Abstracts of Scientific Papers - 19th World Congress on Disaster and Emergency Medicine

ID 22: The Operational Experience of Doubling Bystander CPR in Singapore Over 2 Years

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Study/Objective: The objective of this presentation is to share the processes involved in implementing a telephone CPR quality assurance improvement process.
Background: Singapore is an island city state of 5.4 million population, living on an area of 716 km^2 of land. The national ambulance service is run by the Singapore Civil Defence Force, consisting of 50 ambulances based at fire stations and fire posts. This is augmented by a tier of 40 motorcycle first responders and 15 motorcycle paramedics that respond to time sensitive conditions. The overall response time indicator is to reach cases in 11 minute >80% of the time. The national ambulance service is dispatched by a single primary safety access point number (995). Cardiac arest affects over 1700 Singaporeans annually and survival rates of witnessed cases are 12.1% in 2012 and ystander CPR rates remained consistently low at 19.7% to 22.9% from 2006-2011.
Methods: A comprehensive review of the 995 medical dispatch for cardiac arrest was conducted since Dec 2011 and a quality assurance/improvement program was put in place to standardise the identification of cardiac arrest cases and provide clear instructions to start hands-only CPR. Key performance indicators were designed to quantify dispatch performance. The program was further enhanced with the deployment of embedded nurses from Singapore General Hospital as quality assurance staff to review audiotapes and enhance dispatcher education.
Results: A rise in bystander CPR rates to 43.5% in 2013 was recorded. During this period, no significant changes were made to national CPR training programs or public safety publicity programs.
Conclusion: Bystander CPR can be effectively increased in communities through targeted efforts in raising the quality of medical dispatch in primary safety access points through the training of call takers to focus on identification of cardiaca arrest cases, giving of standardised hands-only CPR instructions and the implementation of a quality assurance/improvement program.

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ID 26: Comparative Analysis of the Domestic Legal Framework in Relation to the 'Right to Health' for Internally Displaced Persons and Returning Sri Lankan Refugees

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Study/Objective: To critically examine Sri Lanka's current legal framework to examine the extent to which the 'right to health' is stipulated specifically for those conflict affected internally displaced persons (IDPs) living within IDP camp settings and for those conflict displaced refugees returning to Sri Lanka after end of conflict.
Background: Understanding the domestic legal frameworks pertaining to the right to health may be useful for those professionals working at the nexus of legal medicine and human rights in Sri Lanka and advancing gaps in knowledge in this area.
Methods: An in-depth analysis of domestic policy and legal documents articulating the right to health for both IDPs and Refugees was undertaken.
Results: The Fundamental rights articulated for citizens within Sri Lankan's Constitution does not explicitly express nor recognize the right to health. However, the 'Right to Health' is enshrined within numerous domestic legal frameworks, policies and legal provisions in Sri Lanka which may provide adequate grounds to ensure health protection. In this analysis of normative frameworks, it is also apparent that there are complex linkages between health and human rights in Sri Lanka. Whilst the IDP rights is inter-related and expressed explicitly in numerous articles, it is not so for returning refugees.
Conclusion: Whilst there appears to be sufficient provision for the fulfillment for the right to health for war displaced in both categories, the perpetual challenge remains the practical implementation of health services in health systems servely disrupted through protracted conflict. Ensuring resilience of the health system therefore becomes crucial to the realization of the right to health for both IDPs and returning refugee communities.

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ID 27: Coordination of Transportation to Special Needs Shelters in an EOC Level II Activation During a Tropical Storm

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Study/Objective: The purpose was to collaborate with a multidisciplinary team to provide the best practices for transportation to special needs shelters in a large metropolitan area with a diverse population.
Background: The Florida Division of Emergency Management (FDEM) assigns students to organizations to strengthen

fundamental emergency concepts and develop skills necessary to work in emergency management. One student intern was assigned to the Jacksonville Fire and Rescue Department Emergency Preparedness Division (JFRD), Emergency Operations Center (EOC), Duval County Special Needs department during the EOC Level II activation during Tropical Storm Andrea. Data collected during this activation included updating the county's Special Needs database on the local residents, an essential tool in public health and emergency management.

Methods: Quantitative methodology was used. Regional cross sectional telephone surveys were performed to gather patient census information to all local categories 1-2 healthcare facilities on the number of patients that use stretchers or wheelchairs. This information was used to determine the number and type of health care vehicles needed for a possible evacuation to special needs shelters. Establishment of special needs shelters were coordination between local agencies that included the Florida Health Department of Public Health, the American Red Cross, JRFD EOC, and the Duval County School Board.

Results: The results showed that local ambulances (city and private) were limited and additional resources were needed. As the result, the city's transportation authority were informed to develop plans to provide additional vehicles if needed.

Conclusion: The EOC relies on telephone communication to receive current patient transportation needs; however, the system has not been tested on full scale activation of category 4-5 healthcare facilities. The process also depends on the number of EOC personnel available to manage phone traffic and if communication to the facilities is still maintained during a disaster.

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ID 29: Implementation of a Trauma Response System, San Salvador, El Salvador

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Study/Objective: 1. To address the critical trauma care need in San Salvador, El Salvador. 2. To develop a model of trauma care service delivery by increasing trauma response knowledge and practical skill. 3. Measure trauma care knowledge and practice abilities through observational assessments.

Background: In El Salvador over 32 percent of all deaths are due to trauma, both intentional and accidental, and despite all this, El Salvador wholly lacks any established standardized trauma-response system to treat the most critical of Salvadoran patients. With this in mind, we have developed a trauma-response training pilot program curriculum and aim to test its effectiveness in increasing trauma care knowledge and service delivery by conducting a pre and post intervention study in Hospital Nacional San Rafael (HNSR) in the capital city of San Salvador, El Salvador.

Methods: Study Design: The pilot study is a pre and post intervention design. Provider Inclusion Criteria: Surgical attending physicians, surgical residents and nurses assigned to the Emergency Ward (EW) at HNSR. Basic benchmarks will be documented within trauma care delivery at HNSR, to include: all trauma patients' recorded time from EW arrival to Operating Room (OR) arrival, and the in-hospital case fatality rate following resuscitation of a patient originally presenting with major trauma. **2.** Trauma- team competency in management of major trauma patient care will be measured through recorded checklist compliance scores of critical actions performed during trauma response. **3.** Pre and post assessments measuring knowledge of trauma response protocols and competency of trauma care providers. **4.** A case-fatality rate will be measured during the study for all cases of traumatic injury.

Results: This study is in progress, with results expected by January 2015.

Conclusion: This study is currently ongoing. We hope to show that algorithmic trauma training in a resource poor setting results in a significant mortality benefit.

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ID 30: Outcome Predictors in Patients with Pelvic Fracture After Blunt Traum

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Study/Objective: To assess the predictors outcome after blunt pelvic fracture trauma

Background: pelvic fracture mortality ranges from 5.6% to 15%,hemorrhage is the cause of death in 50% who die following pelvic fractures. Death occurs within the first 24 hours of injury. The early diagnosis could reduce blood loss,prevent transfusion complicationsand improve outcome.extravasation contrast is an indicator of injury to a specific vessel on the pelvic region on CT scans. A study correlates the morbidity and mortality from pelvic fractures due to blunt trauma. The severity of injury was correlated with indices of severity of pelvic fractures such as fracture site,fracture displacement, pelvic stability and vector of injury. However, death could not be predicted on the basis of these indices of severity. Injury severity was correlated with the severity of the pelvic fracture and hospital outcome was determined by associated injuries. However, no clinical prediction rule has been proposed or validated, and therefore no reliable method of identifying high-risk subjects has been reported.

Methods: Data were collected from 45 patients by questionnaire;personal data and full medical history, clinical examinations,outcome measures (The Physiological and Operative Severity Score for enumeration of Mortality and morbidity (POSSUM), laboratory and imaging studies. Patients underwent surgical interventions or investigations based on the conventional standards for interventions.the POSSUM score were compared with the results of the conventional standards interventions for assessment of score validity. All patients were followed up during hospital stay for interpretation the predictive score of mortality and morbidity.
Results: poor outcome include lower Glasgow coma, higher physical, morbidity, and mortality POSSUM scores, type of management, higher systolic blood pressure (SBP) and diastolic blood pressure (DBP) POSSUM scores, presence of abdominal injuries, and CT findings. The optimal cutoff point of POSSUM score to predicate outcome was measured (≤35) with a sensitivity of 100%, specificity of 80%, + PV of 94% and -PV of 100%.
Conclusion: POSSUM score can be a predictor of outcome after pelvic fracture, it has high sensitivity and specificity values.

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ID 31: Psychosocial Support as an Integrator in Re-establishment of Place and Enhancement of Resilience After a Catastrophic Event in Resource Poor Environments

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Study/Objective: The purpose of this paper is to share with the audience (1) the role of psychosocial support in re-establishing place, (2) strategies to engage the affected communities in self-study, recovery activities, self monitoring and evaluation resulting in a more resilient community, and (3) add to the body of knowledge on psychosocial support as a tool to enhance community resilience by re-establishing place.
Background: Human made catastrophes in the last ten years have caused a re-evaluation of the techniques to alleviate suffering amongst the affected population. Resource rich countries are able to engage in highly technological activities that will resolve the secondary stressors caused by the loss of life or property, damage to the environment, and the hopelessness/helplessness felt as a result off the destruction that follows such events. Resource poor countries, not being able to access human and material resources may take time in recovering. This study suggests that community-based psychosocial activates may be the platform to assist individuals and communities to identify what happened, what they need, what human and social resources are available, and what assistance they will need from external partners to recover hope, and enhance resilience.
Methods: Three case studies will be presented (Sri Lanka, Haiti, and Nabimbia) that will bring the theoretical into practice. Handout will be provided.
Results: The presentation will clearly establish the steps through which psychosocial support as a platform may generate an interest on behalf of the affected community to conduct community mapping, identify needs, tools needed, local resources and need of external resources to enhance resilience and well being.
Conclusion: The presentation will conclude with suggestions for activities that foster re-establishment of sense, enhancement of hope, and community resilience.

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ID 32: Nurses' Perceptions of Environment as a Factor in their Capacity to Provide Effective Disaster Care: Pilot Study

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Study/Objective: Nurses anecdotally report being unprepared for the austere conditions and reduced societal resources during disaster deployments. The purpose of this phenomenological study was to explore the role of environmental conditions on nurses' experience of providing care during disaster situations.
Background: Nurses are unprepared for the arduous work environment, rudimentary living conditions, disaster clinical decision making, and the "more than I bargained for" experience of disaster. Post-disaster, nurses have increased stress and lingering PTSD-like symptoms, but contributing factors have not been identified. Previous research has identified a need for additional preparedness at the personal, environmental, and social levels amongst healthcare providers. Higher rates of environmental stress have been observed in disaster survivors. This study examined nurses' experiences of the disaster environment with a goal to enhance disaster nurse preparedness prior to deployment.
Methods: Nurses with disaster deployment experience were purposively recruited via study flyer, email invitation, and word of mouth. Through face to face (n = 5), Skype (n = 2), and telephone (n = 1) interviews, nurses were asked, *"When you think about your disaster experience, what stands out about the **environment** and the way it impacted your ability to respond?"* Using NVivo, a qualitative analysis software tool, global themes were identified from transcribed interviews using Thomas and Pollio's phenomenological methodology.
Results: Preliminary analysis indicated numerous environmental conditions of disaster were unexpected, made their deployment more difficult, or altered how nurses performed care. However, all were confident they performed the best care possible given the conditions. Tentative themes that emerged from this qualitative analysis were: (1) "stripped bare" (2) "just me and all them" (3) "let's get on with it" and (4) abrupt transitions. Additionally, factors of the environment that hindered nurses' ability to provide care were identified.
Conclusion: Further training and research is needed to suitably prepare nurses for the environmental conditions of a disaster response.

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ID 33: Calculation of the Human and Material Needs to Establish the EMS During the World Economic Forum (WEF) Annual Meeting in Davos, Switzerland

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Study/Objective: We developed a calculating method to define the needs to manage a mass gathering event in the swiss mountains over a 5 days period.
Background: The WEF annual meeting takes place every January in a small town in the Swiss Alps over a period of 5 days. Several thousands economical, political and social leaders meet together to discuss economic, political and humanitarian problems worldwide.

