

(C25) Experience from the Boumerdes Earthquake in Algeria

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Although it cannot be predicted when or where an earthquake will occur, lessons can be learned from the worldwide experiences of those involved in the fields of prevention, paraseismic construction, rescue planning, and medical treatment of wounded victims. Nowadays, many actions are taken to minimize the dramatic results of a major earthquake.

On 21 May 2003, an earthquake of 6.8 on the Richter scale put the population of Boumerdes, Algeria into great disorder. The authorities engaged the Algerian army for this large catastrophe. The military health services played a remarkable role in providing available human, material, and organizational resources to rescue victims trapped under rubble and provided assistance until they reached a hospital; and remained involved from the first alert until the recovery. Once the immediate phase of panic was over, and after a night aerial identification, the operations focused on medical rescue, evacuating victims and corpses, establishing shelters, providing psychological support (especially for children who lost their parents), hygienic and epidemic prevention, integrating national and international assistance, and media management. The entire response was conducted under high security since the region was a target for terrorist activity. The Algerian military of health services acquired a worthy experience in managing disasters due to natural hazards in this specific situation.

Keywords: Algeria; Boumerdes Earthquake; disaster; health services; management; military

Prehosp Disast Med 2009;24(2):s148

(C26) Health Consequences of Flooding in China and Australia

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Background: Floods are the most common type of disasters and cause more deaths and damage than other types of disasters. The health consequences of floods vary according to the nature of the flood, geographical and demographic characteristics, and policy arrangements for preparation and consequence management.

Methods: This study involves a comparative analysis of the response to selected floods in China and Australia as an example of diverse geographical, demographic, and policy environments. The study involved an examination of news and government reports, interviews with key players, site visits, and an analysis of the policy and governance arrangements. A framework for the health consequences of floods was developed and utilized to compare the consequences in each location.

Results: The health consequences varied considerably with the nature of the flood and the geographical and demographic environment. Flash flooding caused more immediate injuries and deaths, and less effective immediate management because of its rapid and unpredictable onset.

The variation in resources and preparation between the two countries resulted in a demonstrable difference in health consequence management. The long-term outcomes including mental health problems were difficult to identify. **Conclusions:** Effective flood management was shown to reduce the health consequences of floods. These consequences may be immediate, medium-, or long-term, and effective management strategies must address each of these elements.

Australia's highly sophisticated disaster management system minimized the health consequences of floods. Despite its considerable population and other challenges, China has a demonstrated capacity to reduce health impact through improved policy frameworks and resource management.

Keywords: Australia; China; disaster management; flood; flood management; health consequences

Prehosp Disast Med 2009;24(2):s148

(C27) Damages to Healthcare Facilities by the Earthquake in Pisco, Peru

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Introduction: On 15 August 2007, a 7.0 Richter earthquake struck the southern coast of Peru. The national government reported 519 people dead, >1,500 injured, and 192,492 homes affected (78% of all homes in the eight provinces in the regions of Huancavelica, Ica, and Lima). The province of Pisco in the region of Ica was the most affected.

Methods: The estimation of damages to healthcare facilities was based on a review of the assessment of the national and regional health authorities and recovery projects proposed by the South Reconstruction Fund.

Results: At least 60 primary healthcare facilities were affected (18% of the total in the affected area), as well as four Ministry of Health hospitals. Three Social Security hospitals had moderate and severe structural and non-structural damages. Sixty-two percent (515) of the total number of beds available (834) in three Ica provinces were lost in a few minutes after the earthquake.

Conclusions: The effect of the earthquake on hospital services was large. It included damages to the infrastructure and the loss of furniture and biomedical equipment. Foreign field hospitals and temporary strategies were adopted to assure the continuation of healthcare services and to reduce the risk of public health problems associated with the disaster.

Keywords: damage; disaster; earthquake; healthcare facilities; Peru; safe hospitals

Prehosp Disast Med 2009;24(2):s148

(C28) Estimation of the Socioeconomic Impact of the Earthquake in Pisco on the Peruvian Health Sector

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Introduction: On 15 August 2007, a 7.0 Richter magnitude earthquake struck the southern coast of Peru. Economic resources were invested to help the healthcare facilities affected by the earthquake recover, and to control public health problems in the regions of Huancavelica, Ica, and Lima.

