

The Role of Burn Specialist Advisors in Large Burn Mass-Casualty Training Events

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Introduction: Four experienced burn care providers participated as advisors in two mass casualty exercises in an area where access to a burn center is severely limited. The role of the advisors, lessons learned, and recommendations for future exercises will be presented.

Methods: Prior to the exercises, advisors provided a Just-in-Time lecture orienting hospital workers to prehospital triage, emergent burn care, and burn center transfers. Exercise 1 consisted of a simulated train derailment with hazardous materials spill and involved 150 victims; many with burn injuries and associated trauma. An advisor was assigned to each car to provide guidance to victims and feedback to exercise evaluators on prehospital triage, victim management, and transfer decisions. Exercise two involved a terrorist attack at an oil refinery in a small community; 140 victims were moulaged, triaged, and transported to the hospital. A burn advisor was assigned to each of the following areas of the hospital: initial triage area, intensive care unit (ICU) for immediate/critical victims, rehabilitation area for patients triaged into delayed or minor injury categories, and the state Disaster Medical Assistance Team (DMAT) treatment area.

Results: Overall, victims with injuries other than burns were more accurately triaged at the scene, assessed at the hospital, and managed. Although the state has provided burn courses to 150 nurses, physicians, and paramedics over the previous three years, there is a significant need for further burn training.

Conclusions: The presence of experienced burn advisors provided the opportunity for healthcare providers to receive training, ask questions during the exercise, and receive feedback following the exercise.

Keywords: advisors; burn disaster; burn specialist; exercise; mass casualty events; training

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Oral Presentations—Hot Topics

Experiences and Lessons from the Sichuan Earthquake

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Introduction: The Wenchuan earthquake, which measured at 8.0 Richter scale, occurred on 12 May 2008 in Sichuan Province, China. Official figures state that 69,197 were killed, 374,176 were injured, and 18,222 were listed as missing. The effectiveness of national emergency preparedness and disaster response system after the earthquake was analyzed. The experiences and lessons were gained for further improvements.

Methods: This paper describes what and how the search-and-rescue team and other facilities of different levels per-

formed during disaster relief and reconstruction after the earthquake. The experience and lessons from the earthquake rescue are discussed.

Results: There were well-organized contingency plans, but we were unable to follow the contingency plans due to the lack of practice. During huge disasters, too many departments were involved, and the collaboration became a problem. How can the precise, first-hand information to the government be provided to facilitate correct decision-making? The public doesn't know how to rescue themselves when facing a disaster. How to perform the disaster rescue more effectively? What to do to prevent epidemics? How to enhance international collaborations?

Conclusions: We should be familiar with the plans and follow them strictly by practicing regularly. The public should be educated about what to do during a disaster. A National Disaster Assessment Team should be organized. The professional disaster medical staff should have an extensive knowledge in medicine; they should have the capability to deal with the condition of resource shortage, and to cooperate with different people with different backgrounds. The best way to have a disaster medical team is to establish education and training facilities. For enhancing international cooperation, we should have more communication and practice to be better organized, only in that way, can we deal effectively during real situations.

Keywords: disaster relief; lessons learned; planning; reconstruction; search and rescue; Sichuan Earthquake

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Application of Disaster Inventory Management System: Preliminary Results from China's Sichuan Earthquake

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Introduction: A newly designed, humanitarian logistic system called Disaster Inventory Management System (DIMA) has been developed by the Taiwan Society of Disaster Medicine according to the structure of the Humanitarian Supply Management System (SUMA). The applicability is to be investigated.

Methods: After the implementation of DIMA, standard education and training programs in six regional Emergency Operations Centers (rEOC) in Taiwan were organized. From July 2007 to April 2008 (Phase 1), a standardized, eight-hour logistics training program including DIMA application was completed among the staff of the six rEOCs in Taiwan. Four scenarios were provided to test the applicability of the DIMA system compared to the conventional logistics system of each rEOC. In Phase 2, the DIMA was applied to a rescue team from Taipei that was responding to the China Sichuan Earthquake that occurred on 12 May 2008.