The mountainous terrain in the winter season, the high amount of VIPs and their increased security needs, as well as the brisance concentration of world leaders and the high amount of security staff has a special influence on the EMS.
Methods: We present how we calculate the capabilities from different points of view

- The influence of the winter situation with tourists and winter sports
- The possibility of a serious event due to the concentration of world leaders
- The possibility to be able to treat a high amount of victims
- The geographical and weather related influence on transportation and treatment of patients
- The need of EMS staff to operate the EMS installations
- The experience gained from e.g. terrorist attacks in the past
- The recommendations of several published calculation methods

Results: We demonstrate a new approach to calculate the needs for a mass gathering event under special circumstances which takes place over several days.
Conclusion: Our new calculation method can be used to plan the needs to manage a mass gathering event under special cirucumstances.

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ID 34: The EMS During the World Economic Forum (WEF) Annual Meeting in Davos, Switzerland

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Study/Objective: The EMS during the WEF has special needs and special circumstances. We show how we operate the EMS under these conditions.
Background: The WEF annual meeting takes place every January in a small town in the Swiss Alps over a period of 5 days. Several thousands economical, political and social leaders meet together to discuss economic, political and humanitarian problems worldwide. The mountainous terrain in the winter season, the high amount of VIPs and their increased security needs, as well as the brisance concentration of world leaders and the high amount of security staff has a special influence on the EMS.
Methods: The EMS has to serve:

- the population in the valley region
- the guests of the WEF annual meeting
- the additional security staff
- the VIPs
- and the EMS should be prepared to react to a possible mass disaster therefore we show how we operate under special weather and geographical circumstances with a limited amount of personnel and material.

Results: We present how we organize the EMS during this 5 day period under special geographical, weather and economical conditions with only a small amount of local EMS staff and EMS resources which are aided by military personnel.
Conclusion: We can show how we run a EMS under limited conditions by smart organisation of the resources.

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ID 35: Evaluation of a Novel Method to Study Inter-organizational Coordination in Medical Command and Control Centers

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Study/Objective: Inter-organizational coordination is key to successful medical command and control (C2) during major incidents. However, evaluating this factor is often problematic, in particular during or after real emergencies as compared to controlled training scenarios. The purpose of this case study was to pilot test a non-intrusive data collection method for evaluating operative inter-organizational coordination during medical C2 situations.
Background: This study was conducted during a planned major incident in Sweden. The major incident studied was the Göteborgsvarvet half-marathon, the largest half-marathon event in the world with more than 200 000 attending spectators and over 60 000 runners. The studied C2 center included representatives from local hospitals, Göteborgsvarvet organization, police, fire department, ambulance service, the local traffic and infrastructure management office, and emergency dispatch.
Methods: A combination of qualitative and quantitative methods was employed in this study. The qualitative methods included an ethnographic field study with on-site observations and contextual inquiry interviews. The quantitative methods included validated and experimental questionnaires distributed to the command center personnel at pre-determined intervals. These questionnaires aimed at gathering data on workload, stress, and shared and individual situational awareness.
Results: The data indicate that the qualitative methods were less intrusive than the quantitative methods. The observations

and contextual inquiries could be performed without interruptions while periods of high workload resulted in lower or delayed response rates on the questionnaires. Simple questionnaires produced an 80% response rate, complex questionnaires only 40%.

Conclusion: The employed method appears useful to evaluate inter-organizational coordination and showed potential to gather meaningful data without being intrusive or disturbing the operative C2 activities. Due to the time-sensitive nature of emergency C2-work, unobtrusive qualitative methods and short, easy to fill out questionnaires are recommended for future studies. The results from this pilot will inform future operative C2 studies during similar planned major incidents.

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ID 41: A Retrospective Evaluation of Effect of Electrolyte Disorders on Mortality and Morbidity on Hospitalized Geriatric Trauma Patients

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Study/Objective: In this study, we aimed to evaluate the effects of basic electrolytes levels of geriatric patients who admitted to Emergency Department (ED).

Background: It is hard to predict the mortality in a geriatric trauma patient. In the literature, authors could not reach any study that studies the relation between admission electrolytes and the outcomes of trauma.

Methods: ED records, of the 65 ≥ year old patients who were hospitalized from ED to the other clinics in one year period were studied retrospectively.

Results: It is observed that there were 115 patients who were 65 ≥ year old that were hospitalized from EDIt is observed that the 10 of 18 patients (55.56%) who had abnormal Na^+ levels on admission and 13 of 97 patients (13.4%) who had normal Na^+ levels on admission died in three months. It is observed that the 8 of 13 patients (61.54%) who had abnormal K^+ levels on admission and 15 of 102 patients (14.7%) who had normal K^+ levels on admission died in three months. Only 19 of 115 patients (16.5%) had Ca^{++} parameters. It is observed that the 8 of 9 patients (88.89%) who had abnormal Ca^{++} levels on admission and 3 of 10 patients (30%) who had normal Ca^{++} levels on admission died in three months. When 3 month mortality and normal or abnormal levels of Na^+, K^+, Ca^{++} were analyzed, there was statistical significant difference (respectively $p < 0{,}001$, $p < 0{,}001$, $p = 0{,}009$). It is also observed that the levels of Na^+, K^+, Ca^{++} had no effect on duration of hospital stay (morbidity) (respectively $p = 0{,}083$, $p = 0{,}0684$, $p = 0{,}153$).

Conclusion: In this study, we observed that levels of Na^+, K^+ and Ca^{++} on admission of geriatric trauma patients and mortality have a close relationship. We think that electrolytes of geriatric trauma patients shall be checked routinely on admission.

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ID 42: Deaths and Injuries from Petroleum Pipeline Explosions in Sub-Saharan Africa: A Systematic Review of the Academic and Lay Literature

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Study/Objective: To better assess the frequency and impact of pipeline fires and explosions in sub-Saharan Africa (SSA), a comprehensive systematic review was conducted of both academic and non-academic sources, including periodicals, news transcripts and online reports.

Background: Though academic literature exists regarding pipeline fires and explosions in SSA, experience indicates that these events, as well as their associated morbidity and mortality, are presently under-reported.

Methods: Using adapted PRISMA guidelines both PubMed and the LexisNexis Academic News Database were reviewed. Country-by-country searches were conducted for petroleum pipeline fires and explosions in SSA from June 1, 2004 to May 31, 2014 using the search terms: "country-name AND pipeline AND (explosion OR blast OR fire) AND (death OR killed OR injured OR injury OR mortality)".

Results: Initial search of the LexisNexis Academic News Database yielded 5,730 articles, and of PubMed yielded 3 articles. On further review, a total of 28 petroleum pipeline-related incidents causing injury and/or mortality were identified from 5 countries, 16 of which had not been previously reported in the academic literature. The events occurred in Nigeria (23), Kenya (2), Ghana (1), Sierra Leone (1), and Tanzania (1). Reported mortality per event ranged from 0 to 500, with a total of 1756 deaths across all events. The number of associated injuries was infrequently reported numerically, however the articles regularly described these qualitatively as "many", "dozens" or "numerous". When conclusively reported, the most common cause of the original leak was intentional, either from theft or vandalism (15/21, 71%), or by militia activity (2/21, 9%).

Conclusion: Fires related to scavenging fuel from petroleum pipelines are common in SSA and cause significant numbers of deaths and injuries. Due to the magnitude of injury and disability, better reporting tools and intervention strategies should be developed. Furthermore, our study illustrates that non-academic sources can effectively supplement gaps in the academic literature.

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ID 48: Singhealth Makassar Disaster Management Project

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Study/Objective: The aim is to strengthen capabilities of hospitals and the local disaster management team to deal with emergencies during disaster, with particular focus on preparedness, response and recovery in order to lessen the impact of disasters. Such partnerships will also strengthen our relationships with neighbouring countries, and give us the opportunity to better evaluate and improve our disaster medical education programmes.
Background: Singhealth is conducting a disaster medicine education programme from February 2014 to November 2015 in Makassar, Indonesia.
Methods: Through a series of didactic lectures, interactive workshops and disaster symposia, participants are exposed to and taught the principles of disaster management from the disaster site to the hospital. Skills such as basic resuscitation and initial management of chemical casualties, are incorporated into the curriculum. Emphasis is placed on the role of the community responder during disasters. As the program develops, the participants are to take on roles as master trainers, training and developing their own community in the disaster management systems. This allows the host community to gain the expertise and confidence in better managing the initial phase of disasters in their own communities.
Results: Description of this collaborative project has been discussed under methods.
Conclusion: Medical and community health professionals should be equipped to develop disaster management systems. Communities can then be better trained to respond in the eventuality of disasters.

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ID 52: Mass Basic Life Support Training for Rescuer Volunteers in World Youth Day Rio 2013

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Study/Objective: Describe the trainment of rescuer volunteers for the 2013 World Youth Day (WYD) in Rio de Janeiro.
Background: Between 23 and 29 July 2013, Rio de Janeiro, hosted the largest mass event in its history: WYD. The estimated public at the closing mass was of 3.5 million people. Emergency Medical Service was coordinated by the city Health Department (HD), which organized six advanced medical stations (MS) in the event area. According to the requirements of the Fire Department (FD) 400 rescuers should assist pilgrims to reach MS on each shift. Rescuers had to be able to perform victim transportation and to provide basic life support (BLS).
Methods: A special program was designed to train volunteers to act as rescuers. It was designed and given by the Red Cross. It consisted of a theoretic-practical workshop with 4h, with the following themes: BLS, victim transportation and first aid (suffocation; convulsions; hemorrhage control).
Results: 1,900 volunteers were trained in 24 classes within 3 months. 20 classes aimed volunteers living in Rio de Janeiro. They were held in churches in 17 distinct neighborhoods with an attendance average of 50 participants per class. 4 classes aimed volunteers from other states. They were held at the a university with an attendance of 225 volunteers per class. During the event, trained volunteers were distributed along the beach according to the scheme of the FD. No cardiac arrest was recorded during the event. Over the event days the HD logged more than 4,700 calls in the 6 MS. The number of pilgrims assisted by volunteer rescuers was not recorded, but it is estimated that at least a quarter of the visits to the medical stations was sent in by the them.
Conclusion: Training volunteers made it possible for the WYD local organizing committee reach the number of rescuers needed for the event. Mass training was feasible.

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ID 59: Poor Return on Investment: Low Yield on Credentialed Ultrasound Trainees in an Under Resourced Environment

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Study/Objective: The objectives of the study were to identify the outcome of clinicians who entered their ultrasound training program via the introductory course and the obstacles they encountered in achieving ultrasound provider credentialing.
Background: Point-of-Care Ultrasound (POCUS) is widely used in emergency medicine clinical practice worldwide. The POCUS introductory courses received considerable interest immediately after thier introduction. However, many of the clinicians who attended these courses failed to complete the rest of the POCUS curriculum requirements to become certified POCUS providers.
Methods: An electronic cross sectional survey was e-mailed to all clinicians who attended the introductory POCUS courses in Cape Town since thier inception in 2009. The group represented more than half of the national total. Credentialed and non-credentialed group outcomes were compared.
Results: Ninety of 218 (41.3%) course attendees completed the questionnaire. Four incomplete surveys were excluded (N = 86). There were 23/43 (53.5%) credentialed group and 63/175 (36%) non-credentialed group surveys. Scarcity of pathology (positive scan findings) resulting in difficulty gathering the prerequisite scan list, was the most common obstacle identified

by the credentialed group 15/23 (65.2%). Time constraints in attending trainer reviewed scanning sessions was identified as the most common barrier 49/63 (77.8%) to credentialing in the non-credentialed group. Forty-four (69.8%) still wished to complete their credentialing. However, 33/63 (52.4%) continued to use POCUS regularly in their clinical practice.

Conclusion: Both groups identified time constraints and limited access to scans with pathology as their greatest barriers. Novel ideas are needed to overcome these obstacles to improve future credentialing yields in under resourced environments.

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ID 60: Application of Small Fixed-wing Aircraft in the Disaster

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Study/Objective: In 2011, March 11, the great east Japan earthquake attacked Tohoku region with Tsunami. Twenty-five patients were transferred to several prefectures for treatment by C-1 and C-130 large-scale aircraft belonging Self-Defense Force.

