

(251) Injuries due to the Bam Earthquake in IranH. Hatamabady;¹ M. Karimi²

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Introduction: Iran is a country with an area of 1,648,195 km² and a population of >68,000,000 people. The devastating earthquake in the Bam District of Kerman Province struck on 26 December 2003, leaving a total of 29,878 people dead and 22,628 injured. The earthquake measured as 7.4 on the Richter scale. The main aim of this study was to determine the frequency of physical injuries.

Material and Methods: The data from 206 patients were collected from the medical records, physical examinations, and paraclinics of earthquake victims who were admitted to Hazrat Rasol Hospital in Tehran.

Results: The majority of patients were in 20–29 years of age. The female/male ratio was 1.51. The overall mortality rate was 2%. The most frequent injuries were lower extremity, pelvic, and spinal fractures, respectively. Of the patients with extremity fractures, 4.9% were open, and 95.1% were closed. Nineteen patients underwent fasciotomy for relief of the compartment syndrome. Of the pelvic fractures, 7.9% were unstable, and there were spinal cord injuries in 32% of the vertebral fracture cases. Other injuries had less frequency and included pneumothorax, hemothorax, abdominal viscous injuries, rib fractures, and head injuries.

Conclusions: The main problems in these victims were orthopedic. These types of injuries must be prepared for in the future.

Keywords: Bam; disasters; injuries; Iran; orthopedic

Prehosp Disast Med 2007;22(2):s157

(252) 2005 Pakistan Earthquake ExperienceK.K. Chikhradze;¹ Z.M. Metreveli;¹ T.T. Zhorzholiani;¹M.B. Burduli;¹ I.M. Maisuradze;¹ N.T. Tevzadze;²D.D. Dondua²

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One month after the 2005 earthquake in Pakistan, a Georgian medical team consisting of a surgeon, a pediatrician, an anesthesiologist, and two nurses, went to Pakistan to provide medical assistance to the local population. The group arrived in Islamabad on 28 October 2005, where they were met by a representative from Johanniter International, the organization with which they were to work. The group then travelled to Batala, which is situated in the northern part of Pakistan, 1,600 meters above sea level.

Accompanied by the military service of Pakistan, the group went to villages in the region that were located at a higher elevation, and worked on population ambulatory examinations, diagnoses, prescriptions, and providing medications. An average of 300 patients were examined daily. Diseases identified that are common to this situation included viral infections, pneumonia, diarrhea, skin infections, and others. Up to 30 seriously ill patients were sent to the hospital. This population would have benefitted from a greater volume of medical assistance. During the period

spent in Pakistan up to 2,500 patients were examined by this group.

Even a month after the disaster, medical teams continued to provide the necessary assistance. This work must be installed permanently in the region through alternating medical teams. If this is not instituted, we believe expenses will increase and the effectiveness of work will decrease.

Keywords: disaster; earthquake; Georgia; medical team; Pakistan

Prehosp Disast Med 2007;22(2):s157

(253) Bam Iran Earthquake: The Experiences of a Turkish Medical Team

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On 26 December, 2003, an earthquake occurred in Iran with a magnitude of 6.5 on the Richter Scale. The earthquake happened at 05:26h and lasted for three minutes. The epicenter was located in Bam City and the damages resulted in approximately 25,000 fatalities, 50,000 injured, and rendered 100,000 people homeless. The activities of a 50-person, primary care, health provider team sent from Turkey following the request of the Iranian government are described in this study. Within three days following the earthquake, the chaotic environment was taken under control, water supplies were chlorinated, and ambulatory health care was provided to the local population. These activities helped the team gain significant disaster response experience in the field. In light of the lessons learned here, preparations have been started for future missions.

Keywords: Bam earthquake; experience; primary care; response team; Turkey

Prehosp Disast Med 2007;22(2):s156

(254) Indonesia Tsunami: Turkish Medical Team Experiences

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On 26 December 2004, just before 06:58 hours (h)(local time), an earthquake occurred that measured 9.3 on the Richter Scale. The epicenter of this earthquake was off the west coast of northern Sumatra, and the resulting tsunami waves were 10–12 meters high, travelling at a speed of 500 km/h. As a result of the tsunami, nearly 230,000 people lost their lives and 1.5 million people remained homeless. Including Turkey, 41 countries and 9 international bodies assisted the affected countries.

First, a Turkish aircraft arrived at Thailand, Bangkok and next, military C-130 airplanes of Turkish Armed Forces arrived in Banda Aceh. The Sahra Hospital was activated and three different teams were assembled. The services provided included medical treatment, surgical interventions, general medical check-ups, environmental health, water supply and sanitation, toilet care, and health education. Over a 10 day period, 6,824 people took advantage of these medical services. There was no communication between the Sahra Hospital camp and the rest of the outside world. Transportation was sufficient. The teams supplied all their needs through their

own resources. In disaster areas such as this, there should be services for those who have suffered, and also extra services for the special risk groups to prevent exploitation.

