A Mass Casualty Experience: Carbon Monoxide Poisoning in a Group of Restaurant Workers

Si Yong Ivan Chua, R Ponampalam, Boon Kiat Kenneth Tan
Singapore General Hospital, Singapore/Singapore

Study/Objective: To investigate the treatment of CO poisoning using oxygen.
Background: Acute carbon monoxide poisoning is a common cause of accidental poisoning. The incident described here occurred in a restaurant in Singapore, where a group of workers were exposed to CO due to a malfunctioning ventilation system. Thirty patients were sent to our ED as our hospital has the only burn unit in Singapore, as well as being the closest in proximity to the incident site.
Methods: All patients involved in the incident were charted upon arrival and seen by a team of Emergency Department doctors, including three medical officers and two toxicologists. Once the diagnosis of the index case was confirmed with an elevated carboxyhemoglobin, he was initiated on 100% oxygen using a Non-breather Mask (NRM). Subsequent cases were also initiated on NRM once there is confirmed history of being in the affected area of the restaurant, and patients complained of symptoms of headache, giddiness, breathlessness, or chest tightness. All cases were screened with the following investigations - Chest X Ray, full blood count, renal panel, troponin T, carboxyhemoglobin, venous/arterial blood gas, and lactate levels.
Results: Two patients were admitted to inpatient and 17 to our observation unit. All cases displayed down trending of carboxyhemoglobin levels with oxygen. Three cases with raised Troponin had initial complaints of chest tightness that resolved with oxygen therapy. All patients were discharged and none required HBOT.
Conclusion: Carbon monoxide poisoning is readily treatable once the diagnosis is clinched through a thorough history taking, physical examination, and appropriate investigations. Importantly, a concomitant cyanide poisoning should be excluded, as the treatment is different. A mass-casualty situation can also happen in such instances, so a protocol should either be activated or drawn up immediately upon identification of the first few cases. Hyperbaric oxygen treatment is a consideration in severe cases.

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Disaster Preparedness and Social Media: Experience from an Earthquake in Hawassa 2016

Temesgen B. Abicho
Emergency Medicine, Addis Ababa University, Addis Ababa/Ethiopia

Study/Objective: To create awareness for the community in the region of an earthquake. To disseminate preparedness information during an earthquake.
Background: Hawassa is found within the rift valley system, known to be the most vulnerable area in the country for volcanic activity including earthquakes. It is known that an earthquake with a magnitude of 5.2 Richter scale was registered in Yergalem, Hosana, and Werabe in Southern Ethiopia regional state a year ago. This year in January 24-25, a successive earthquake of 4.1 and 4.3 Richter scale respectively hit Hawassa, the capital of Southern Ethiopia regional state, 275 km (170 miles) south of Addis Ababa. The shock, which was also felt in Halaba and Shashemene areas, registered at approximately 9:35 pm local time, according to Dr. Atalay Ayele, earthquake science expert from the Addis Ababa University. According to regional authorities, the shock didn't bring significant injuries to people. The shock caused no serious damage to buildings except cracks in some buildings.
Methods: A total number of 100 people were reached through social media (Facebook) and a brief precaution and preparedness diagram was sent individually, as well as being posted to social media groups addressing health care. Each of the 100 social media contacts were instructed to disseminate precautionary measures to as many people as they could. Health care professionals and contacts of social media were addressed with particular emphasis.
Results: All of the 100 people responded, their thoughts in the following table:
Conclusion: In disaster situations, particularly in earthquakes, adequate disaster preparedness will benefit in preventing more serious injuries. Public media education, as well as social media, is very important in minimizing risk.

Average Likert Score of Respondents	
Content Areas	Average Score
General knowledge before for precautions.	2.9
General knowledge after for precautions.	4.9
Willingness for disseminating precautions.	4.8
Their peer response for precautions.	4.9

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"It Takes a Village": Integration of Emergency Management in Public Health Responses

Johanna Miele[1], Fayola CreftImps/hls-Php, Cem, Mph[2]
1. Planning & Preparedness, New York City Emergency Management, BROOKLYN/NY/United States of America
2. Health & Medical, New York City Emergency Management, Brooklyn/United States of America

Study/Objective: During recent public health response coordination activities in New York City (ie. Ebola Virus (2014), Legionnaires' Disease (2015) and Zika (2016), the NYC Emergency Management (NYCEM) saw an "all hands" approach, where public health and medical partners worked closely with other Emergency Support Function (ESFs). These efforts included public information, community outreach, waste management in non-clinical settings, social services support in quarantine scenarios, surge staffing licensed workers, alongside worker health and safety guidance for various tiers of exposure/risk levels. This

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case study presentation seeks to propose alternative methods for public health emergency response in emergency management, through lessons learned and the development of the Emergency Operation Center (EOC) planning tools.