Background: C-1 and C-130 transport aircraft are too big to transfer patients. We propose transportation by small fixed-wing aircraft in the big disaster based on 4 years fixed wing flight in Hokkaido.

Methods: Hokkaido Air Medical Network (HAMN) was established in 2010 for the purpose of enhancing health care system in local and remote areas by using aircraft. Based on the results of a one-month trial, the Hokkaido government adopted this aircraft program as the Hokkaido regenerative medical plan for three years. Medical Wings are equipped with medical appliances as well as a doctor on board to treat the patient during each mission.

Results: The navigation results for a total of 13 months were 101 dispatches for a dispatch request of 161 cases (63% navigation rate). In 48 cases, s dispatch case could not be accepted and 29 of these cases (60%) were due to bad weather, usually snow and bad runway conditions. Of the 101 dispatches, 33 cases were emergency, 27 were sub-emergency, and 25 were planned transportation. Most of the transportation requests involved cerebrovascular or cardiac disease, especially in children and perinatal babies.

Conclusion: We propose the application of small fixed wings for patient transportation in the big disaster and cooperation of helicopters.

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ID 66: Deceased Disaster Victims: Response and Modeling

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Study/Objective: Emergency drill Vesalius SN 500 Deceased disaster victims: response and modeling.

Background: During the acute phase of a mass casualty incident, incident management focuses mainly on support for a large number of victims requiring medical and psychosocial support. A specific - and only rarely tested or exercised - aspect of large-scale incidents are tailored measures for fatal victims, their identification and support for their relatives. The purpose of the Vesalius SN 500 emergency drill was to evaluate the current response and to develop operating procedures for deceased disaster victims transported to the mortuary of our hospital.

Methods: Measurements were performed during a disaster drill. Using qualitative research methods, different processes and information flows were assessed and compared with pre-established objectives. The measuring instruments were: Questionnaires (prepared by an expert panel) also using (Likert, VAS,...) scales for quantification (mixed method); time measurements for the different operational processes; and observer reports and additional interviews.

Results: The objective of this study was to assess the processes through a controlled disaster exercise, ultimately to optimise these processes and to prepare a national scenario draft outlining a global approach to fatal victims in a large-scale incident. Special attention was given to the role of the Nursing Care Disaster Coordinator. Nursing professionals are often ignored when it comes to participating in decision-making processes. As the disaster drill took place between the 18th and 21th of November 2014, the final results will be presented at the meeting.

Conclusion: Limited research has been performed about hospital disaster preparedness. Even less research has been published on the different processes concerning fatal victims in a Hospital Incident Management System. This study provides structured information on the different processes and information flows handling fatal victims concerning mainly identification and support of relatives.

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ID 72: Development of Emergency Medical Systems in Singapore

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Study/Objective: This article aims to define aspects of Emergency Medical Services in Singapore.

Background: Prehospital emergency care in Singapore has taken shape over almost a century. What began as a hospital-

based ambulance service intended to ferry medical cases was later complemented by an ambulance service under the Singapore Fire Brigade to transport trauma cases. The two ambulance services would later combine and come under the Singapore Civil Defence Force.
Methods: The development of prehospital care systems in island city-state Singapore faces unique challenges as a result of its land area and population density. This article defines aspects of prehospital trauma care in Singapore. It outlines key historical milestones and current initiatives in service, training and research. It makes propositions for the future direction of trauma care in Singapore.
Results: (Not applicable as this is a review article).
Conclusion: The progress Singapore made given her circumstances may serve as lessons for the future development of prehospital trauma systems in similar environments.
Prehosp Disaster Med 2015;30(Suppl. 1):s7–s8
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ID 73: Effect of Implementing Cincinnati Prehospital Stroke Scale (CPSS) in Nursing Dispatchers Telephone Triage in Emergency Medical Communication Center

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Study/Objective: Survey Effect of Implementing Cincinnati prehospital survey Effect of Implementing Cincinnati pre-hospital stroke scale (CPSS) in Nursing Dispatchers Telephone Triage in Communication center of Emergency Medical Service Stroke Scale.
Background: Stroke is a major cause of long term disability that at Time the event should be contact to prehospital emergency communication center. There is no golden standard protocol or tool for identification of stroke in the emergency communication center and the advantage current algorithms is discussed. According to prior studies only 31%–52% of stroke calls are accurately identified by 9-1-1 dispatchers. Cincinnati Prehospital Stroke Scale special for Dispatchers may be able and helpful to resolve this problem.
Methods: Nurse Dispatchers randomized to control and intervention groups. Control group nurse based on Country Stroke thelephon triage guideline and Intervention group with Country Stroke thelephon triage guideline and CPSS are act. With following patient final hospital diagnosis as the study golden standard, sesitivity, specificity, ppv and npv of two group nurse telephone triage calculated and compared. Data analysis is performed with using spss software version 19.
Results: Sensitivity 0/66 (95% CI, 0/53-0/79), Specificity 0/65 (95% CI, 0/55-0/75), PPV 0/57 (95% CI, 0/45-0/69), NPV 0/74 (0/64-0/84) obtained in group control. In controst Sensitivity 0/76 (95% CI, 0/65-0/87), Specificity 0/78 (95% CI, 0/68-0/88), PPV 0/75 (95% CI, 0/64-0/86), NPV 0/80 (0/70-0/90) calculated in intervention group.
Conclusion: Cincinnati Prehospital Stroke Scale improves stroke recognition by nurse dispatcher in emergency medical communication center.
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ID 77: Epidemiology of Traumatic Injuries in the North East Region of Haiti: A Cross Sectional Study

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Study/Objective: This study aimed to characterize the burden of traumatic injuries among emergency department patients in the North East Region of Haiti.
Background: More than 90% of traumatic morbidity and mortality occurs in low and middle-income countries (LMIC). Haiti, one of the poorest countries in the Western Hemisphere, lacks contemporary statistics on traumatic injuries.
Methods: Data was collected from the emergency departments of all public hospitals in the North East region of Haiti, which included Fort Liberté, Ouanaminthe and Trou du Nord hospitals. All patients presenting for emergent care of traumatic injuries were included. Data was obtained through a retrospective review of emergency department and hospital records from the 1 October through 30 November 2013. Data on demographics, mechanisms of trauma and anatomical regions of injury were gathered using a standardized tool.
Results: Data was collected from 383 encounters (6.3 injuries/day). Ouanaminthe Hospital treated the majority of emergent injuries (59.3%) followed by Fort Liberté (30.3%) and Trou du Nord (10.4%). The median age in years was 25.3 (±15.5), with 65.4% being 15-44 years of age. Eight-four (23.1%) of the patients were <15 years of age. The majority of the population was male (62.7%). Road traffic accidents (RTA) and interpersonal violence accounted for 65.8% and 30.1% of all traumatic mechanisms respectively. Extremity trauma was the most frequently observed anatomical region of injury (38.9%) followed by head and neck (30.3%) and facial (19.1%) injuries. The minority of presenting patients had >1 identified injury (16.2%). No significant associations were found between mechanism of injury and treatment sites ($p = 0.41$) or between mechanism and anatomical region of injury ($p = 0.71$).
Conclusion: Traumatic injuries are a common emergent presentation in the North East region of Haiti with demographic characteristics similar to other LMIC. RTA are the predominate mechanism of injury suggesting that interventions addressing prevention and treatment may provide public health benefits.
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ID 78: DMAT (Disaster Medical Assistance Team) to DPAT (Disaster Psychiatric Assistance Team): Future Measures to Address Disaster Psychiatry in Japan

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Study/Objective: There is no guidance such mental care teams during disasters, lead to inefficient activity For example the lack

of consistency in the number of consultations per team The Ministry of Health, Labor and Welfare has a budget which is provided to each prefecture, but without a manual for what mental care teams should do.
Background: In addition to those providing medical assistance, many organizations and institutions went to the disaster area to provide mental health care following the Great East Japan Earthquake.However it became clear that the lack of predefined methods and guidelines resulted in unneeded activity and an uneven distribution of care, and so these became points for future improvement.
Methods: we reseached about the sysytem of mental care support activities in the Great East Japan Earthquake.
Results: The aims of Mental Care teams are: 1) The need for assistance in the acute phase 2) The need for a coordinator 3) The need for preparation during normal times.
Conclusion: In order to tackle these shortfalls a new specialist organization, Disaster Psychiatric Assistance Team: DPAT, able to support the psychiatric care and psychiatric social care in disaster areas, was created on the 1st April 2013. I would like to explore this in further detail, as well as discuss the future prospects of disaster psychiatry.
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ID 81: The Robotic "Remote Presence" Technology in the Intensive Care Units

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Study/Objective: To describe remote presence robotic utilization and examine perceived ICU Doctor Specialist Intensivist impact upon care in the intensive care unit (ICU).
Background: Data were obtained from academic, university, community, and rural medical facilities in Kuwait with remote presence robots used in ICUs.
Methods: Objective utilization data were extracted from a continuous monitoring system. ICU Physician data were obtained via an Internet-based survey.
Results: From 2010, 5 remote presence robots were deployed in 5 Hospitals ICUs. Of 5,405 robot activations recorded, 4,065 were evaluated. Three distinct utilization patterns were discovered. Combining all programs revealed a pattern that closely reflects diurnal ICU activity. The ICU Specialist physician survey revealed staff are senior (95% > 40 years old, 88% with >16 years of clinical practice), trained in and dedicated to critical care. Programs are mature (90% >3 years old) and operate in a decentralized system, originating from cities with >550,000 population and provided to cities >150,000 (69%). Of the robots, 76.2% are in academic facilities. Most ICU Specialists physicians (88%) provide on-site and remote ICU care, with 80% and 93% providing routine or scheduled rounds, respectively. All respondents (100%) believed patient care and patient/family satisfaction were improved. Ninety one percent perceived the technology was a "blessing," while 100% intend to continue using the technology.
Conclusion: Remote presence robotic technology is deployed in ICUs with various patterns of utilization that, in toto, simulate normal ICU work flow. There is a high rate of deployment in academic ICUs, suggesting the ICU intensivists shortage also affects large facilities. ICU Specialists Physicians using the technology are generally senior, experienced, and dedicated to critical care and highly support the technology.
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ID 85: Psychosocial Needs Assessment and Recommendations for the Refugees in Ban Don Yang, NuPo, and Umpiem Mai Camps, Thailand

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Study/Objective: The objective of this field study was to provide the American Refugee Committee with an assessment of the psychosocial capacity of the Burmese refugee camps it serves to meet the mental health needs of the refugees.
Background: The American Refugee Committee provides public health and other services to three Burmese refugee camps in Thailand, close to the Burmese border. Most of the refugees have been living in the camps for many years, some for all of their lives. The American Refugee Committee wished to determine if the psychosocial and mental health needs of the camp residents were being met as well as possible, and if not, what improvements could be made.
Methods: As a psychosocial assessment field study, interviews were conducted with camp residents as well as leadership and service providers. Sociological and historical information was also gatherer. It is important to know that this assessment was of a psychosocial design; thus focusing on determining the strenghts and weaknesses of the camps from a community psychology and public health perspective.
Results: A comprehensive report was developed identifying the psychosocial strengths, weaknesses, and feasible improvements that could be made, both for the camp communities as well as for individuals who needed more in-depth care. This report was shared with key stakeholders and interested refugee camp residents. Specifics of the findings and recommendations will be given in more detail at the conference presentation.
Conclusion: This psychosocial assessment proved to be of significant usefulness to the American Refugee Committee and the refugee camps it serves in Thailand. It also was helpful to the author in further refining his model for conducting international psychosocial assessments and program planning.
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ID 86: A Study of Cost Incurred in Providing Emergency Care Services in an Apex Tertiary Care Hospital

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Study/Objective: Aim and Objectives: To study the cost incurred in providing emergency care services in an apex tertiary care hospital. To identify the various cost centres pertaining to patient care in the emergency care department and to estimate the cost of rendering patient care in Emergency Department, and cost of running the emergency per day.
Background: An Emergency department (ED), also known as accident & Emergency (A&E), Emergency room (ER), or casualty department, is a medical treatment facility specializing for acute care of patients who present without prior appointment, either by their own means or by ambulance. In spite of the Emergency beds forming only a fraction of the hospital beds, they consume a relatively large proportion of the hospitals resources. There is a requirement to ascertain the cost incurred in providing emergency care treatment to the patients coming to an apex tertiary care centre, whose principal mandate is to provide tertiary care treatment. The study will not only help in allocating funds to the emergency department in an apex tertiary care facility but will also be useful if the hospital authorities decide to outsource the emergency services to a third party.
Methods: Six months retrospective data was collected from Emergency Department, Accounts Section, Engineering Section, Stores department, Radiology department, Emergency lab, Computer facility, etc. The cost was apportioned to per patient as well per hour in rendering emergency care services.
Results: Total cost incurred in providing emergency care services in the hospital, under study was Rs 2034/ patient. While Rs 31,000 are spend per hour in running the emergency care facility.
Conclusion: 40-50% of the total cost incurred on providing emergency care services, goes to the salary head of the staff working in emergency department. Next major source of expenditure are the radiology and lab investigations.

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ID 89: Geospatial Patterns of Burn Injury in Cape Town: GIS Analysis of Burn Related Ambulance Dispatches

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Study/Objective: By understanding how to preemptively use socioeconomic indicators to predict geographic distribution of the trauma and emergency burden, EMS can better reallocate their resources and produce more targeted, cost-effective responses.
Background: An estimated 3.2% of South Africans suffer from burn injuries annually. Burns are a significant part of South Africa's rising trauma burden that is straining the country's still growing EMS system. Scarce resources dictate that efforts to improve ambulance response times must be low-cost, and may require the reallocation of existing resources more than the acquisition of new ones.
Methods: Burn-related ambulance call data was collected for all calls in Cape Town from January 2011 through September 2013. ArcGIS software was used to map GPS coordinates of each incident onto a Cape Town suburb's map also containing 2011 Census data for each suburb. Analysis was done using shading by attributes, ordinary least squares regression and geographic weighted regression models.
Results: Five measured factors were correlated with greater burn count in Cape Town: population density, the proportion of backyard dwellers, the Black percentage of the population, unemployment, and the R1601-R3200 income bracket. Only unemployment and low-income were found to be strong predictors of burn count across the entire region. Factors such as paraffin usage that are traditionally associated with burn count in other global settings were not found to be associated with burn count in Cape Town. No consistent pattern was observed between burn count and proximity to an informal settlement.
Conclusion: EMS resource allocation should reflect the strong influence of economic factors in determining Cape Town's trauma burden. Additional research should be conducted to examine the environmental and social differences between informal settlements with high and low burn rates. This analytical model can be applied to additional parts of Cape Town's emergency trauma burden such as road-traffic incidents and cardiac arrest.

The map on the left is Geographic Weighted Regression raster image showing how the strength of using the unemployment rate as a predictor of burn count varies geographically. The map on the right depicts how the strength of using the Black percentage of the population as a predictor of burn count varies geographically. Dark regions indicate high predictability. Light regions indicate poor predictability.

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ID 102: A Pre-experimental Research to Investigate the Retention of Basic and Advanced Life Support Measures Knowledge and Skills by Nurses Following a Course in Professional Development in a Tertiary Teaching Hospital

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Study/Objective: The objective of this study was to examine retention of life support measures (BLS & ALS) knowledge and skills of nurses following education intervention programme.
Background: Lack of resuscitation skills of nurses in basic life support (BLS) and advanced life support (ALS) has been identified as a contributing factor to poor outcomes of cardiac

arrest victims. The hypothesis was that nurses' knowledge on BLS and ALS would be related to their professional background as well as their resuscitation training.
Methods: Pre-experimental research design was used to conduct the study among the nurses working in medical units of B. P Koirala Institute of Health Sciences, where CPR is very commonly performed. Using convenient sampling technique total of 20 nurses agreed to participate and give consent were included in the study. The theoretical, demonstration and re-demonstration were arranged involving the trained doctors and nurses during the three hours educational session. Post-test was carried out after two week of education intervention programme. The 2010 BLS & ALS guidelines were used as guide for the study contents. The collected data were analyzed using SPSS-15 software.
Results: It was found that there is significant increase in knowledge after education intervention in the components of life support measures (BLS/ALS) i.e. ratio of chest compression to ventilation in BLS ($P = 0.001$), correct sequence of CPR ($p < 0.001$), rate of chest compression in ALS ($P = 0.001$), the depth of chest compression in adult CPR ($p < 0.001$), and position of chest compression in CPR ($p = 0.016$). Nurses were well appreciated the programme and request to continue in future for all the nurses.
Conclusion: At recent BLS/ALS courses, a significant number of nurses remain without any such training. Action is needed to ensure all nurses receive BLS training and practice this skill regularly in order to retain their knowledge.

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ID 104: The Effect of Applying Early Warning System on Motahari Hospital Preparedness in Disaster in Tehran-2014

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Study/Objective: This study was conducted through a semi-experimental before-after study design.
Background: The international frequency of disaster in the world shows that the occurrence of disaster is completely inevitable. One of the most important aspects of the preparedness of the hospital in disasters is installing early warning system in hospital. It has been emphasized by world health organization(WHO) as the first response element plan in disaster. This system must be capable of improving hospital's response plan and enhancing the ability to respond at the highest level. This study,utilized the early warning system which had been recommended via emergency management center at ministry of health.
Methods: The primary mission of this research was evaluation of applying early warning system in hospital readiness during disaster at Motahari hospital in Tehran.This hospital was chosen as a pilot center according to the ministry of health of Iran. The WHO's checklist,containing nine items,was applied as the assessment tool.Early warning system was installed by attendants of disaster committee. The 16th version of SPSS was used for data entery and analysis. The Friedman test was applied as appropriate non-parametric test to analyse data.
Results: The hospital preparedness score has raised from 134 to 196 (showed significant improve from mean to top level). The most increase was observed at safety and security and Communication and search capacity (9, 10 Score). On the other hand, the least increase belonged to the retrieval after disaster and command and control (3, 4 score) change. Hospital readiness in items:Command and control, Communication, Safety and security, Triage, Manpower, Search capacity, Logistics management and support improved significantly ($P < 0.05$), but Retrieval after disaster and Continuity of basic services' did not reach statistical significance ($P > 0.05$).
Conclusion: The Motahari hospital had an average level of preparedness before installing early warning system. After intervention the level of readiness increased significantly and reached to high level. This study recommends applying early warning system on all hospitals to raise hospital preparedness level in disasters.

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ID 106: Risk Communication in Organisations Involved in Disaster and Climate Change Response

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Study/Objective: There is a great deal of literature pertaining to risk communication between disaster management entities and the public, as well as inter-organisational (external) interchange. There is a limited amount of literature within the field of disaster management regarding intra-institutional communication barriers. These barriers can include interpersonal and cultural issues between subordinates and leadership. This study sought to elucidate strengths and issues in intra-organisational communication within particularly vulnerable groups-Small Island Developing States. In addition to the particular study findings, the presentation will also include an overview of risk communication best practices.
Background: According to the World Health Organization, risk communication is "an interactive process of exchange of information and opinion on risk among risk assessors, risk managers, and other interested parties." The 2005 World Conference on Disaster Reduction contained objectives specific to "increasing reliability and

availability of appropriate disaster-related information to the public and disaster management agencies in all regions". Small Island Developing States (SIDS) have particular vulnerability to disasters and climate change, including, but not limited to geographical barriers to "real-time" assistance and resources, as well as the obvious impact of rising oceans.
Methods: An anonymous survey was sent to individuals working within varying levels of SIDS organisations responsible for the following: Disaster/Emergency Response, ["Disaster" includes natural, industrial (radiation/chemical), infectious (including Ebola)], Disaster Risk Reduction, Climate Change Mitigation, Climate Change Adaptation and Sector Development.
Results: Current results of the study itself are pending at the time of abstract submission deadline.
Conclusion: Within SIDS themselves and between supporting entities, complex dynamics can affect how necessary information is communicated. Risk communication requires specific knowledge and skill sets for coordinated messaging to affected populations. Through all phases of disaster, government response and leadership has a significant impact on outcomes and the resilience of its people.
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ID 108: Governmental and Non-governmental Collabolation

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3. Hyogo Emergency Medical Center (Kobe/Japan)

Study/Objective: Objective is to reduce the risk of Disaster
Background: The cataclysm called Great Hanshin Awaji Earthquake has happened in 1995. we were among the ruins, we started to build up new system to reduce the risk of disaster. An organization like a catalyst in the chemical reaction is necessary so that government organizations may cooperate with non-government organizations.
Methods: Hyogo prefecture that was a local government organization established Hyogo Emergency Medical Center in August 2003 with the Japanese Red Cross Society which was a non-government organization for the purpose of saving many people's life by regulating various organizations at the time of disaster.
Results: I will introduce the functions of our center that are disaster preparedness, collaboration and action toward disaster reduction. First, we have several training courses. The most important training course is the DMAT (Disaster Medical Assistant Team).

Second, our center manages a disaster emergency information command center to collect information about a disaster area and to offer emergency medical information to firefighting organizations and medical institutions.

Finally, we dispatched relief workers to disaster areas, domestic, Tyhoon Tokage, Niigata Chuets, Niigata Chuets Earthquake, Great East Japan Disaster, Sumatra Tsunami, Earthquake in Pakistan, Earthquake in Java, Sichuan Earthquake, and Haitian Earthquake.
Conclusion: 1. Hyogo Emergency Medical Center and Kobe Red Cross Hospital are the good example that NGO can cooperate with GO 2. We performed relief activities in domestic and foreign disasters and achieved the role of the above-mentioned purpose.
Prehosp Disaster Med 2015;30(Suppl. 1):s12
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ID 112: Is a Full-scale Exercise Effective in Maintaining Knowledge of Hospital Personnel for Chemical Events?

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Study/Objective: To assess effectiveness of a full scale chemical exercise in creating and maintaining knowledge of hospital staff over a period of six months.
Background: Successful management of chemical events requires development and sustenance of knowledge among healthcare workers. It has been suggested that exercises are the most effective means of training hospital staff for emergencies.
Methods: A full scale chemical exercise was designed and executed in a level one trauma center. Knowledge of personnel concerning emergency management of such an event was assessed based on a multiple-choice questionnaire, before, a month and six months after the exercise. The levels of staff knowledge were compared and analyzed statistically.
Results: Mean levels of hospital staff's knowledge increased a month after the chemical exercise from 68% (SD ± 14.74) to 74% (SD ± 7.52). Though the overall knowledge somewhat decreased six months after the exercise to a mean of 73% (SD ± 7.52), it remained significantly higher than the baseline score ($p = 0.041$). Baseline knowledge levels of nurses was lower compared to physicians (68% versus 70%, respectively); but increased and remained higher six months after the exercise (74% versus 72%, respectively; $p > 0.05$). In two topics a decrease in knowledge retention was identified six months after the exercise compared to the pre-exercise level: 1) mechanism of operation of chemical agents (40% and 60% respectively; $p = 0.005$); and, 2) recognition of clinical signs and symptoms (51% and 77% respectively; $p = 0.009$). In several other areas, such as the aging phenomena, no differences in knowledge were detected in the pre-post levels (44% of the staff responded correctly to the questions, in both time intervals).
Conclusion: Exercising hospital teams for chemical events is perceived as a crucial step in assuring effective management of casualties. Contrary to the hypothesis, a full-scale exercise was not found to be more effective in building and retaining knowledge over time compared to other training methodologies.
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ID 114: Primary Study on the Disaster Casualty Concept System from a Chinese Perspective

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Study/Objective: TO design a disaster casualty concept system for the convenience of data documentation and epidemiologic studies from a Chinese perspective.
Background: In the discipline of Disaster Medicine, many terms don't have clear and concise definition, like "casualty", "disaster", "disaster scene", etc. This phenomenon impede data comprehensive analyzing worldwide.
Methods: We use Literature analysis and expert consultation method to layout a disaster casualty concept system through concept modeling process.
Results: In this article, we will firstly discuss the definition of "disaster" and "disaster scene" from Disaster Medicine's perspective, then, we will describe the meanings of "disaster casualty" and its affiliated and associated terms in detail, such as "casualty with internal diseases", "casualty needs surgical treatment", "hospital in the normal environment", " surge hospital at the disaster scene", etc. Lastly, we will analyze Chinese earthquake casualty data from 1960 to 2010 systematically according to our disaster casualty concept system.
Conclusion: Disaster data should be documented systematically for further research and comparison, we hope our disaster casualty concept system could be used as a theoretical basis for disaster medicine research.

Prehosp Disaster Med 2015;30(Suppl. 1):s12–s13
doi:10.1017/S1049023X15000606

ID 120: TIER Risk Assessment Method and Calculator: Hospital Preparedness for HAZMAT Emergencies

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Study/Objective: The objective of this study is to formulate and introduce a practical method which evaluates risk of HAZMAT events on hospitals.
Background: Malicious use of CBRN agents is a high impact threat for human and environment. Efficient management of such a CBRN event requires a well prepared health response system, especially hospitals, which must be on the basis of data relevant to risk and preparedness analysis.
Methods: The study was conducted in 2014, in the context of an EU-F7 project, TIER. A group of experts and TIER partners did a comprehensive review of relevant literatures, past events, and experiences gained from previous methods. Essential data for HAZMAT threat identification were selected, also basic components of risk assessment were considered, with regard to HAZMAT events and hospital readiness to manage these emergencies.
Results: A tool was developed to automatically analyze sources of online data, and identify possible threats and hazard in a chosen area. On the basis of the tool outputs, an automatic risk calculator was created to evaluate the risk of possible events on a chosen hospital, considering characteristics of the hazard, hospital vulnerability and preparedness. Sixteen elements were implemented in the calculator, e.g. probability of event, level of danger, amount of HAZMAT, secondary hazard, surge of casualties, contamination, business continuity, decontamination facility, equipment, antidotes, protective suits, etc.
Conclusion: To understand, analyze and appropriately use of data relevant to HAZMAT hazard, event and risk is not easy for health staff. A technology based strategy, such as TIER risk calculator, may help the disaster planners to recognize, estimate and mange health infrastructures, like a hospital, in face of HAZMAT threats and risks. This strategy is going to be tested during two simulations as CBRN emergencies, in Italy and France.

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ID 121: The Epidemiology of Major Incidents in the Western Cape Province of South Africa

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Study/Objective: To describe the epidemiology of major incidents in the Western Cape province of South Africa.
Background: Major incidents put pressure on any health system. There are currently no studies describing the epidemiology of major incidents in South Africa. The lack of data makes planning for major incidents and exercising of major incident plans difficult.
Methods: A retrospective analysis of the Western Cape Major Incident database was conducted for the period 1 December 2008 till 30 June 2014. Variables collected related to patient demographics and incident details. Summary statistics were used to describe all variables.
Results: Seven hundred and seventy seven major incidents were reviewed (median per month = 11). Most major incidents occurred in the City of Cape Town (57.8%, n = 449), but the Central Karoo district had the highest incidence (11.97 per 10 000 population). Transport related incidents occurred most frequently (94%, n = 740). Mini bus taxis were involved in 312 (40.2%) major incidents. There was no significant difference between the time of day when incidents occurred. A total of 8732 patients were injured (median per incident = 8.0); ten incidents had 50 or more patients. Most patients were adults (80%, n = 6986) and male (51%, n = 4455). Only 630 (7.5%) patients were severely injured and more than half of the patients sustained only minor injuries (54.6%, n = 4605).
Conclusion: Major incidents occurred more frequently than expected with road traffic crashes the biggest contributor. A national database will provide a better perspective of the burden of major incidents.

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ID 126: Identifying the Educational and Technical Needs of the Emergency Dispatch Service in Kosovo Using Hierarchical Task Analysis

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Study/Objective: The objective of this research is to document and evaluate the technical and educational needs for the emergency response system in Pristina, Kosovo. This is a current work in progress, and the part reported here focuses on the needs so far identified through Hierarchical Task Analyses (HTA) of the current dispatch system.
Background: There is currently a lack of support systems for the emergency services in Pristina. Specifically, there are no support systems to aid coordination of the resources available to the emergency dispatch. This might delay emergency care to patients in need. This project relies on a Man-Technology-Organization (MTO) perspective and aims to create additional capacity for all parts (M, T, and O) in the emergency response chain.
Methods: The ongoing research project will be conducted in several phases; the first of which is a data collection phase to analyze the needs of the emergency services as an advanced socio-technical system. This phase relies on interviews with staff and an analysis of the current technology in use.
Results: Eight interviews have been conducted so far in the project. The HTA analyses of the collected data material for the different roles (dispatch, ambulance, and ER-staff) show that there are several time-consuming subtasks that might delay the dispatch of emergency services. Through the HTAs, improvement needs has been identified for all three MTO areas: the human area, the technological area, and the organizational area.
Conclusion: The overall goal of this project is to create capacity and increase system resilience by introducing educational and technical interventions aimed at reducing or removing the identified, inefficient tasks. This increased capacity should result in faster and more time-efficient prehospital emergency response and, through this, improved patient outcome. The next phase of the project will implement interventions aimed at the needs identified in this project.
Prehosp Disaster Med 2015;30(Suppl. 1):s13–s14
doi:10.1017/S1049023X15000631

ID 129: Creation of Computerized Benchmarks to Facilitate Preparedness for Biological Events

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2. Bepe research group (Berlin/Frankfurt/Tel Aviv/Germany)
3. Hillel Yaffe Medical Center (Hadera/Israel)

Study/Objective: To develop an advanced tool for self-evaluation of emergency preparedness of medical institutions for variable types of biological threats.
Background: Communicable diseases and pandemics pose a growing threat to the well-being of the global population. A vital component of protecting the public health is the creation and sustenance of a continuous preparedness for such hazards. A joint Israeli-German task force was deployed in order to promote preparedness to manage serious public health threats.
Methods: Based on a comprehensive literature review and interviews with leading content experts, an evaluation tool was developed based on quantitative and qualitative parameters and indicators. A modified Delphi process was used to achieve consensus among over 225 experts from both Germany and Israel concerning items to be included in the evaluation tool. Validity and applicability of the tool for medical institutions was examined in a series of simulation and field exercises.
Results: Over 115 German and Israeli experts reviewed and examined the proposed parameters as part of the modified Delphi cycles. A consensus of over 75% of experts was attained for 183 out of 188 items. The relative importance of each parameter was rated as part of the Delphi process, in order to define its impact on the overall emergency preparedness. The parameters were integrated in computerized web-based software that enables to calculate scores of emergency preparedness for biological events.
Conclusion: The parameters developed in the joint German-Israeli project serve as benchmarks that delineate actions to be implemented in order to create and maintain an ongoing preparedness for biological events. The computerized evaluation tool enables to continuously monitor the level of readiness and thus strengths and gaps can be identified and corrected appropriately. Adoption of such a tool is recommended as an integral component of quality assurance of public health and safety.
Prehosp Disaster Med 2015;30(Suppl. 1):s14
doi:10.1017/S1049023X15000655

ID 131: Suspension Trauma (Pathophysiology and Treatment)

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Study/Objective: Suspension Trauma (also known as "hoist arrest" in the USA) is a poorly-understood and rapidly lethal phenomenon occurring when an individual hangs vertically in a harness for short lengths of time (which can be as little as a few minutes). The pathophysiology and treatment of suspension trauma is shrouded in mystery, folklore and superstition. It affects industrial rope access workers, mountain climbers, cavers, firefighters, helicopter rescuers and parachutists – in fact, anybody subjected to vertical suspension in any kind of harness. There is a significant amount of mythology associated with the immediate rescue management of these patients, as well as in the pursuant on-site emergency medical care and subsequent hospital management. This presentation addresses the following questions:

- What causes suspension trauma, and what is its pathophysiology?
- What is the role of the harness, what role the vertical position and what role reperfusion syndrome?
- What are the aggravating circumstances?
- How do we recognise its early onset?
- How do we ameliorate its effects?
- Who are the aggravating factors, and how do we predict susceptibility?
- How do we treat it?
- How do we prevent it?

- This presentation examines the above questions in some detail, reviews the past and present literature on suspension trauma, and debunks the misinformation surrounding the immediate rescue and consequent emergency medical management of the condition.

Background: Please see Study/Objective
Methods: Literature review.
Results: Please see Study/Objective
Conclusion: Please see Study/Objective.

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ID 134: A Pilot Study of ICN Nursing Core Competencies and Education Needs in Disaster Relief

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Study/Objective: To investigate nursing core competencies in relation to disaster relief, and evaluate education needs and professional backgrounds.
Background: Though Taiwan is subject to natural disasters such as typhoons and earthquakes, disaster relief training for nurses is a relatively new concept on the island.
Methods: A descriptive correlational study using convenience sampling of six medical institutions in Southern Taiwan with written consent from 109 participants. ICN disaster nursing core competencies in a four domain structured questionnaire: psychological care, care of vulnerable populations, care of individuals and families, care of the community.
Results: The average participant was 32.64 years old, unmarried, university educated, with 10.63 years of nursing experience, including 6.22 years of job seniority. The results showed that (1) nurses considered themselves competent, and the average score for disaster nursing core competencies was 2.428 ($\pm$ *0.392*) on a scale from 1 to 4, with, in order, psychological care, care of vulnerable populations, care of individuals and families, care of the community; (2) nurses disagreed with education needs, and their average score was 1.735 ($\pm$ *0.409*), with care of the community, care of vulnerable populations, care of individuals and families, psychological care; (3) there are significant differences between nursing experience, emergency experience and education needs; (4) a positive relationship was found between disaster nursing core competencies and education needs.
Conclusion: Nurses should have sufficient education and training in disaster relief. This study can assist management in facilitating a competent health care environment which, in turn, provides greater patient care in traumatic situations.

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ID 135: Earthquakes: Experience Obtained and Lessons Learnt

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Study/Objective: The main goal is to show the national approach based upon the practice of preparedness, playing exercises, staff training programs, field experience and lessons learnt.
Background: Humanitarian missions of medical care delivery in earthquakes are often analyzed separately without taking in account the specific characteristics of management system in emergencies. National Mobile Disaster Medicine Hospital was missioned in different emergencies and experince obtained serves as basis for further analysis.
Methods: The process is divided into stages: 1 – Analysis of medical intervention in earthquakes and general contributions, 2 – Issues from the best practices of humanitarian assistance made any ever abroad, 3 – Criticism of an approach on the application of universal standards, 4 – Necessity to play an international grand scale exercise.
Results: This presentation gives examples and characteristics of an international field experience of Disaster Medicine National Mobile Hospitals in major earthquakes in Russia, in Columbia, in China, in Afghanistan, in Iran, in Chili, in Turkey, in Haiti, etc… The best practices suppose to participate in medical care delivery in closed urgent symbiosis with special search and rescue teams. Misunderstanding within the framework of international medical teams and staff is a result of different national standards, different medical products, variety of equipments, and low level of language knowledge. The role of WHO has to include the large scale international exercises planning in earthquake hazard zones with an international model of rapid reaction – fast international medical teams. The staff of such team is to be specially prepared and the programs for special courses are to be promoted.
Conclusion: Preparedness and reactivity of international community for grand scale earthquakes might be efficient and repulsive using equally the achievements and practice of every participant. The deviation to make the universal model of emergency response is a myth to be replaced by mutual partnership experience.

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ID 138: Medical Simulation: Practice and Potential in the Comoros Islands

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Study/Objective: Medical simulation is becoming an increasingly integral part of medical education and continuing professional development in modern medical practice. This study looks at how our planning and implementation of medical simulation and clinical readiness testing at Fiona Stanley Hospital, Western Australia's largest tertiary hospital that opened in Perth on 4th October 2014 can benefit El Maarouf Hospital, Maroni, Comoros Islands.
Background: Clinical readiness testing at Fiona Stanley Hospital involved simulation testing of the hospital's capability and capacity to deal with a wide range of clinical and non-clinical situations. The results from these tests guided strategic planning of the hospital and modelling of responses in a highly complex tertiary healthcare environment. In August 2014 a combined orthopaedic and anaesthetic team from the Perth-based NGO Australian Doctors For Africa (ADFA), visited El Maarouf Hospital, Maroni for a two week period. Prior to departure a number of simulation scenarios were designed and then delivered to anaesthesia staff during the visit. The aim was to assess the ability of local anaesthesia staff - both doctors and nurses – to provide safe clinical responses during a range of medical emergencies.
Methods: The group plans to return to El Maarouf Hospital, Maroni in April 2015 with a program that has been specially adapted to provide a more beneficial and sustainable outcome for to the local community. The test scenarios include advanced life support in a resource-poor environment, multiple casualty assessment and anaesthetic capabilities in the face of multiple casualties.
Results: The results in April will provide a sound platform for El Maarouf Hospital to further develop a contextually-appropriate and high-quality medical simulation program.
Conclusion: The results of this program will enable the delivery of a local medical simulation program that will result in the provision of excellent clinical care for the people of the Comoros Islands in the future.