Keywords: earthquake; Indonesia; rescue; tsunami; Turkey
Prehosp Disast Med 2007;22(2):s157–s158

(255) Evaluation of the Preparedness for Chemical Incidents Caused by the Derailment of a Freight Train Carrying Chlorine

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Introduction: In February 2005, a freight train derailed near Kungsbacka, Sweden. The train consisted of 12 tank cars, each of which carried 65 tons of chlorine. The derailment occurred because the freight train went onto a blind track to await a meeting train. Attempts to stop the train failed, and the engine and four of the cars derailed into the surrounding field. Fortunately none of the tanks were disrupted. However, the event raised questions regarding the consequences of the accident if a chlorine leak had occurred. **Methods:** An evaluation of the preparedness of the emergency services' response to chemical accidents was conducted. Simulations based on mathematical models were conducted to determine the dispersal rate of chlorine given the weather conditions during the event. The potential impact on the population in the area surrounding the site of derailment was calculated using population data provided by the local authorities in Kungsbacka.

Results: The simulations showed that release of chlorine after the incident would have resulted in severe consequences for the people in the dissemination area. None of the emergency services involved possessed adequate preparedness to manage the scenario.

Conclusions: It is important to realize that the extent of the dissemination area is not limited to the geographic area where the accident occurred. Casualties may be scattered throughout a wide area, both inside and outside of buildings. It is recommended that casualties are evacuated before decontamination, particularly during incidents involving industrial chemicals.

Keywords: chemicals; derailment; dissemination; preparedness; simulation

Prehosp Disast Med 2007;22(2):s158

(256) Lessons Learned from Greek Myths

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Standard categorizing of disasters into "god-made" and "human-made" should be revised. In some myths, such as Damocles's sword, Pandora's box, and Medusa's head, there are included methods for dealing with disasters. Concepts of trust and confidence on the one hand, and a certain culture of risk on the other, point to an acceptance of nature as uncertain and unstable. Can we learn the solution to disasters by listening to Greek ancient myths? Because inside the myths, truth is living.

Keywords: categorization; coping; disaster; Greek mythology

Prehosp Disast Med 2007;22(2):s158

(257) The "Helios" Aircraft Crash in Athens

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The aim of this report is to study the mobilization and problems faced by the agencies that managed the "Helios" aircraft crash in Grammatiko, Greece, on 14 August 2005. The incident involved the "Helios" flight ZU522 from Larnaca, Cyprus via Athens, Greece to Prague, Czech Republic on a Boeing 737-31S with 116 passengers and a five-person crew. The aircraft took off from Larnaca at 06:07 hours (h) UTC and crashed near Grammatiko at 09:03 h UTC.

The "El Venizelos", Athens International Airport (EV-AIA, called a "full emergency status" at 08:50 h UTC. At the same time the Hellenic National System for Emergency Medical Care, EKAB, was alarmed and immediately placed two mobile intensive care units (MICUs) and three B-ambulances at the disposal of the EV-AIA. At 08:55 h, the alarm was escalated to face an "uncontrolled" approach and landing. At 09:03 h, EV-AIA and EKAB were notified about the airliner crash about 12 nm north of EV-AIA. The full-scale alarm status in EKAB included the dispatch of 9 MICUs, 11 other physician-equipped vehicles, 25 B-ambulances, and one medevac helicopter.

The problems faced at the disaster site in order of importance were: (1) horizontal dispatch of information; (2) coordination between agencies; (3) chain of command; (4) inadequate and difficult access to the disaster site; and (5) staging of responding vehicles. The major problem outside of the site was the deficiency of ambulance vehicles in Athens for about four hours. Nevertheless, at no time was the health or safety personnel jeopardized—singly or collectively.

This incident identified response deficiencies to such an event and also generated ways to improve the responses.

Keywords: aircraft crash; deficiencies; Greece; opportunity costs; responses; safety

Prehosp Disast Med 2007;22(2):s158

(258) Hospital Fires: Gazi University Case

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Gazi University Hospital is a 950-bed, university hospital situated in central Ankara, Turkey. A fire started on 28 June, around 11:00 hours (h). Nurses on the 12th floor of the hospital notified the Emergency Management Department of the presence of smoke in a ventilation hall. Initial response was provided by the security personnel in the hospital and the small fire caused by burning garments and a small amount of garbage thrown out of a window at 7th floor was contained. However, about 15 minutes later, a fire alarm was given due to the presence of heavy smoke coming from the main electrical control room in the basement. Emergency response units (fire department and EMS) were notified and the evacuation of the tower that was affected by the fire was ordered. Around 250 patients