

Project ER One: Designing Emergency Rooms for All Hazards

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The findings from Project ER One, commissioned by the United States government to design and build a new type of emergency care center is presented. It is optimized to manage the medical consequences of terrorism and emerging infectious diseases, while maintaining its fundamental mission to provide emergency care to the community it serves.

ER One is optimized along three dimensions: (1) capacity; (2) capability; and (3) protection. Capacity is the ability to scale up 1–5 times the normal number of patients without encountering gridlock. Specialized capability provides an enhanced ability to manage conditions not ordinarily encountered, but can occur from a planned attack or an emerging infectious disease, chemical contamination, radioactive contamination, or highly and purposefully contagious illnesses. Protection ensures that the facility can continue to function despite being a target of a direct attack or suffering collateral damage from an attack nearby.

More than 300 design concepts for an all-risks emergency care center were identified by multiple national task forces. Key concepts, such as concourse vehicular access, screening portals at entrances, universal isolation, multi-modal decontamination, and rooms large enough to handle multiple patients simultaneously, will be discussed. Schematic design has been completed for an actual facility to be built that would be able to handle 100,000 emergency patients/year in routine operations and scale up to 1,500 patients/day during a mass-casualty incident. Design features and practical applications for renovation and/or building new emergency rooms also will be presented.

Keywords: all-hazards; capability; capacity; emergency room; protection
Prehosp Disast Med 2007;22(2):s100

An Integrated Plan to Augment Surge Capacity

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Objectives: The New York City Department of Health and Mental Hygiene has requested that area hospitals take inventory of available beds and ensure a minimum 20% surge capacity availability for a mass-casualty incident or infectious disease outbreak. Member facilities of the Central Brooklyn Centers for Bioterrorism and Preparedness Planning (CBPP) have chosen to cooperate in merging resources to address potential public health incidents affecting Central Brooklyn, New York. Together, CBPP hospitals have endeavored to meet the aforementioned requests.

Methods: The staff of the CBPP facilities were required to perform parallel inventories of the capacity of the units, that were or had the potential to become inpatient units. Concurrently, an inspection to identify negative pressure isolation bed surge and ventilator capacity was performed. Steps to prepare potential surge capacity for rapid mobilization, including the retrofitting of decommissioned units were taken and policies for its activation were determined.

Results: After performing preparatory steps, the final census identified a bed surge capacity of 30% within the CBPP. The surge capacity plan of each facility was communicated and integrated with that of the other CBPP facilities.

Conclusions: The CBPP hospitals have demonstrated the process of performing an inventory, recognizing potential space for supplementing surge capacity, and preparing the space and policy for its activation. An integrated plan has been formulated to engage increased demand to physical infrastructure by partnering multiple, unaffiliated health-care facilities. This process provides an example of the creation and execution of plans within and between facilities that augment their ability to respond to a public health incident.

Keywords: hospital; inventory; planning; policy; public health; surge capacity

Prehosp Disast Med 2007;22(2):s100

Preparedness of Hospital Physicians for a Mass-Casualty Incident: An Ongoing Survey in Germany

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Objectives: The goal of this study was to evaluate the preparedness of hospital physicians for a mass-casualty incident.

Methods: An online survey containing 16 questions was e-mailed to the head of the Departments of Surgery, Internal Medicine and Anaesthesia in all Level 1–3 Trauma Centers in Germany. Preliminary results of the first two months of data are collected and presented. Participants included 65 physicians working in internal medicine, 126 in surgery and 190 in anesthesia. Replies were analyzed statistically using the one-way Analysis of Variance (ANOVA) and the Turkey-Kramer Multiple Comparisons test.

Results: The questionnaire was completed by 381 physicians. Of these, 127 (33%) were unaware of the particular details of their hospital's disaster management plan, while 38 (10%) were unaware of the plan itself. A total of 48% of the responding physicians did not know their area of responsibility in case of an internal emergency (fire, burst pipe, power failure). Surgical residents and specialists had less training in nuclear, biological, or chemical agents compared to the other physicians ($p > 0.01$).

Conclusions: The preparedness level of physicians in hospitals for mass-casualty incident is inadequate. Surgeons have significantly less formal training in chemical, biological and nuclear exposures than do other specialists. The emergency medical training of physicians must be adapted to respond to the increase in catastrophes and terrorist threats.

Keywords: education; Germany; hospital; physicians; preparedness; training

Prehosp Disast Med 2007;22(2):s100

Hospital Preparedness for Emergencies in Nepal

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The Hospital Preparedness for Emergencies (HOPE) Course is a four-day course developed by a team of leading experts from throughout the Asia Pacific region. The course

has been tested and delivered in South East Asian countries. It addresses the structural, non-structural, on-site and inpatient management of disasters, including hospital evacuation.

