Results: The use of rapid improvement events is reviewed in the context of disaster, after action reviews, and examples of developed downtime processes will be discussed.
Conclusion: Rapid improvement event methodology can be used to effectively develop disaster preparedness plans.
Prehosp Disaster Med 2017;32(Suppl. 1):s64–s65
doi:10.1017/S1049023X17001741

An Accelerated Incident Command System Course for Hospital Leadership

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Study/Objective: To design and implement a four hour Incident Command System (ICS) course for training hospital leadership personnel.
Background: Incident management is a key component in hospital disaster response. The higher level US classes, designated FEMA IS-300 and 400, are recommended for training leadership involved in disaster management. Both classes are 16 hours in duration each, and this length of time is prohibitive to getting senior leadership trained. We recognized the cohort of hospital leadership to be taught, represents a select group of highly educated learners who would be capable of rapidly learning ICS.
Methods: We developed a four hour accelerated course that pulls elements of general incident management together in a hospital specific curricula. Online IS 100, 200 and 700 are required as prerequisites. The course integrates basic ICS principles with elements of IS 300 and 400 applicable to hospitals. This material is taught as a blend of review, new lecture content and practical exercises.
Results: The curricula has been successfully piloted with 20 senior physicians and nurse managers. Initial results show they were able to comprehend the material and demonstrate practical application.
Conclusion: An accelerated ICS training course can be used to successfully train hospital leadership in disaster management.
Prehosp Disaster Med 2017;32(Suppl. 1):s65
doi:10.1017/S1049023X17001753

Emergency Preparedness amongst Health Professionals for a Mass Casualty Incident (MCI) in the State of Assam, India

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Study/Objective: The objective of the study was to identify the basic skills and knowledge of the Health Professionals; impact of the training provided by experienced Doctors and Public Health Professionals of our NGO 'Academy of Trauma' (AOT); and to spot the barriers in handling Mass-Casualty Incident (MCI) in the state of Assam, India.
Background: Assam is prone to natural disasters (flood, earthquakes) and manmade disasters due to its unique geopolitical position. Such disasters slow development, causing massive impact on existing health care services. Realizing that there is a gap in preparedness of the health care system in handling MCI, our NGO "Academy of Trauma" has imparted training amongst 850 Doctors and 1,250 paramedics for capacity building in Emergency Trauma Care in all districts of Assam.
Methods: Academy of Trauma (our team) followed the World Health Organization (WHO) module for trauma training for disasters, with modifications to suit local needs/conditions. Pre- and Post-training evaluation was conducted to evaluate and determine the impact of the training. We conducted trauma simulations regularly. Interviews were held with focus groups. Field Studies were done to assess the vital barriers of MCI.
Results: A significant improvement of skills and knowledge post-training. Inadequate ATLS knowledge. Under-trained Human Resources. Poor Transport & Communication facilities. A lack of Mock Drills. Insufficient logistics & infrastructure. Improper on-site management. Lack of Community Participation. A pessimistic attitude of the Doctors. Technobureaucratic hindrance. Financial Constraints.
Conclusion: The reports of the training were submitted to the responsible authorities periodically and steps are being initiated to improve the quality of the health services. Existing programs, like training of Medical Professionals, increased within the number of Trauma Centers; provisions of well-equipped ambulances and boat-clinics; procurement of basic logistics; establishment of a telemedicine system; and public awareness campaigns are on the fast track to improve mass-casualty incident handling in the state of Assam.
Prehosp Disaster Med 2017;32(Suppl. 1):s65
doi:10.1017/S1049023X17001765

Health Risks of First Responders following a Meteorological Disaster

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Study/Objective: The objective of this study is to create a comprehensive list of health hazards following meteorological disasters, to aid first responders in preparation for their deployment.
Background: Globally there were a total of 125 meteorological disasters in 2016, a number of which required international deployment of first responders. Deploying responders arrive at the location of the event in various states of their personal health, and thus will have different responses to existing health hazards. If previous deployments are not taken into consideration, for example, they can hinder response efforts by introducing contaminants to an already vulnerable population, as was the case in Haiti which caused 8,300 deaths from Cholera bacterium. It is imperative to effectively prepare first responders for their deployment to prevent them from becoming victims themselves, using limited local resources and to ensure that they are available to perform their duties for the duration of their deployment.
Methods: There are three models for studying health; they are biomedical, sociological, and political economy (Birn, 2009, p133). Each model identifies areas of concern and directs research methodology, however, neglects to consider the complexity of health that would address an individual's vulnerability