Background: Public health incidents pose a challenge for emergency management agencies because they do not follow the same “stand up” and “stand down” style of natural disasters or catastrophic incidents. Typically, public health incidents begin with more ambiguity than emergency managers usually encounter in other types of naturally occurring or manmade incidents. These incidents require technical, regulatory and scientific expertise that involves various non-health stakeholders for general consequence management.

Methods: NYC is currently developing a draft of Public Health Response protocols and tools that integrate SMEs from non-health, Medical and/or Human Services agencies based on preparedness and response activities, hot washes, and After-Action Reports. With the goal of connecting expertise of particular ESFs and task forces, such as waste management in non-clinical settings, public information, community engagement, and consequence management, this presentation will allow focus group members/conference attendees to think through select public health incidents (based on NYC’s case studies), that require significant non-public health and medical stakeholders.

Results: Research/field testing is still in progress but preliminary information may be available by Spring 2017.

Conclusion: More research/field testing is needed to formally integrate public health emergency management into the current ESF mechanisms used in local emergency management agency EOCs.

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Maternity Care Model during a Natural Disaster or Humanitarian Emergency Setting in Rural Pakistan

Humaira Maheen
School of Health and Social Development, Deakin University, Melbourne/Australia

Study/Objective: To propose a maternity care model for natural disaster or humanitarian setting in rural Pakistan, by using its existing Health Human Resource (HRH).

Background: Pakistan has been severely affected by a number of natural disasters, as well as humanitarian emergencies in the last decade. There are more than 100,000 health workers (including community and facility based midwives) in rural Pakistan which are local, trained, and most of them possess a good relationship with their community. There is a need to establish effective strategies, to utilize their services as frontline maternity care workers during emergency and conflict situations.

Methods: A mixed methods study was conducted in flood-affected villages of Sindh, which included 60 interviews (15 from women, 25 from Community Health workers, and 20 from key informants) and a survey with 669 women about their preferences of maternity care providers.

Results: In the absence of obstetric facilities in relief camps and a functional referral system, 91.2% women gave birth in temporary shelters with the help of a traditional birth attendant (Dai) with no clean physical space available to birth. Community health workers were not involved in disaster related activities. A clean delivery kit, dignity kit, and contraception were not available at relief camps.

Conclusion: The existing health workers are recommended to be engaged at different stages of a natural disaster (preparedness, early warning, and response). The capacity building of health workers and district health officials on emergency management is highly recommended. District health authorities should collaborate with Humanitarian Health Cluster at pre-disaster time to optimal utilization of logistic, financial and human resources. A well equipped “birthing station” and “women friendly spaces” are recommended in each camp. Referral systems should be strengthened whereby all laboring women with complications, can be timely transferred (transportation provided) to the nearest rural health facility where they will be assisted by the Emergency Obstetric Care (EMoC) trained staff.

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The Social Impact of Terrorism on Civilian Populations - Lessons Learned from Decades of Terrorism in Israel and Abroad

Maya Siman-Tov[1], Moran Bodas[2], Kobi Peleg[3]
1. Trauma And Emergency Medicine, Gertner, Ramt-Gan/Israel
2. Tel-Aviv University, Tel Aviv/Israel
3. Disaster Management & Injury Prevention, Tel-Aviv University, Tel Aviv/Israel

Study/Objective: This study considers the socio-psychological implications of terrorism, which are sometimes neglected in preparedness plans.

Background: One of the main concerns for public safety, shared by many countries, is the fear of terrorism; yet, far fewer lives are lost yearly due to terrorism as opposed to other forms of trauma, such as traffic accidents. Why does terrorism receive so much attention and incite such intense apprehension? Perhaps, terrorism “packs a different punch,” one that goes far beyond the number of injuries and fatalities. Terrorism’s main goal is to disrupt ordinary life, fostering fear and helplessness in the population.

Methods: Using Israeli experiences as a case study, this study briefly reviews four points of connection between terrorism and its psychological and social legacies: the sociopolitical aspects of terrorism, the unexpected nature of terrorism, normalization of terrorism and public resilience, and social aspects of medical care for terror-related injuries.

Results: The Israeli experience suggests preparedness plans should include planning for the socio-psychological effects of terrorism, on targeted populations, and may, in certain contexts, use Israeli approaches as a model.

Conclusion: Experience gained in Israel and elsewhere can set the stage for an appropriate response plan, striving not only for preparedness but also resilience. Efforts should be made to advance local capabilities, response plans, and resilience by

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