

Multi-Discipline, Mass-Casualty Exercise: Sarin Gas and Car Bombs

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At 09:00 hours on 30 April 2004, a man armed with a gun releases sarin gas into the ventilation system of a college building. Local police, firefighters, and chemical, biological, radiological, and nuclear (CBRN) teams respond to the scene. Before the teams arrive, those who are able, flee to the hospital across the street. The emergency department already is full when contaminated patients arrive. One hour later, a car bomb explodes in the hospital parking lot.

A simulated hospital in a campus gymnasium was created by the University of Toronto Emergency Medicine Residency Program, Sunnybrook and Women's College Base Hospital Land Program, Toronto Emergency Medical Services, paramedic students, nurses, physicians, administrators, and social workers. The hospital received approximately 100 patients within two hours. To prepare for the exercise, a website was built, where a literature search on CBRN terrorist events was posted, local hospital disaster plans were evaluated, and new plans were created. **Discussion:** Hospitals are vulnerable in terrorist events and may need protection from police and CBRN teams. Online collaboration is a useful way to learn and modify disaster plans. Active testing using simulated, mass-casualty-producing events exposes weaknesses, which can be attenuated. **Keywords:** bombing; evaluation; exercise; hospital; mass-casualty events; sarin

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Mass Medical Repatriation of Wounded Civilians in a Terrorist Attack—Lessons Learned from the Mombassa Experience

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Introduction: Recently, large-scale international terrorist attacks have become common. The need for medical repatriation of all or some of the wounded civilians could arise in such instances. On 28 November 2002, three suicide bombers crashed their car into a hotel in Mombassa, Kenya; 12 people were killed, including three Israelis, and 80 were wounded (22 of whom were Israeli). The Israeli Defense Force Airborne Medical Evacuation Flight Teams participated in a repatriation mission to bring the wounded home. **Objectives:** The objectives of this study are to outline the distinctive aspects of this mission, as well as to share the experiences and lessons learned.

Methods: Israeli Army debriefing reports were used to study the composition of the crew, medical equipment taken, injury distribution, mode of operation, and mission schedule.

Results: A total of six fixed-wing aircraft were used—two Boeing 707s and four Hercules C-130s—with a total of 54 medical team members on board. A total of 260 Israelis were repatriated, 22 of whom were wounded, and three were dead. Of the casualties, 14 were conveyed sitting, and eight supine. The time from the first landing in Kenya to the evacuation of the last supine patient was 5.5 hours. Nurses, as well as social workers, played a central role in the mission. A forward team, including five doctors, was used for the initial organization and for gathering information on the medical status of the casualties.

Conclusions: There was redundancy in the medical crew and equipment sent. The need for improved infrastructure on the medical aircraft was stressed. Based on this experience, a new mode of operation for similar missions in the future was formulated.

Keywords: civilians; earthquake; medical mission; needs; repatriation; resources; teams

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Incidence of Gastroenteritis One Month after 2004 Bam Earthquake

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Introduction: Iran experiences frequent earthquakes. In 2004, an earthquake in Bam city destroyed >90% of the land and killed 35,000 people. The World Health Organization reported >5% financial damage due to health problems in each disaster. Disasters can cause outbreaks of infectious diseases, like gastroenteritis, due to the absence of safe water and unhealthy disposal of waste materials.

Methods: This evaluation was done one month after the earthquake in Bam city. This is a descriptive study in 13 temporary health centers of other private hospitals in Bam. Inflammatory and non-inflammatory gastroenteritis were detected and analyzed with a computer program.

Results: Gastroenteritis is the second most common infectious disease after respiratory infection. In this case, there were 738 cases of diarrhea (82 per 10,000 person). Watery diarrhea was seen in 676 cases, and bloody diarrhea was seen in 62 cases. Cholera infection was not seen in the Bam earthquake. Microbiology diagnosis was not done for patients with diarrhea.

Conclusion: In disasters, increased outbreaks of infectious diseases should be expected. The Ministry of Health should prepare safe water and portable laboratories in order to rapidly detect infectious diseases in disasters.

Keywords: diarrhea; earthquake; health; preparedness

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