value to establishing and implementing uniform standards.
Keywords: ambulance service; climates; emergency Mideast systems; facilities; geography; management; plans; policies; quality; response; standards; supplies
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HazMat Decontamination Facilities and Personal Protective Equipment in Emergency Department

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HAZMAT victims may bypass the prehospital decontamination procedures at the disaster incident site, and these victims will pose a threat to our staff and other patients in emergency department when they arrive at emergency department via their own transport. Therefore, the setting up of hospital-based decontamination facilities and the provision of personal protective equipment (PPE) for staff are essential in handling HAZMAT incidents. In our hospital, we have purchased a set of decontamination equipment to serve for this purpose. This equipment includes water supply, air shelter, decontamination stretchers, decontamination showers, water pump, and water tanks. There are 4 levels of PPE. In Hong Kong, our emergency departments use at least Level C PPE to protect our staff handling HAZMAT victims. All staff members working in PPE are required to attend training courses including setting up of decontamination showers, don and doff of PPE. The main focus is to train the staff to protect themselves from different routes of contamination, including skin, respiratory tract and eyes.
Keywords: decontamination; emergency department; equipment; hazardous materials; Hong Kong hospital; personal protective equipment; training
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Emergency Department HazMat Decontamination Contingency Plan

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HazMat incidents can occur in a number of ways. It can range from simple contamination by chemicals in a laboratory to a

large-scale terrorist attack in busy town area. The recent nerve gas attack in the Tokyo subway station increased awareness and urgency for health care planners to set up HazMat facilities in hospital, particularly in emergency departments. Hong Kong is no exception. Based on the Tokyo experience, a large number of victims would be expected to arrive at the hospital using their own transport, so that hospital preparedness is essential in order to decrease the spread of contamination. We have worked out a hospital HazMat decontamination contingency plan that addresses the need for suitable personal protective equipment (PPE) and decontamination facilities. A training program was designed for doctors, nurses, and security staff, and a HazMat drill also was conducted to test the contingency plan.
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Hazardous Material Incidents: A Singapore General Hospital Experience

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Introduction: HazMat incidents involving release of toxic chemicals are capable of causing mass casualties. However, the impact of these incidents on the emergency personnel managing contaminated casualties is unknown largely. This study examines this issue in a real life HazMat incident managed at the Emergency Department.
Method: The casualties arriving from a training accident involving a gas canister explosion were contaminated by teargas. Staff members were affected secondarily by off-gassing of these chemicals. A questionnaire survey of staff involved in this HazMat incident was subsequently conducted.
Results: Of the 87 staff involved, 35 (40.2%) suffered from chemical symptoms secondary to off gassing of teargas from the clothing of the casualties. All members of the Trauma Team that were responding to the major trauma activation were overcome. Staffs directly managing the contaminated casualties were at higher risk of developing secondary chemical symptoms.
Conclusion: The impact of HazMat incidents on emergency personnel and hospital resources should not be underestimated. HazMat incident preparedness and response by emergency personnel is of paramount importance in reducing the adverse outcomes.
Keywords: contamination; hazardous nature; management; off-gassing; resources; staff
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Civil-Military Cooperation in Medical Support: The Reality for Small Countries

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Slovenia is one of the newer countries in Europe, celebrating its 10th anniversary this year. A former republic of Yugoslavia, we developed our own military corps in 1991 during which we did not forget about medical support. In the past, medical support in the Slovenian Territorial Army was provided by the National Health System (NHS). The medical personnel were employed by the NHS, and all employees of the system were reservists in the territorial army. Due to size of our military and the present developments in the military medical corps of other nations, our country strongly supports close civil-military cooperation, especially in the field of medicine.

The aim of the military medical corps is to provide the same level of medical care that is available in the country. Since the level of medical care in Slovenia is relatively high, this is a very demanding task for our military and is resolved by the rational use of available medical personnel. For maintaining their skill and knowledge, medical personnel need daily routine work with patients. For maintaining their ability to cope with military surrounding, they need to fulfill some military tasks. The current organization and plans for the future are presented.
Keywords: civilian-military; cooperation; level of care; military; medical support
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Ultrasound Treatment of Wounds in Microsurgical Wounded and Noncombat Patients

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Introduction: Local war conflicts and improved means of armed fighting have made fire wounds much more difficult to treat: 42% of these injuries are found in the lower or upper extremities. Reconstructive and plastic surgery makes it possible to replace defects of soft tissues and bone structures using both classical (traditional) methods as well as microsurgical techniques. However, some questions of preoperative preparation of the area have not been solved: 1) fire and mine explosion injuries with significant wound infection; and 2) large areas of secondary necrosis of tissues.
Methods: From 1990 to 2001, 271 wounded and non-combat patients with significant tissue damage of the extremities were treated in the Department of Reconstructive and Plastic Microsurgery of the Military Hospital. These patients underwent 319 operations including: 186 free soft tissue and bone microsurgical auto transplantations; 69 transpositions of vascularised flaps made with various microsurgery techniques; 30 skin grafts; 27 auto transplantations of the II and I toe; 6 plastic surgeries with soft tissue expansion method; and one microsurgical falloplastic. Preoperative ultrasound dissection of the recipient area was made in 31 (11.4%) cases with a specially equipped device named "SONOCA-180" produced by "Söring" company.

In order to get reliable data about efficiency of the method, all the patients were assigned into 1 of 3 groups: