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.

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

Jenny Pettersson[1], Heléne Nilsson[1], Carl-Oscar Jonson[2], Peter Berggren[1]
1. Kmc, Centre for Teaching & Research in Disaster Medicine and Traumatology, Linköping/Sweden
2. Centre For Teaching And Research In Disaster Medicine And Traumatology, And Department Of Clinical And Experimental Medicine, Linköping University, Linköping/Sweden

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.

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

Grete H. Porteous[1], Carli D. Hoaglan[1], Erica L. Holland[1], Martha A. Carlstead[1], Ryan P. Beecher[1], Bethany L. Tatachar[2], Chris J. Johnson[2]
1. Department Of Anesthesiology, B2-an, Virginia Mason Medical Center, Seattle/WA/United States of America
2. Virginia Mason Medical Center, Seattle/WA/United States of America

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.

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

Katherine Kemen[1], Hubert Murray[2], Timothy Murray[3], John Messervy[2], Paul D. Biddinger[4]
1. Emergency Preparedness, Partners HealthCare, Boston/MA/United States of America

2. Real Estate, Partners HealthCare, Somerville/MA/United States of America
3. Risk Management And Insurance, Partners HealthCare, Somerville/MA/United States of America
4. Emergency Preparedness, Partners HealthCare System, Boston/MA/United States of America

Study/Objective: We designed a climate risk-assessment project that demonstrates value to leadership and expert stakeholders, and ultimately creates understanding of climate threats facing our health system, in order to implement effective interventions.

Background: Climate change is influencing weather intensity and patterns creating new, increased threats for health care facilities. Historical data are no longer sufficient in determining risk, as evidenced by the 2016 Louisiana floods where one-third of flooding occurred outside of the 100-year flood zones. Health care organizations must consider the surrounding built environment and community networks, which could influence the impact of an extreme-weather event upon their operations. Conducting the detailed, forward-looking analysis required to make informed decisions requires broad leadership and subject matter, expert collaboration internal and external to the organization.

Methods: A multidisciplinary project team was formed comprised of senior leaders in real-estate, emergency preparedness, risk management, insurance, and external climate experts. Together, these representatives could address structural, operational and fiscal challenges and opportunities related to climate threats based in science. Three data collection tools were chosen: (1) detailed, multi-scenario climate modeling; (2) completion of a climate-resilient health care facilities checklist; and (3) stakeholder meetings with insurers, public utilities, and public transportation agencies to understand external vulnerabilities and opportunities. Finally, analysis was conducted with near and long-term horizons, allowing two-points of intervention: operational changes in the near-term, and facility construction changes addressing long-term threats.

Results: Phase I of the project was completed for 30 sites across the health system. Results were shared with key leaders at the enterprise and institution level. Key findings include a system-wide threat from extreme heat events and vulnerabilities to critical infrastructure which may place an indirect burden on our facilities.

Conclusion: Building climate resiliency requires a multi-disciplinary approach. Assessed at multiple time horizons, facilities upgrades, operational enhancements, and improved coordination with interdependent agencies and institutions can occur.

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A Proposed Disaster Casualty Classification Framework

Guo H. Tao
Department Of Health Service, Logistics University of PAP, Tianjin/China

Study/Objective: To design a disaster-casualty classification framework.

Background: "Casualty" is a key term in the discipline of disaster medicine. Searching and rescuing disaster casualties is the main work of a health care task force in a disaster zone. However, the term is often erroneously used for the seriously injured and dead. Until the term "casualty" had been clearly defined and classified, we couldn't get a full picture of casualty flow in disasters. There is a difference in managing patients with treatable traumas and diseases versus those who struggle resulting in death.

Methods: Multiple web searching tools (Pubmed, Wikipedia, Yahoo search, etc.) were used for relevant articles, abstracts, and grey literatures covering the period January 2000-December 2015. A qualitative survey questionnaire was designed based on search results. An informal, multi-disciplinary, expert working group was established, including 18 individuals representing the discipline of emergency management, public health, clinical medicine, and military medicine. The experts were invited to write comments on the questionnaire separately. The comments of the experts were synthesized into a comprehensive report. In July of 2016, an expert meeting was held on our campus to discuss the report and reach a consensus about the disaster-casualty classification framework.

Results: Eleven documents were considered highly relevant. The experts believed that before giving a definition to "casualty," "disaster scene" and "health care facility in the disaster zone" should be defined. We then define "casualty" as "anyone incurring a trauma or illness, or dying as a direct result of disaster." Disaster casualty must include the deceased and can be classified into two parts: casualties with trauma and casualties with illness. Each part has three sub-groups: death on the scene, casualty coming to a health care facility for treatment, and casualty who needs medical treatment but didn't come to any health care facility. For casualty coming to a health care facility for treatment, it can be classified into three portions: death in the health care facility, the inpatient, and the outpatient. Each associated term must be defined carefully and explicitly. Disaster casualty has its unique classification method; each part and sub-group need different public health and medical interventions and treatments.

Conclusion: This is a tentative study to draw a picture of disaster casualty. Disaster exerts tremendous influence on disaster casualty and the process of casualty production is complex and complicated. Our disaster-casualty classification framework is proposed to be tested and improved.

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The Challenges on Implementation of Pre-Disaster Efforts of Health Crisis Center (PPKK), Indonesia Ministry of Health (MoH) in 2014

Sukma M. Panggabean[1], Yuli Amran[2], Mochammad Royan[3], Tirton Nefianto[4]
1. Disaster Management, Indonesia Defense University, Bogor/Indonesia
2. State Islamic University of Jakarta, South Tangerang/Indonesia
3. Mitigation and Preparedness Division of Health Crisis Center (PPKK), Surabaya/Indonesia
4. Indonesia Defense University, Sentul Bogor/Indonesia