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ID 140: Case Based Learning Outperformed Simulation Exercises in Disaster Preparedness Education Among Nursing Trainees in India: A Randomized Controlled Trial

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Study/Objective: This randomized controlled trial (RCT) evaluated the effectiveness of Case Based Learning (CBL) versus Simulation Exercises (SE) in knowledge attainment in disaster preparedness education.
Background: In resource-constrained environments understanding and appropriately employing disaster triage is crucial. Although both CBL and SE are utilized in teaching disaster preparedness, there is no substantial evidence supporting one as the more efficacious methodology.
Methods: This RCT was performed during a one-day disaster training in Lucknow, India (17 October 2014). Following provision of informed consent 60 nursing trainees were randomized to knowledge assessment after didactic teaching (control group), didactic + CBL (intervention group 1) or didactic + SE (intervention group 2). After primary assessment groups underwent crossed-over to take part in the alternative educational modality and were re-assessed. A standardized multiple-choice evaluation tool encompassing key knowledge points was used. A sample size of 48 participants was calculated to detect a ≥20% change in mean knowledge score ($\alpha = 0.05$, power = 80%). Robustness of randomization was evaluated using X^2, anova and t-tests. Outcome comparisons of mean scores were made using one and two-sample t-tests.
Results: Among enrolled participants 90% completed follow-up. No significant differences in participant characteristics existed between randomization arms. Mean baseline knowledge score in the control group was 43.8% (±11.0). CBL training resulted in significant increases in knowledge scores at 26% ($p = 0.003$) and 12% ($p = 0.03$) in intergroup and intragroup analyses respectively. As compared to control, SE did not significantly alter knowledge attainment (46.9% ± 10.6 $p = 0.396$). In cross-over intra-arm analysis SE were found to result in a 26% decrement in mean assessment score ($p = 0.033$).
Conclusion: Among nursing trainees assessed in this RCT the CBL modality was superior to SE in disaster preparedness educational translation. SE resulted in poorer knowledge attainment in this population suggesting that CBL may be utilized preferentially. Additional research in alternative settings comparing these modalities is needed to externally validate these findings.

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ID 141: A Comprehension Health Program in Letefoho, Ermera, Timor Leste: Field Report and Proposal

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Study/Objective: This paper reports a reconnaissance trip to Letefoho, Ermera and a resultant proposal on water and sanitation was submitted to the Royal Bank of Canada Blue Water Project Leadership Grant 2011.
Background: Timor Leste is located northwest of Darwin, Austrlia and is the poorest economy in South Asia. Having only recently emerged from a brutal conflict that ended in 2002, Timor Leste is ranked 20th worst in the Failed State List of 2009 proposed by Fund for Peace. Amongst its thirteen districts, Ermera has consistently the worst health and social situation.
Methods: A reconnaissance trip was undertaken in 2010 to gather ground information in three villages in Ermera. Visits to

local health facilities and regional hospitals were taken. Inhabitants across the socioeconomic strata were interviewed on sanitary practices and perceptions. Samples from water sources were obtained for laboratory analysis. Diplomatic relationships were established with community and church leadership.
Results: Letefoho is located in a mountainous area five hours drive from capital Dili. Interviews revealed opportunities for improvement in sanitary practices including hand-washing, breast-feeding, water storage and health-seeking behaviors. There is poor coverage for childhood vaccinations. Villagers expressed welcome for external aid including training which has not reached Letefoho so far. Villagers employed the use of pit toilets shared by several households. Water samples from drinking sources revealed coliform content that exceed acceptable levels. Based on location, needs and paucity of existing aid, Letefoho was selected for pilot implementation for a water and sanitation project. The proposed project is comprised of 3 components: 1. Water infrastructure 2. Public hygiene centers 3. Health training, and is designed to be completed over a period of one year.
Conclusion: Our field report suggests tremendous opportunities for improvements in areas of health and sanitation in Letefoho, and a proposed project comprising infrastructure and large-scale education may improve the situation.
Prehosp Disaster Med 2015;30(Suppl. 1):s16–s17
doi:10.1017/S1049023X15000710

ID 143: Situational Awareness in Emergency and Disaster Medicine

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Study/Objective: Situational Awareness is a military concept, adopted by the commercial aviation industry as one of a constellation of 'non-technical skills' comprising Crew Resource Management. These 'non-technical skills' are a set of cognitive, social and personal resource skills that complement technical skills, contributing to safe and efficient task performance, through human behaviour modification. This oral presentation focuses on the adaptation of Situational Awareness to the Emergency Medicine (resuscitation) and Disaster Management environments, and elaborates on the consequent benefits in terms of patient and medical team safety, efficacy and efficiency. This presentation unpacks the elements of Situational Awareness, dealing with information processing and the factors interfering with effective cognitive function, and offers advice on maintaining Situational Awareness under adverse stressful conditions.
Background: Situational Awareness, as a military concept, was about "*gaining an awareness of the enemy before the enemy gains an awareness of you*". In modern aviation (and medical) practice, Situational Awareness has been defined as "*the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status into the near future*". This oral presentation focuses on the adaptation of Situational Awareness to the Emergency Medicine (resuscitation) and Disaster Management environments, and elaborates on the consequent benefits in terms of patient and medical team safety, efficacy and efficiency. This presentation unpacks the elements of Situational Awareness: gathering, interpreting information and anticipating future states. It deals with information processing and the factors interfering with effective cognitive function. It further elaborates on the interpretation of future states, maintaining the expanded concept of *distributed* Situational Awareness, and offers advice on how to maintain a state of Situational Awareness under adverse conditions or otherwise stressful circumstances.
Methods: Data review.
Results: Employment of CRM and Situational Awareness principles carries huge benefits for Emergency/Disaster Medicine.
Conclusion: See Results.
Prehosp Disaster Med 2015;30(Suppl. 1):s17
doi:10.1017/S1049023X15000722

ID 144: Post-nuclear Disaster Evacuation and Survival Amongst Nursing Home Residents in Fukushima, Japan: a Retrospective Cohort Survival Study

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Study/Objective: To assess associations between evacuation and mortality after the 2011 Fukushima nuclear accident, Japan.
Background: Considering the health impacts of evacuation is important in disaster planning for elderly populations; however, little is known about evacuation-related mortality risks. We have conducted a retrospective cohort survival study of elderly evacuees including comparative analyses with non-evacuees, following the Fukushima nuclear accident.
Methods: 1,216 residents from seven nursing homes located 20-40 km from the nuclear plant who were admitted in the five years before the accident joined this study. Demographic and clinical characteristics were obtained from medical records. Evacuation histories were tracked until mid 2013. The impact of evacuation on mortality risk was assessed using the pre and post disaster survival probability, relative mortality incidence, and hazard ratios in Cox regression.
Results: There was a substantial variation in mortality risks post-disaster across the five evacuated facilities ranging from 0.77 to 2.88. Evacuation (initial and subsequent) was associated with 1.69 times higher mortality (95% CI: 1.14-2.51) than non-evacuation after adjusting for confounders, while experience of the disasters did not have a significant influence on mortality. Particularly, initial evacuation from the original facility had substantial impact on mortality with hazard ratio of 3.37 (95% CI: 1.66-6.81) against non-evacuation, though subsequent evacuations had no significant mortality risk. No

meaningful influence of evacuation distance on mortality was observed.
Conclusion: Evacuation may not be the best life-saving strategy for elderly people. Following the Fukushima accident evacuations of some facilities were inevitable because of staff deficiencies and other resource shortages, but at other sites sheltering in situ might have minimized health risk. Also, facility-specific disaster response strategies, including on-site relief and care, may have a strong influence on survival. In a mass displacement disaster, careful planning and coordination with other nursing homes, evacuation sites and government disaster agencies is fundamental to reduce the mortality.
Prehosp Disaster Med 2015;30(Suppl. 1):s17–s18
doi:10.1017/S1049023X15000734

ID 145: The Austere Medicine Course: Combining State and Private Resources to Develop Medical Resiliency Through Immersive Simu

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Study/Objective: This project demonstrates the capability of a brief course on austere medicine to increase the resilience of medical personnel by developing the cognitive and hands-on surgical skills needed during disaster response.
Background: Physicians and nurses typically are highly specialized and dependent on extensive infrastructure to deliver care. Under the austere circumstances of disaster response, the degradation of infrastructure and insufficient medical personnel availability requires a return to general medical and nursing practice.
Methods: Approximately thirty physicians and nurses were recruited for an intensive two day pilot program in disaster surgical care. Physicians ranged from medical students and residents to senior orthopedic surgeons. Several experienced nurses were included, as well. **Day One** consisted of a combination of 10 minute lectures followed by basic surgical simulations in the medical simulation lab at a private academic medical center. Students were later transported to an overnight field orientation exercise at the New England Disaster Training Center. **Day Two** consisted of a field mass casualty exercise. Moulaged volunteers were triaged after a simulated bomb blast. Airway management, chest tube placement, hemorrhage management, external fixation of fractures, amputation, vaginal delivery, and caesarian section were taught and practiced under field hospital conditions. Orientation to urban search and rescue teams (USAR) was also done with a simultaneous USAR operation at the training site. Student debriefing was performed post exercise.
Results: Students were able to successfully perform all procedures under field conditions and rated the experience very highly.
Conclusion: Students were able to articulate the principles of disaster triage and austere care while also demonstrating the ability to perform basic surgical procedures under austere field conditions. This training course highlights the efficacy of combining private hospital, state, and regional resources to rapidly develop an effective disaster resilience in a wide range of health practitioners.
Prehosp Disaster Med 2015;30(Suppl. 1):s18
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ID 148: Characteristics of Mortality in Great East Japan Earthquake, 2011

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Study/Objective: To elucidate the characteristics of mortality in Great East Japan Earthquake (GEJE) that occurred on March 11, 2011.
Background: GEJE in 2011 brought about serious damage to devastated areas. According to National Police Agency, 15,889 were dead and 2,598 were missing as of October 10th, 2014. However, demography of the victim by GEJE has not been demonstrated yet.
Methods: We gathered data of three devastated prefectures, Iwate, Miyagi, and Fukushima from National Police Agency, each Prefectural Polices, and national population census of Japan. We showed; (1) Age-based mortality of all three devastated prefectures compared with Great Hanshin-Awaji Earthquake (GHAE) in Japan, 1995 (2) Age-based mortality by gender (3) Age-based mortality by the cause of drowning or not (4) Age-based mortality by each prefecture. Each mortalities were calculated as the number of dead per 1,000 population.
Results: (1) Age-based mortality of all three prefectures showed that the more the age increased, the higher the mortality was among over forty years old. Mortality of GEJE was higher than that of GHAE (2) Mortality of male over 60 years old was higher than that of female. (3) Drowned victim was far higher than the other causes of dead among all age groups. The more the age increased, the wider the difference became. (4) The more the age increased, the more the mortality became amon all prefectures, especially in Iwate and Miyagi.
Conclusion: Mortality in GEJE was higher among elderly people, especially male. Mortality of GEJE(tsunami disaster) was higher than that of GHAE (inland disaster).
Prehosp Disaster Med 2015;30(Suppl. 1):s18
doi:10.1017/S1049023X1500076X

ID 149: Damage Control Surgery for Severe Combined Gunshot Wounds of the Abdomen

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Study/Objective: Aim: to report the results of damage control surgery with severe combined injuries of the abdomen.
Background: The central tenet of damage control surgery is that patient with multiple trauma are more likely to die from their

intraoperative metabolic failure that from a failure to complete operative repairs. The principles of the first 'damage control' procedure then are control of hemorrhage, prevention of contamination and protection from further injury. After immediate life threats had been surgically managed the person sent to an intensive care unit where we restored temperature, oxygenation, pH level. Repeated operations can be performed after stabilization of the wounded.
Methods: We have experienced 355 patients because penetrating gunshot wounds to the abdomen has been treated for 15 years. Tactic to use the tactics of damage control surgery has been implemented on 46 patients (13.0% of all patients) with the most severe combined injuries of the abdomen.
Results: Indications for use tactics for damage control were a critical condition of the wounded, hemodynamic instability, the simultaneous arrival of several wounded. The main methods of damage control were: tamponade of abdomen, retroperitoneum, pelvic cavity and suturing wounds of hollow organs single layer stiches, resection of part of the colon without anastomosis. For temporary management of the open abdomen we have used 3 different types: the vacuum pack, Bogota Bag- and Mesh/Wittman Patch – technique. After immediate life threats had been surgically managed the person was sent to an intensive care unit where we restored a physiologic balance, especially with regards to their temperature, oxygenation, and pH level. We performed repeated operations after stabilization of the wounded within 24-48 hours after the initial surgery. 9 of all patients died (19.6% of all patients for Tactic of damage control surgery).
Conclusion: Damage control surgery can be successfully used for severe combined gunshot wounds of the abdomen.
Prehosp Disaster Med 2015;30(Suppl. 1):s18–s19
doi:10.1017/S1049023X15000771

ID 152: Early Goal Directed Therapy in Sepsis: Effects on Length of Hospital Stay. A Saudi Experience!

