Methods: The applicability, modifications, as well as the usefulness of the U.S.-originated HICS system in Turkish, South Korean, and Greek hospitals were studied. The response of hospital staff in exercises when >20 patients arrive at the emergency department at the same time also was studied. The experiences of providers, medical response provided for the injured following a terrorist attack, scenarios used in different exercises, and overall response systems in these three countries also were evaluated. The presence of similar responses given for similar threats were documented. Within the three nations, the areas studied included: (1) medical response systems against terrorism; (2) scenarios and/or systems about the medical response to a chemical accident or terrorist attack; and (3) medical response systems for nuclear accidents or terrorism.
Results: After comparing the results, the differences in response and possible gains following studies that could be done by study groups were identified.
Conclusion: Synergistic messages about our observations of disaster medical response experiences in hospitals in Turkey, South Korea, Greece, and the US also have been identified.
Keywords: disaster medical response; Greece; Hospital Incident Command System terrorism; South Korea; Turkey
Prehosp Disast Med 2007;22(2):s107–s108

Experiences with Frozen Blood Products in the Netherlands Military

C.C.M. Lelkens, J.G. Koning, I.B.G. Floot, F. Noorman
Military Blood Bank, Leiden, The Netherlands

Introduction: During peace-keeping and peace-enforcing missions abroad, the Netherlands Armed Forces uses deep frozen blood products stored at -80°C. This study was initiated to validate the quality of the frozen and subsequently thawed products both in the Netherlands and at the site of administration, with special attention to quality control and compliance with (inter)national regulations and guidelines.
Methods: Leukodepleted red cell concentrates were glycerolized using the automated cell processor, ACP215, and frozen to -80°C. After thawing, the units were deglycerolized both in the Netherlands and in Iraq using the ACP215, and stored in Nutricel rejuvenating (AS-3) solution for two weeks at 4°C. Leukodepleted fresh frozen plasma units were thawed after release from quarantine, repacked, and frozen to -80°C. Prior to and after the -80°C freezing, concentration of factors V and VIII was determined. Dimethyl Sulfoxide (DMSO) was added to leukodepleted, plateletpheresis units to a final concentration of approximately 5%. The platelets were concentrated and frozen to -80°C. After thawing, the platelets were suspended in thawed deep frozen plasma (DFP) and the platelet count and pH were determined.
Results: The quality of blood products, frozen and thawed in the manner described, is in compliance with the European and US guidelines for standard red cell concentrates, plasma, and platelets.
Conclusions: A frozen blood bank facility with a stock of frozen, universal, donor blood products can easily, effectively, and safely be used in remote areas, to compensate for periods when few or no donors are available, when the resupply of blood is impaired and/or when many patients are suddenly in need of blood products.
Keywords: armed forces; frozen blood products; The Netherlands; product standards; quality control
Prehosp Disast Med 2007;22(2):s108

Session 6: Planning 1

Chairs: TBA

Relationship between Transformational Leadership and the Organizational Performance of Hospital-Based Disaster Coordinators Using the Multifactor Leadership Questionnaire

E.L. Downey
Tulane University, Baton Rouge, Louisiana USA

Objectives: The United States National Response Plan is rooted in the perspective that disaster preparedness is the responsibility of all jurisdictional levels, from federal to local. The purpose of this study was to assess the leadership styles of the local hospital disaster coordinators in Louisiana who activated their response system and interfaced with other jurisdictional systems during Hurricanes Katrina and Rita.
Methods: Hospital performance was assessed to explore its relation to leadership style. Index cases were identified under the National Hospital Bioterrorism Preparedness Program. The analysis included three groups: (1) Designated Regional Coordinators (n = 22); (2) Designated Hospital Coordinators at acute-care facilities (n = 73); and (3) Designated Hospital Coordinators at non-acute care facilities (n = 40). The survey tools were: (1) the Multifactor Leadership Questionnaire; and (2) the Emergency Preparedness Indicator survey. Hospital contexts (i.e., profit structure and licensed bed size) were assessed to explore the potential moderating effects of the relationship of leadership style to performance scores.
Results: Transformational leadership had a positive association with hospital performance scores. No significant moderating effects were found, which indicated that the coordinators had similar leadership styles not only between hospitals, but across the statewide hospital response system.
Conclusion: The results of this study offers the field of hospital disaster preparedness a benchmark for other programs that support the development of leadership skills at the local level. Implications, limitations, and future studies for leadership research in disaster planning are discussed.
Keywords: disaster coordinators; hospital; leadership; organization; preparedness; relationship; questionnaire
Prehosp Disast Med 2007;22(2):s108

Surge Capacity: A Conceptual Framework for Disaster Preparedness and the Need for Reassessment and Research to Develop Readiness Benchmarks

T.A. Bey;[1] K.L. Koenig;[1] D.F. Barbisch[2]
Tulane University, Baton Rouge, Louisiana USA

Background: Surge capacity is defined as the ability of a healthcare system to respond to a sudden increase in

patient care demands. Conceptually, a surge system consists of three components: (1) "stuff" (supplies and equipment); (2) staff (personnel); and (3) structure (physical space and management infrastructure). Additional research is needed to quantify the "science of surge".