The three priorities of HOPE are to: (1) produce local instructors; (2) institutionalize the course; and (3) to prepare the hospitals for disasters.

Twenty-nine instructors have been developed from this course. In the process of institutionalization, many sensitization programs have been conducted for high officials within the government. The result is that the Nepalese government has allocated a budget for HOPE. The sensitization also showed extra benefits; it helped us select proper, various organizations financed HOPE and also the course got known to other hospitals and they have requested for more courses.

The most important objective of HOPE is to help hospitals in Nepal prepare for emergencies. Previously, only some hospitals had non-implemented disaster plans and only one hospital held regular dispatch drills. Now, with 95 HOPE graduates from 10 hospitals, four hospitals have developed disaster plans and have performed disaster drills. Seven hospitals, including one private hospital, are preparing their disaster plans including one private hospital, after which they are planning to do a disaster drill.

Our future goal is to provide training to all the large hospitals in Nepal and to help them develop their disaster plan and drills so that when disaster occurs, hospitals will effectively be prepared because of HOPE.

Keywords: education; finance; hospitals; Nepal; preparedness; training
Prehosp Disast Med 2007;22(2):s100-101

Hospital Preparedness for a Mass-Casualty Incident: A National Pilot Drill

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Terrorists strike all over the world without prior notice. Unfortunately, it is not a question of “will it happen”, but rather “when will it happen”, and if so, “are we ready?” The health system in Israel is on constant alert for mass-casualty incidents (MCI) and disasters.

In April 2006, the Tel Aviv Sourasky Medical Center, a Level-1 Trauma Center, practiced a national pilot drill, the Rapid Response System for Mega Mass Casualty Incidents, for the first time. The drill was carried out in cooperation with the Israeli Defense Force (IDF) Home Front Command (HFC), Magen David Adom (the National Israeli Emergency Medical Service), the Israeli Police Force, and the National Railway System.

The drill was performed without interrupting the regular work of the hospital. Due to the continuation of the regular work, not all of the designated personnel took part in the drill. The drill was evaluated by colleagues from other hospitals, HFC, and the Ministry of Health.

Two hundred “casualties” were brought to the hospital within three hours. There were 120 minimally injured, 30 moderately injured, and 30 critically injured casualties.

The drill was performed in order to evaluate the hospital and the national response system to a major (“Mega”)

MCI. It also evaluated the cooperation and collaboration among all agencies related to the MCI response.

This paper will present the outcome of the drill as well as the recommendations to health authorities that followed the drill.

Keywords: drills; hospitals; mass-casualty incidents; preparedness; terrorist attacks

Prehosp Disast Med 2007;22(2):s101

The Impact of Three Super Typhoons in the Philippines within One Year: Climate Change

Experience

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Introduction: Several typhoons from the Pacific Ocean impact the Philippine archipelago each year. Category 4 typhoons strike this region every five to seven years. In 2006, three super typhoons devastated the Philippines. The experiences of dealing with the effects of these three successive typhoons damaging communities including the capital, Manila, are presented.

Methods: A review was conducted of the experiences in the Philippine regions affected by Typhoons Milenyo, Reming, and Seniang.

Results: Typhoon Milenyo directly impacted metropolitan Manila. Power lines were downed by the >180 kph winds and the damage to several billboards resulted in deaths. Typhoon Reming caused the flow of lava from the Mayon Volcano burying several towns despite excellent early warning systems. Typhoon Seniang caused the devastation of several islands as the country still was in the recovery process from the impact of the two previous typhoons.

Conclusions: As global changes in weather continue to occur, valuable lessons can be learned from the resilience demonstrated by the Filipino community in dealing with climate change.

Keywords: community; Philippines; recovery; typhoons; weather change

Prehosp Disast Med 2007;22(2):s101

National Centres of Research and Development in Medical Emergency Preparedness in Sweden

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In 1999, Swedish National Board of Health and Welfare established National Centres of Research and Development in medical emergency preparedness. The centers have been linked to already existing, university institutions and other corresponding bodies. Today, five centers have been established, with an annual budget of US\$3.3 million.

These centers have been established in the following areas: Microbiological Preparedness, Radiation Medicine in Disasters, Disaster Toxicology, Disaster Medicine and Disaster Psychiatry. The centers have different tasks within their respective area of expertise—from research in psychosocial support and traumatic stress, classical disaster