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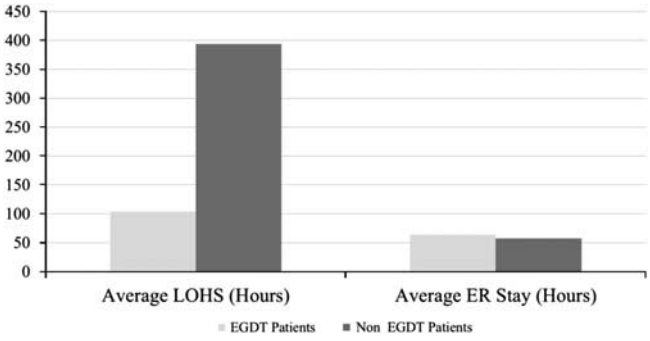
Study/Objective: Early goal directed therapy in sepsis: effects on length of hospital stay. A saudi experience.
Background: The golden therapy in the case of sepsis is the use of antibiotics (after acquiring blood cultures), vasopressors and crystalloids all within 3 hours. Surviving Sepsis Campaign: Interventional Guidelines for Management of Severe Sepsis and Septic Shock: 2012 suggested that golden therapy for sepsis will improve prognosis and decrease stay in hospital.
Method: 28 patients, diagnosed with sepsis, were admitted in King Faisal Specialist Hospital and Research Centre Emergency Department between April 2013 and August 2013. Patient treatment was assessed to compare gold therapy prognosis versus non-gold therapy prognosis to see if it affected length of stay in hospital.
Results: During the study, out of 28 patients 8 received golden therapy. On average, the ones who received golden therapy stayed in the ER for 63.75 hours and stayed an average total of 104.16 hours in the hospital. 75% of them were admitted into the ICU where they stayed for an average of 75.84 hours. The other 20 who did not receive golden therapy stayed in the ER for 57.4 hours and an average total of 314.4 hours in the hospital. 25% were admitted into the ICU and stayed there for an average of 393.6 hours. T test comparison of the average stay between those who received golden therapy and those who did not receive golden therapy showed a *P* value of 0.012485.
Conclusion: Golden therapy use in sepsis patients shows that it will decrease the length of stay in the hospital. These data shows that the use of golden therapy should be implemented in all hospitals to decrease length of stay in hospital.



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ID 153: Exploring the Use of the ICN Disaster Competencies

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4. School Of Nursing, Thompson River University (Kamloops/Canada)

Study/Objective: The aim of the study is to ascertain how the ICN Disaster Competencies are being used around the world.
Background: It has been five years since the inception of the ICN Disaster Competencies (version 1.10, dated 2009) for Specialist Nurses. The World Association for Disaster and Emergency Medicine, Nursing Section in conjunction with the International Council of Nurses is investigating how these competencies are used around the world.
Methods: The process for this review was undertaken using a survey to ascertain how the competencies are used around the world. Recruitment was undertaken through self – nominating participating organizations and their member units.
Results: This presentation will share information on how and where these competencies are used, by whom and in what set of circumstances.

Conclusion: The nurse who is intended to acquire these competencies and demonstrate them in practice is at the level of post-registration nursing. However where these competencies are used and in what way is not well understood. This understanding will contribute to the continued development of these competencies.

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ID 156: An Internship Program in Hospital Disaster Management

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2. Disaster Medicine And Management, Philadelphia University (Philadelphia/PA/United States of America)

Study/Objective: The goal of the internship program is to provide future hospital or healthcare emergency managers (EMs) with relevant organizational experience and opportunity to enhance and apply what they learn in their academic programs while working in a health service organization.
Background: The increased emphasis on emergency preparedness from the public, regulatory agencies, and presidential directives now demands full-time emergency management of a professional level to develop and manage hospital emergency management planning, training, and regulatory compliance. Developing health-care emergency management requires more than merely assigning upcoming managers to classes. There is a critical need for EMs to focus on the practical application of their skill set, which needs constant maintenance and review. This model internship represents a balanced triangular commitment from the academic facility, the health institution, and the student. It proposes an effective experiential educational model for an emergency management student.
Methods: The internship program development focuses on the important concepts of the EMs job. The initial step is to defin the professional requirements in terms of knowledge, skills, and abilities (competencies) then standardized them to determine the internship program's goals, objectives and tasks or occupational responsibilities.
Results: In the internship program case, the concepts of competence and qualification are used as the acquired capability to fulfill EM duties, which later each program's objective will relate to. Therefore, definite core competencies had been identified to recognise the minimum characteristics the ideal graduate or future EM should have to be able to practice competently.
Conclusion: The suggested program concentrates on building knowledge, skills, and abilities to support all aspects of the healthcare disaster management cycle. The application of such experiential learning model in educational and professional settings can improve both the development of individual training to include a wide range of learners and enhance the future of healthcare emergency manager profession development.

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ID 160: Nursing in Disaster Settings: What Skills Do I Need?

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Study/Objective: To examine the nursing role in Foreign Medical Teams during sudden onset disasters.
Background: Sudden onset environmental disasters have had devastating consequences to life across the globe. As part of a global community, health professionals see the effects of these disasters, feel the need to respond, and some may travel to provide disaster care. In the UK the national response to disasters has changed in recent years. A register of health professionals working substantively in the National Health Service (NHS) has been created to draw upon for health related sudden onset disasters. Teams have been deployed to China, Haiti and the Philippines. Nurses play a central role in creating and providing healthcare, whether in setting up facilities, managing whole systems, co-ordinating care delivery or simply delivering one-to-one care. Their roles in disaster healthcare is diverse, but many are unsure what is required, or just how much they can offer, with the result that many who would be a great asset do not volunteer.
Methods: Not applicable
Results: Nursing Skills in the Foreign Medical Team (FMT) - healthcare needs following a disaster are diverse and completely dependent on the individual setting. Initial health and disaster assessment will quickly identify the type of help required and enable the right skills to be deployed. This is an unique environment so it is important to understand the skills required to work as an effective team member.
Conclusion: The session will

- examine the skills - both technical and non-technical - that are necessary to work in this environment
- describe the work of the FMT in the field and how individuals can work most effectively
- discuss transferrable skills across nursing settings

Nurses play a vital role in Foreign Medical Teams following disasters. We must use the many skills they bring to deliver effective, high-quality healthcare to disaster communities.

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ID 168: Describing an International Delphi Project on Mass Gathering Health Data Collection

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4. Justice Institute of British Columbia (Vancouver/BC/Canada)
5. Faculty Of Health, University of Canberra (Banks/ACT/Australia)

6. School Of Nursing And Midwifery, Flinders University (Adelaide/Australia)
7. Public Health England (London/United Kingdom)

Study/Objective: Our aim is to develop international consensus on a conceptual framework to underpin mass gathering health (MGH) practice and research with an associated Minimum Data Set (MDS) and accompanying Data Dictionary (DD). This presentation describes the multi-phased process. (Results of the first survey from Phase 1 will be presented in a related presentation.)
Background: The science underpinning mass gatherings (MGs) is developing rapidly, but the lack of theory development, non-standardised terminology and inadequate conceptual analysis hinder the comparison of events across settings. Developing consensus and standardising concepts and data points will aid in creating a robust MGH evidence-base for governments, event planners, clinicians and researchers.
Methods: In September 2013, a group from Australia, Canada and the United Kingdom initiated an international consensus process to develop a MGH framework, MDS and DD. This work forms part of work plan of the Flinders University WHO Collaborating Centre for Mass Gatherings and High Visibility/High Consequence Events in Australia.
Results: Phase 1 focuses on establishing consensus around key concepts and consists of three rounds: (1) an online survey distributed to members of the World Association for Disaster and Emergency Medicine (MG Section) and the WHO Virtual Interdisciplinary Advisory Group on MGs in August 2014; (2) a second online survey to the same groups to be completed by March 2015; and (3) a half-day workshop at the 19th WCDEM. Phase 2 will focus on the development of the MDS and DD and additional Delphi rounds and workshops will be conducted in 2015/16.
Conclusion: The MDS and DD will be instruments for gathering standardised MGH data for planning, research and evaluation. These data will be a resource for governments, researchers, event planners and response organisations. The tools will facilitate the application of the principles of evidence-based health because data output will be more readily comparable across venues and national borders.

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ID 169: Isopropyl Alcohol Nasal Inhalation Intervention for Nausea in the Emergency Department: A Randomized Placebo-Controlled Human Trial

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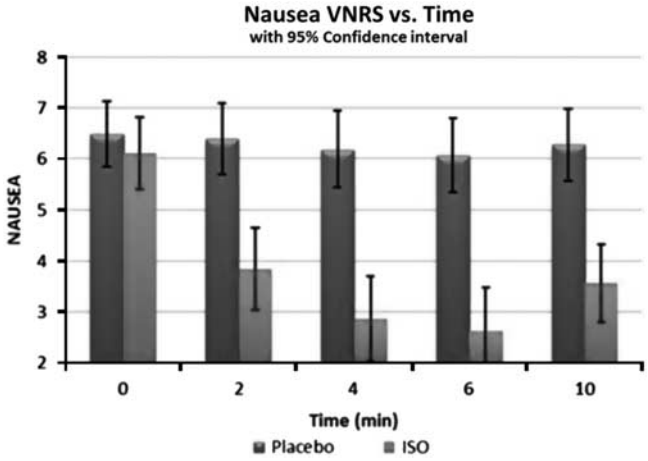
Study/Objective: To evaluate nausea and vomiting (NV) relief, pain relief, and satisfaction with treatment with nasally inhaled isopropyl alcohol (ISO) vs saline placebo in emergency department (ED) patients before access to traditional antiemetics. We hypothesized all would be better in the ISO group.
Background: ISO has been shown to alleviate NV post-operatively. This study is the first to examine ISO for NV in the ED.
Methods: Randomized, prospective, blinded placebo-controlled trial in an urban military level-I trauma center ED. Subjects were blinded by masked substance packets and ignorance of the identities of the study substance and placebo. Investigators were blinded by masked packets and by distance from open packets. A convenience sample of 84 patients aged 18-65, able to breathe nasally, English literate, and complaining of NV was enrolled. Exclusions were pregnancy, ISO allergy, use of medications with antiemetic or disulfiram effect, recent URI, or clinical intoxication. Subjects described pain and nausea on an 11-point Verbal Numerical Response Score (VNRS) at 0, 2, 4, 6, and 10 minutes (min). At 0, 2, and 4 min subjects inhaled from the study packet for 60 seconds. A 3-point change on the VNRS was set as significantly different. Patient satisfaction was recorded on a 5-point Likert Scale at the study conclusion.
Results: 80 subjects completed the trial. 4 withdrew. None were excluded after enrollment. No adverse events were noted. 72.9% had significant nausea relief within 4 min of inhalation with ISO vs 4.6% with placebo ($p < 0.001$). 56% had nausea relief at 10 min with ISO vs 2.3% with placebo ($p < 0.002$). Pain relief was not different between groups ($p > 0.05$). 64.8% were satisfied with ISO vs 2.3% with placebo ($p < 0.001$).
Conclusion: Nasally inhaled ISO is a safe and effective treatment for NV in the ED with relief onset by 4 min and persisting through the 10 min study duration.