Methods: The estimation of the economic impact was based on the Economic Commission for Latin America and the Caribbean's methodology on the socioeconomic and environmental impact assessment of disasters. Reports and information about the actions taken by public and non-public health organizations during the response and recovery phases. This information was used to calculate the effect on goods and economic flows in the health sector.

Results: The economic impact of the earthquake reached 139.1 million dollars, of which, 95% was related to damages to healthcare facilities, and 5% was due to losses.

Conclusions: A national safe hospital strategy is needed in order to reduce the monetary investments spent on the recovery of damaged healthcare facilities, as well as to assure that the affected population continues to receive medical attention during the emergency phase.

Keywords: disaster; earthquake; health sector; Peru; socioeconomic impact

Prehosp Disast Med 2009;24(2):s148–s149

(C29) Aeromedical Evacuation during the Second Israel-Lebanon War: A Descriptive Study

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Introduction: The second Lebanon war broke out on 12 July 2006 and lasted 34 days. Most of the fighting occurred in the mountains of Southern Lebanon, in villages and small towns inhabited by civilians. The Israeli Defense Forces (IDF) Airborne Rescue and Evacuation Unit is in charge of the air evacuation of soldiers and civilians in times of peace, limited conflict, and war. The activities of the unit in this war will be described.

Methods: Data were collected from flight and ground medical reports and debriefings (debriefings of aero-medical team members, usually immediately upon return from mission) as well as hospital records.

Results: A total of 725 IDF soldiers were injured and 117 were killed either in Lebanon or near the Israeli-Lebanese border during the war. Three hundred thirty-eight (46%) were evacuated in 95 airlifts (4.5 evacuees per airlift, on average) from the fighting zones or the border. Most victims were evacuated directly from the battlefield while the fighting was ongoing.

Conclusions: During military operations within civilian-populated areas where ground transport is threatened, air evacuation sometimes can be the only readily available option. During the war, it was used for mildly and severely wounded victims. Providing timely ground medical intensive care capabilities proved difficult in many instances.

Thus, for many casualties, the rescue helicopter was the first point-of-access to such care. Aeromedical aircraft and personnel faced threats from gunfire and missiles, causing delays in evacuation and a high average number of evacuees per airlift.

Keywords: aeromedical evacuation; asymmetric war; evacuation; Israel; Israel-Lebanon war; war

Prehosp Disast Med 2009;24(2):s149

(C30) Bihar Calamity 2008—Impressions of a Non-Governmental Organization

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Doctors For You (D4U) is a social organization that aims to provide efficient, effective, and equitable healthcare and education to all. It is comprised of professionals from both medical and non-medical fields. It is conducting a massive flood relief operation of >110 doctors.

Multiple teams of member doctors went into the interiors of Bihar from September 2008 onwards and worked in >400 camps covering six districts. The capacities of medical relief reaching victims in rural and urban areas were realized, be it in the villages, relief camps, primary health centers, or in district hospitals. Deficiencies were infrastructural or caused by poor human empathy of officials in-charge. These were assessed and notified to senior government officials, media, and non-governmental organizations (NGOs) with an aim to improve the situations. An acute shortage of female doctors and impact of this shortage were noted. Doctors For You further liaised with Youth for Equality, Doctors Without Borders, World Health Organization, Mercy Malaysia, various NGOs running relief camps, the Emergency Management Research Institute (EMRI), and volunteers from Tata Institute of Social Sciences to provide trained medical manpower for current relief activity.

To date, 130,000 patients in the flood zone have been seen by members of D4U. Two camps are still running everyday. Three female doctors were recruited to help the female patients. Patients requiring intensive care management were transferred from poorly equipped emergency rooms to cardiac ambulances of the EMRI for medical management, which saved many lives.

Organizations from across the world worked together and shared their platforms. Doctors For You brought different Indian doctors under one platform, and now aims to grow to a level similar to MSF in order to provide skilled manpower for relief operations across the globe.

Keywords: collaboration; disaster; Doctors For You; floods; India; non-governmental organizations

Prehosp Disast Med 2009;24(2):s149