Results: The error rate of information for Phase 1 was approximately 3.5% (donor = 1%; consignment = 1%; warehouses = 1%; and central feedback = 0.5%), which was significantly lower than that of the information from the individual logistics systems of the six rEOCs (12%, $p < 0.01$). A five-point scoring system concerning the satisfaction

obtained from 178 trainees revealed higher satisfaction of the DIMA in transparencies (92 ±10 points vs. 66 ±12 points, $p < 0.001$) and accountability (93 ±8 points vs. 78 ±16 points; $p < 0.01$) compared to the conventional methods. In phase 2, the error rate of information was about 2.4% (donor = 0.6%; consignment = 0.5%; warehouses = 0.8%; and central feedback 0.5%), which was significantly lower than that of information by conventional logistics systems (8%, $p < 0.01$). **Conclusions:** The DIMA system is a transparent and efficient humanitarian management system. More practice may reduce the error rate in the future.

Keywords: disaster health management; logistics systems; hospitals; Humanitarian Supply Management System (SUMA); training
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Deploying an International Telemedicine System in a Major Active Earthquake Zone

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Introduction: Within three weeks of the major earthquakes in China on 12 May 2008, a medical team from a major US trauma center arrived at a major regional hospital located 50 miles from the epicenter, well within the active earthquake zone. The hospital had 140 intensive care unit (ICU) beds dedicated to earthquake victims, most of which sustained crush injuries. An international telemedicine link was requested for teleconsultation between the US trauma center and the Chinese regional hospital.

Methods: Several telemedicine systems were rapidly assessed for availability, accessibility and reliability. The telemedicine equipment and software also were selected based on ease-of-use, ease-of-setup, and feasibility for rapid deployment. The resulting system was tested for connection speed and proximity to the ICU in three locations inside the hospital. The tests covered settings for video frame rate, audio quality, image quality, and reliability.

Results: The international telemedicine system was operational within 48 hours. Sixteen people (10 located in China and six in the US; nine physicians, three nurses and four administrative leaders) attended the telemedicine session that lasted 45 minutes. The topics included the role of international medical relief team in the ICU for earthquake victims, and patterns and selected cases consultation. The

system greatly enhanced the role of international relief effort by sharing medical expertise across the globe.

Discussion: In general, international medical relief is limited by duration (time) and personnel. A rapidly deployable telemedicine system may provide a critical link between the disaster sites and remote medical expert resources both locally and internationally.

Keywords: China; earthquake; intensive care unit; international; telemedicine; trauma
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The Mumbai Terrorist Attacks on 26 November 2008: Another Proxy War?

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Introduction: Mumbai is India's largest city and the financial capital of the country. Destruction of symbolic structures in large cities has been a worldwide strategy of terrorists for spreading hopelessness, fear, and panic. The recent Mumbai terror attacks were similar and included taking foreign nationals as hostages.

Methods: Victims profiles were studied for mode of injury (firearm, fire, blast, fall, or combination), the type of injury, and treatment. The level of hospital preparedness was described, especially for surge capacity. Terrorist events and conflict over the last five decades in Mumbai and India were analyzed. The Indian data was compared to global terrorism in order to suggest appropriate recommendations for countering terrorism in a developing country.

Results: At least 173 people were killed and 308 were injured in the recent attacks. There were eight attack sites in downtown Mumbai, of which, three sites were patronized largely by western tourists and foreign delegates. Three were crowded public places, including a hospital. The most prevalent injuries were bullet wounds from automatic weapons, followed by blast, shrapnel, falls, and burns. All previous terrorist events in Mumbai are listed in the Table.

Date	Type of Event	Killed	Comments
12 Mar 1993	Serial bombing	257	13 serial bombs in public places
06 Dec 2002	Bus bomb	2	Single bomb in suburb
27 Jan 2003	Bicycle bomb	1	Suburb
14 Mar 2003	Train bomb	10	Single bomb in suburb
28 July 2003	Bus bomb	4	Single bomb in suburb
25 Aug 2003	Car bomb	50	2 crowded public places
11 July 2006	Peak-hour train bombs	209	7 serial explosions

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