Discussion: Disaster planning for situations in which the number of patients exceeds the maximum capacity of the existing operational systems at a given point in time often is geared toward the acquisition of more "stuff", such as like pharmaceuticals or ventilators. While "stuff" is one important component of surge capacity, planners also should assess the availability of appropriately skilled personnel. In industrialized societies, the necessary materials and physical space usually are available readily. However, the management infrastructure (incident management system) required to coordinate these resources and apply them in an effective manner to mitigate a disaster and optimize patient outcomes often is lacking. The goal of surge capacity research is to develop benchmarks that measure preparedness, evaluate current protocols, and create new, improved protocols. Disaster preparedness models intended to increase surge capacity should use an all-hazard approach. Various models should be compared in order to optimize patient care outcomes and financial feasibility.

Conclusion: Surge capacity is a concept and a system intended to increase patient treatment capabilities and improve health outcomes during and after a disaster. Adequate "stuff", staff, and a structure comprise an effective surge system that coordinates essential elements in order to increase patient care capacity in a disaster.

Keywords: all-hazards; benchmarks; framework; preparedness; supplies; surge capacity
Prehosp Disast Med 2007:22(2):s108–s109

Surge Capacity Planning in Western Australia

M.G. Leclercq; H.E. Harley
Department of Health, Perth, Australia

Perth, Western Australia (WA) has had a coordinated hospital disaster plan since 1999. This plan included coordinating all of the resources of both private and public hospitals. However, the Madrid bombings in 2004 and the London bombings in 2005 prompted that plan to be reviewed, and significant progress has been made toward reaching the required goal of being able to care for 1,000 casualties.

Although much emphasis has been placed on bed capacity, it is unrealistic to expect to have significant number of beds empty at any given time. Not only is this not financially viable, it is anticipated that available beds would soon be filled by well-meaning clinicians wanting to care for their patients. Consequently, WA has developed a number of alternate arrangements as part of their surge capacity plan. These arrangements include: (1) formalizing argreements with private hospitals; (2) working with the community nursing and medical services; (3) developing a stock of critical care equipment; (4) identifying alternate areas within hospitals for care of critically ill patients; and (5) developing uniform decanting protocols for the hospitals to use.

The revised plan has been developed for mass-casualty incidents, and also has been modified to enable relevant aspects of the plan to be activated in the event of infrastructure failure at a major hospital in Perth requiring hospital evacuation.

Obviously, it is difficult to evaluate this plan in real time. However, a recent 500 patient surge capacity exercise in Perth utilizing the Emergotrain System positively reinforced the revised plan.

Keywords: hospital; planning; preparedness; surge capacity; Western Australia
Prehosp Disast Med 2007:22(2):s109

Disaster Management and Hospital Preparedness: "The Krefeld Model"

G. Leledakis;[1] P. Gretenkort[2]
1. Klinikum Krefeld, Germany
2. AKH Viersen-Clinik of Anaesthesiology, Viersen, Germany

Fire, earthquakes, floods, or a mere disruption of electricity may be sources of hospital disasters whose management requires careful preparation and planning.

After an evacuation exercise in 1998, the disaster preparedness plan of Klinikum Krefeld, a 1,100-bed hospital in Germany, was evaluated. The basic requirements for a new, or updated plan included: (1) having successful leadership and communication in the hospital during an incident; (2) having elevator-independent patient transport capability; and (3) having a continuous education program for all staff.

The Krefeld disaster preparedness model contains a coordinating physician from one of the hospital's anaesthesia stand-by services. The coordinating physician works together with coordinating executive nurses and executive technicians to provide knowledge, and answer questions and provide leadership during critical incidents. This addresses the first basic requirement of the preparedness plan.

During the 1998 evacuation exercise, an elevator-independent patient transport system using a rescue carry sheet with four to five carriers was estimated to take approximately one minute per floor to transport patients from the hospital; the time to evacuate an entire building could take hours. Using an evacuation drag sheet (Järven, Sweden), it is possible to transport many patients personnel-free; the system can be disposed by the incident commanding staff to those locations with minimal staff.

These new concepts of hospital incident leadership, patient transportation, and staff education are intended to improve the management of a critical incident in a hospital.

Keywords: disaster management; evactuation Germany; hospital preparedness; leadership
Prehosp Disast Med 2007:22(2):s109