

Abstracts of Oral Presentations-WADEM Congress on Disaster and Emergency Medicine 2019

NATURAL HAZARDS

Assessing the Quality of Roof-Harvested Rainwater after Bushfires

Dr. Malinda Steenkamp¹, Dr. Kirstin Ross², Dr. Harriet Whiley², Mr. Emmanuel Chubaka², Prof. Paul Arbon¹

1. Torrens Resilience Institute, Adelaide, Australia
2. Flinders University, Adelaide, Australia

Introduction: Roof-harvested rainwater held in domestic tanks is used for a variety of purposes in Australia, including drinking and irrigation. There is limited evidence about the quality of rainwater after bushfires. Current health guidelines can be interpreted that landholders need to drain their rainwater tanks to avoid the risk of contamination. Anecdotal reports indicate that following such advice caused additional distress to landowners affected by bushfires in South Australia. Sustainable water management is important for future resilience and more evidence on water quality following bushfires is needed.

Aim: This project investigated whether there is contamination of roof-harvested rainwater after bushfires, and if so, whether such water was safe for various purposes.

Methods: In 2017 we tested artificially contaminated water spiked with chemicals associated with bushfires (chromated copper arsenate-treated ash and firefighting foam) and conducted a pilot field study using two purposely built roofs during a pre-fire season burn off. A field validation is planned for the summer of 2018/19 (December 2018 - March 2019), i.e., we plan to obtain 200 samples from 50 households affected by bushfire – two samples immediately after the fire event and another two after the first rain.

Results: The artificially created contaminated water fell within guidelines for non-potable uses such as irrigation and stock watering, but was found unsuitable for drinking even after being filtered through two commercially available water filtration systems. We also plan to present results from our field study of 50 households.

Discussion: Contaminant concentrations, even in artificially spiked water samples, are low and acceptable for non-potable uses. Bottled water should be used for drinking. Landholders should be encouraged to use their water for recovery purposes. Such advice may assist with decreasing the stress experienced by affected landholders and help with recovery efforts through the availability of a greater body of water.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s42

doi:10.1017/S1049023X19001018

Effectiveness of Children's Disaster Risk Reduction (DRR) Program on Earthquake Preparedness in Jordan

Dr. Fadi S Issa¹, Dr. Michael Molloy^{1,2}, Dr. Alexander Hart^{1,3}, Dr. Mahmoud S Issa¹, Dr. Reem AlFalasi¹, Dr. Abdullah A Albadhira^{1,3}, Dr. Ritu R Sarin^{1,3}, Amalia Voskanyan¹, A Prof. Gregory R Ciottono^{1,3}

1. BIDMC Fellowship in Disaster Medicine, Boston, United States
2. University College Dublin, Belfield, Dublin, Ireland
3. Department of Emergency Medicine, Beth Israel Deaconess Medical Centre, Boston, United States

Introduction: Children represent a particularly vulnerable population in disasters. Disaster Risk Reduction refers to a systematic approach to identifying, assessing, and reducing risks of disaster through sets of interventions towards disaster causes and population vulnerabilities. Disaster Risk Reduction through the education of the population, and especially children, is an emerging field requiring further study.

Aim: To test the hypothesis that an educational program on Disaster Risk Reduction can induce a sustained improvement in knowledge, risk perception, awareness, and attitudes toward preparedness behavior of children.

Methods: A Disaster Risk Reduction educational program for students aged 10-12 was completed in an earthquake-prone region of Jordan (Madaba). Subject students (A) and control groups of similarly aged untrained children in public (B) and private (C) schools were surveyed one year after the program. Surveys focused on disaster knowledge, risk perception, awareness, and preparedness behavior. Likert scales were used for some questions and binary yes/no for others. Results were collated and total scores averaged for each section. Average scores were compared between groups and analyzed using SPSS.

Results: Students who had completed the Disaster Risk Reduction program were found through Levene's test to have statistically significant improvement in earthquake knowledge (5.921 vs. 4.55 vs. 5.125), enhanced risk perception (3.966 vs. 3.580 vs. 3.789), and improved awareness of earthquakes (4.652 vs. 3.293 vs. 4.060) with heightened attitudes toward preparedness behavior (8.008 vs. 6.517 vs. 7.597) when compared to untrained public and private school control groups, respectively.