based on issues such politics, economy and social factors. This paper utilizes a biomedical perspective, by integrating epidemiological studies related to health effects due to the exposure to various pathogens or hazardous materials immediately following a natural disaster, as well as the epidemiological studies of populations affected by natural disasters.
Results: Meteorological disasters include extreme temperatures and storms, and have their own health risks such as lightning, hail, strong winds, among others. Health hazards and their associated harm are listed in a table along with suggested preparedness measures.
Conclusion: We created list of health hazards that can be used as a tool for health risk mitigation planning, strategy development, and resource allocation towards the wellbeing of first responders.
Prehosp Disaster Med 2017;32(Suppl. 1):s65–s66
doi:10.1017/S1049023X17001777

Functional quality indicators for assessing health care initial response to societal disturbances for education

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Study/Objective: The purpose of this paper is to describe the procedure of identifying and developing quality indicators during educational activities. In addition, the steps taken to assure the validity and reliability of the indicators are presented.
Background: In Sweden a national effort has been made to structure the work processes for crisis preparedness. That is, the process for regional health point of contact and the designated duty officer, has been modified in an attempt to support a shared view regarding collaboration and command during societal disturbances. The effort consists of education and training of designated duty officers, while also developing quality indicators for assessing the work process before the designated duty officer declare a major incident.
Methods: The work of identifying and developing the quality indicators was carried out in focus groups with domain experts.
Results: Initially the work processes of the designated duty officer were thoroughly analyzed and described. The work process was separated into three distinct phases. Focus was on the first two phases. These process steps, have thereafter been connected to concrete behaviors or products that are assessed. The quality indicators are directed towards two levels; if a process step has been carried out within the time-frame, and also the performance quality of an indicator. For example, has an operational picture been established within three minutes of the alarm call? If so, what was the quality of the decision based on, the event description, the consequence description, or the measures description?
Conclusion: The aim of the quality indicators is to make sure that educational activities that are performed does in fact result in actual, and measurable impact. This approach confirms to what extent the activities are successful.
Prehosp Disaster Med 2017;32(Suppl. 1):s66
doi:10.1017/S1049023X17001789

A Cognitive Aid for Anesthetic and Operating Room Management during a Hospital Power Failure

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Study/Objective: The objective of this study was to create standard processes to guide the immediate anesthetic care of patients, and the rapid triage of operating room status and needs during a power loss event.
Background: Hospital power failures can occur because of extreme weather events, regional disasters, local disruption of municipal power, or an internal problem. Case reports of operating room power outages demonstrates that generator failure, inadequate emergency supplies, poor communication, and chaos due to lack of emergency plans are common issues.
Methods: Our team developed a strategy to prepare for hospital power failure, focusing on 32 operating and procedural rooms in 3 buildings. The battery life of our equipment was researched and/or tested. A concept of "room triage" using color indicators was developed to create a standard language, to describe status of the staff and patients in a room and the need for help. A cognitive aid to guide anesthetic care was developed and tested (Figure), and emergency monitoring kits with headlamps were placed in each room. A process for rapid assessment of the safety of each room by a central command area was established.
Results: Five table-top and live exercises of the new process were performed. Approximately 6 months later, our hospital experienced a brief power interruption. The expected lights and monitors were offline for a short period. We initiated our emergency plan immediately. Using runners with paper and pens, the perioperative command team had an accurate assessment of the safety and functionality of all rooms within 10 minutes. Many clinicians in the rooms had already opened up their emergency kits and were using the cognitive aid.
Conclusion: Hospital power failure can jeopardize patient and staff safety. Careful planning, preparation and practice is necessary to prevent adverse outcomes in the event of this emergency.
Prehosp Disaster Med 2017;32(Suppl. 1):s66
doi:10.1017/S1049023X17001790

Achieving 'Buy-In' for Climate Resiliency Initiatives in Health Systems

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