Discussion: Disaster Risk Reduction education programs can have lasting impacts when applied to children. They can

improve students' knowledge, risk perception, awareness, and attitudes towards preparedness. Further work is required to determine the frequency of re-education required and appropriate age groups for educational interventions.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s42–s43

doi:10.1017/S1049023X1900102X

Learning Lessons during Recovery from Disasters

Dr. Yasmin Khan¹, Ms. Shannon Tracey¹, Ms. Sara Lacarte¹, Prof. Marie-Christine Therrien², Dr. Christopher Sikora³

1. Public Health Ontario, Toronto, Canada
2. École nationale d'administration publique, Montreal, Canada
3. University of Alberta, Edmonton, Canada

Introduction: The Fort McMurray Alberta wildfire was one of Canada's largest natural disasters in history, burning 589,995 hectares of land until being controlled on July 5, 2016. In responding to the fire, Alberta Health Services (AHS) prompted a province-wide coordinated response. Through a combination of pre-emptive strategies and responsive activities, the AHS response has been considered a success. Underlying the successful response is the collective experiences and contextual knowledge of AHS staff members acquired from past events. While the frequency and severity of risks associated with extreme weather and climate change are increasing worldwide, there is a persistent knowledge gap in the evidence-base informing public health emergency preparedness. It is imperative that lessons learned from past events inform future preparedness activities. Learning lessons is a systematic implementation process that can be used to inform future responses and best practices that are transferable to similar situations.

Aim: To describe strategies employed and challenges encountered during recovery after the Alberta wildfires.

Methods: A single-case study approach was employed to understand the AHS method to "learning lessons," and the process involved in translating lessons into actionable goals. Semi-structured interviews with senior leaders (n=11) were conducted and internal documents were obtained.

Results: The analysis revealed a strategic learning process, including debriefs, staff surveys, interviews, and member validity checking. The implementation process used to translate the lessons identified included a project management framework, evaluation techniques, and the utilization of tacit and explicit knowledge. Key challenges for implementation involve clarification of processes, leadership commitment, resource and time constraints, staff turn-over, and measuring outcomes.

Discussion: Translating the lessons from the Alberta wildfires is crucial for enhancing preparedness, and exploratory research in this area can contribute to building a program of research in evaluation during disaster recovery.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s43

doi:10.1017/S1049023X19001031

"Operation:Navajeevan": Novel PPP Model Flood Relief Camp

Dr. Sonia Haris¹, Dr. Naveen Anaswara², Dr. Venugopal Poovathumparambil¹

1. Aster Mims, Calicut, Kozhikode, India
2. National Health mission, Kozhikode, India

Introduction: In August 2018, Kerala, India witnessed its worst flood in over a century. With the support of the national health mission, Operation Navajeevan, a public-private partnership between the district health administration and local hospitals was established in Kozhikode to provide medical aid to flood victims. This study identifies prerequisites, describes challenges, and depicts the epidemiology of patients seen in these camps.

Aim:

1. Identify prerequisites and medical needs/challenges faced by medical relief camps in a flood-affected region
2. Formulate protocols to avoid duplication of services
3. Prepare an ideal PPP emergency medical camp model

Methods: A control center with drugs and a logistics unit was set up at the district administration to monitor and supervise various camps. A mobile medical documentation format was created to record the details of each camp. Cases of patients seen at these camps were compiled and later analyzed. The medical officer sent reports from each camp to the control center each day to specify the daily difficulties faced by each camp. Mobile ICUs were kept on standby to respond in the event of emergent circumstances or surge demands. Transfer protocol and treatment guidelines were formulated and standardized.

Results: Over two weeks, approximately 40,000 patients were seen in 280 medical camps. Major medical issues included exacerbation of chronic illnesses due to loss of medications (18,490), acute respiratory infections (7,451), psychiatric illnesses (5,327), trauma (3,736), skin infection (792), tropical fever (498), acute gastroenteritis (394), and ACS (17). Of the cases of fever, 137 people had leptospirosis. Major challenges included a lack of training in disaster management and failure of documentation systems.

Discussion: A well-organized control center, improved training in disaster medicine, and reliable documentation systems are crucial for coordinating medical camps in disaster areas. Public-private partnerships offer a model for providing medical relief in disaster settings.

Prehosp. Disaster Med. 2019;34(Suppl. 1):s43

doi:10.1017/S1049023X19001043

Preparedness for a Severe Rainfall: The Importance of a Timeline

Dr. Tetsunori Kawase, Dr. Shinichi Nakayama, Dr. Soichiro Kai, Dr. Shota Kikuta, Dr. Takashi Ukai

Hyogo Emergency Medical Center, Kobe, Japan

Introduction: For recent years, we often hear the words, "never experienced before" on a weather forecast in Japan.

Aim: To evaluate our response to "Heisei 30-year July heavy rain" in the Hyogo Emergency Medical Operations Center.

Methods: Review our actions taken and exchanges of views with local government representatives in a time-related manner compared with public announcements of evacuation/sheltering warning.

Results: A specialized warning of heavy rain was announced at 10:50 PM on Friday by the local meteorological observatory.