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ID 171: Comparison of the Use of Traditional and Social Media by Public Protection and Disaster Relief Representatives in Four European Countries

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Study/Objective: The aim of the iSAR+ project, which is funded by the European Commission within the Seventh Framework

Programme (FP7), is to promote the bi-directional communication between the general population and public protection and disaster relief representatives (PPDRs) in crises situations by developing guidelines and an associated platform using new mobile and online technologies.

Background: The support in response efforts of the general public around the world has grown due to the use of social media in disasters. However, the traditional command and control models of PPDRs organizations are being hampered by restrictive legal frameworks and privacy concerns. The aim of the study was to investigate the current usage, attitudes towards, and potentials of social media from the PPDRs point of view.

Methods: An online survey was developed and distributed in Germany, France, Finland, and Norway (N = 1053). We compared the attitude towards and the current use of traditional as well as social media for their work in the field of civil protection between the countries. The data was analysed using SPSS 22.

Results: The results revealed significant differences in the work-related use of traditional and social media between PPDRs from different countries. For example, TV and radio broadcasting (traditional media) as well as YouTube and Facebook (social media) were used most frequently by German and least frequently by Norwegian PPDRs. Further, the usefulness of different information communication channels was stated to depend on the different phases (pre, peri, post) of disaster response efforts. For example, YouTube was rated to be most useful after a disaster had occurred.

Conclusion: The participation in response efforts of the general population all over the world has grown by using social media during crisis situations. Thus, social media have a great potential for the improvement of the communication between PPDRs and the public during crisis response efforts.

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ID 172: Road Safety: Emergency Situation and Promotion Projects

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2. Mobile Hospital, All Russian Centre for Disaster Medicine "Zaschita" (Moscow/Russian Federation)

Study/Objective: The goal of this presentation to make an exposition of pilot projects on state level and on the WHO level for road safety promotion in Russian Federation.

Background: One of the principle task of emergency Service in the Country is to deliver emergency medical care for injured in traffic accidents with more than 3 injured. Statistical data give us the real situation of sanitary losses (about 280000 - 320000 individuals) and fatalities (27000 – 33000 individuals) every year. One third of injured are young people between 15 – 29 years old. Road accident is the third order factor provoking trauma and fatalities in population and the first factor – in a group of persons less 50. The fatalities in road emergencies are 12 times higher than anywhere in other incidents and invalidization is 6 times higher.

Methods: Analysis of statistics, issues of two projects implementation, issues of Federal Road Safety Program Implementation.

Results: The Federal road safety program is being implemented since 2006. At the same time two WHO regional pilot projects are being realized. Federal Program issue: The medical situation on the roads is presented now as a responsibility of local hospitals attached to the determinates of the traffic net. The ambulances are on duty of the same roads. The special medical facilities are arranged on the shot parts (about 25 miles) of federal roads. The medical ambulance staff is being reeducated in disaster medicine centre seminars. The ergonomic characteristics of roads are remade according to the psycho physiological models. The special helicopter sites for evacuation are arranged. WHO Projects fix attention of all participants on three factors: speed, alcohol and protection means. Statistical data have confirmed the efficiency of implemented measures.

Conclusion: Program implementation leads to positive dynamics in main target indices – 19% mortality decrease and 17.5% lower road accident severity.

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ID 173: Training and Education Network in Disaster Medicine Service

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Study/Objective: Presentation of national education and training system and its evolution according to the requirements of international comprehensive approach.

Background: The Institute of Education and Training is a subdivision of All-Russian Disaster Medicine Centre since 1995. It was a first part of medical staff preparedness and management bodies postgraduate educational programs.

Methods: Analysis of national and WHO educational programs for crisis management. Comparison of normative and standards. Specificities of national approach to postgraduate centralized education is characterized.

Results: Statistics analysis confirms – 60 thousands of physicians and 137 thousands of nurse staff participants of emergency intervention. It gives 8 – 9% of all country medical staff. Disaster Medicine Institute has three main tasks: graduate and postgraduate education of medical staff in disaster medicine, education and preparedness of population for delivering of first care in accents, in incidents and in emergencies, preparedness and adoption of educational programs and training materials. The development of education system is overvalued in three dimensions: cycles and seminars in National Disaster medicine centre (Chief Institution) for regional governors and physicians en chief, in Territorial Disaster medicine centres for regional medical facilities staff (field education), distant education (telemedicine education), special courses of transport medical evacuation (sanitary aviation). About

15 thousands governors and medical specialists are being prepared since 1995. Standards of education in national disaster medicine service are different in comparison with those of WHO proposed for rapid reaction medical teams.
Conclusion: The number of medical specialists in disaster medicine operations and governance is insufficient. Programs of cycles for medical evacuation staff are the subject of only one centre - All-Russian Disaster Medicine Centre. National disaster medicine vocabulary is partly different with WHO one. Distant education is valuable only for governors in disaster medicine management commission. The system needs to be updated. The programs of education are transformed according the WHO standards.
Prehosp Disaster Med 2015;30(Suppl. 1):s22–s23
doi:10.1017/S1049023X15000862

ID 174: It is a Matter of Motivation: Transferring Knowledge Through Simplified Simulation Scenarios in Disaster Emergency Medicine

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Study/Objective: Education and training are crucial components of disaster and emergency preparedness and the goal is that the training should translate to a long-lasting learning.
Background: Motivation is one major step towards long-lasting learning. Research has shown that adult learners are better motivated to learn when they can both draw on previous experiences and see the direct correlation between what is taught, and how these new skills can be transferrable to their daily practice. Another important step towards long-lasting learning is using a teaching method that activates the learner, evokes emotions within the learner, and preferably includes a reflective discussion at the end of the session.
Methods: In this presentation we will demonstrate for the audience how the same results and goals the high-tech simulations achieve, can be obtained with simple, low-cost techniques. Three videos will be shown exemplifying how both theoretical knowledge and clinical skills effectively can be taught by using reality-based case scenarios and minimal technology. The videos are recorded at the Red Cross College in Stockholm during the Disaster Medicine course in the undergraduate program, and during the preparatory course for Médecins Sans Frontières held at the same college.
Results: The examples are easily transferrable and applicable to a multitude of scenarios in Disaster and Emergency Medicine and can be used in resource-poor locations.
Conclusion: The examples are easily transferrable and applicable to a multitude of scenarios in Disaster and Emergency Medicine and can be used in resource-poor locations.
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doi:10.1017/S1049023X15000874

ID 176: Field Hospital Versatility - Maintaining Capabilities in Diverse Operational Scenarios

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1. Pediatric Orthopedics, Schneider Children's Medical Center (Petah Tikva/Israel)
2. Israel Defense Forces Medical Corps (Tel Hashomer/Israel)

Study/Objective: To compare deployment of Field Hospitals in varying disaster scenarios and examine methods of adapting operation to these specific needs.
Background: During the past 25 years, the Israel Defense Forces Medical Corps (IDFMC) dispatched field hospitals to disaster zones worldwide, providing medical care in a wide variety of disaster scenarios including earthquakes, refugee camps, and flooding. These hospitals provided both medical and surgical care and operated either independently or in collaboration with local medical facilities. The wide variability in needs and function prompted us to analyze the methods in which the hospitals adapted to the varying and unpredictable situations in order to make recommendations for future field hospital planning and deployment.
Methods: Data was collected from IDFMC records regarding the deployment of 8 field hospitals. The data covered organizational structure, personnel, equipment and numbers of patients treated, pathologies encountered, and treatment delivered.
Results: Mission size varied from 33 to 104 total medical and paramedical personnel. The percentage of physicians varied from 35% to 54% and of nurses from 8% to 31%. The ratio between medical and surgical professions varied from 0.36:0.64 to 0.65:0.35. In the pathologies encountered, the ratio between injuries and medical problems varied from 1:9 to 7:3. Seven of the hospitals functioned as independent entities and one hospital functioned in integration with a local facility. There was wide variation in needs and function both between the various disaster scenarios as well as along the timeframe in which the hospitals operated.
Conclusion: Field hospitals are deployed in a wide range of scenarios posing varying needs and challenges – both structural and medical. Mission planning must therefore ensure versatility, modularity and flexibility. This was achieved by retention of a basic functional structure coupled with adaptation of personnel deployment and extensive task shifting. Capacities were greatly augmented by collaboration with local and international medical teams.
Prehosp Disaster Med 2015;30(Suppl. 1):s23
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ID 177: Early and Late Ethical Dilemmas in Humanitarian Mission Deployment: Ability, Sustainability and Accountability

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Study/Objective: To highlight various ethical issues arising during deployment of humanitarian missions in order to increase efficacy of these missions and reduce friction with local caregivers.
Background: Humanitarian aid missions to disaster areas are deployed mostly in underserved regions, under diverse physical and unfamiliar cultural conditions. Besides ethical dilemmas

concerning care delivery and doctor-patient relationships, there are many dilemmas at the macro level, affecting mission operation as well as relations with the local health system both during deployment and after the mission's departure.
Methods: This review is based on theoretical knowledge and cumulative practical experience, including numerous humanitarian efforts and disaster management worldwide.
Results: Preparation stage: 1. Mission characterization according to local needs versus the capabilities of the dispatching countries and organizations. 2. The qualifications of the participants must be established, however accreditation can be cumbersome and may hinder operation. 3. Shipments of surplus and outdated equipment to disaster areas may overload the logistic systems in the recipient country. Operation stage: 1. Coordination with local health authorities despite disorganization or motivation by political considerations. 2. Incorporation of Local health caregivers into the mission for continuity of care, education and retention of faith of the local population in their caregivers. Free care given by the foreign missions may destroy the livelihood of the local caregivers. 3. Lack of Coordination between various aid agencies may be counterproductive to the common cause. 4. Accountability. 5. The relationship between the missions and the media. Termination Stage: 1. Termination of the operation at a time when the needs in the area are still existent. 2. An orderly transfer of patients and information to other facilities for adequate continued care when such facilities may not exist.
Conclusion: Discussion of the ethical dilemmas facing aid missions following disasters will enable more effective delivery of aid in these regions.
Prehosp Disaster Med 2015;30(Suppl. 1):s23–s24
doi:10.1017/S1049023X15000898

ID 178: Barriers that Prevent Japanese Older People Feeling they Belong to a New Community After a Disaster and Relocation

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Study/Objective: Evaluate the long term experiences of older people who have been relocated to new or temporary housing after the 2011 tsunami in Japan.
Background: Previous studies argue that the relocation for older people affects them both in a positive and negative way and also emphasised that older people are resilient to adapting to a new environment. One study focused on older people's life after the 2011 tsunami in Japan however, this study was conducted only half a year after the disaster and participants were still residing in temporary relocation centres. To date, there is still a scarcity of information focusing on the long term effects when people are living in temporary housing.
Methods: After three and half years, the affected area in the township of Iwate, is still in the process of recovering in terms of the infrastructure but more importantly for the older people in terms of their psychological and wellbeing. Older people will be interviewed to gain an understanding of how they have been able to adapt to the new living areas and what has affected them most with respect to community cohesion.
Results: This study looked at older people who have experienced relocation to new housing in the Iwate district, one of the three affected prefectures by the 2011 Japan disaster.
Conclusion: The significance of this project is threefold. Firstly the findings will allow insight into what older people require to feel they belong to a community after they have been relocated to a new area. Secondly the findings will identify what are the barriers to older people from feeling they belong to a new community and allow implementation of community activities that would help older people. Thirdly there could also be a further benefit for older people in that they feel secure and are acknowledged in a new community.
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ID 179: Scientific Support to Evaluate Performances in Mass Casualty Incident Exercises: Introduction of an Innovative Training Support System for Staff

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2. Gothaer Insurance (Cologne/Germany)

Study/Objective: Mass Casualty Incidents (MCI) are fortunately rare events but have high consequences. Emergency medical services and technical rescue forces have to be well prepared and trained to face such events in case of occurance. Different concepts exist to cope with MCI depending on local resources and usual tactics. Field exercises do help to train forces and improve concepts, but there is currently no evaluation system. The authors developed a system for live evaluation of exercises.
Background: Events of rare occurance like MCI do not provide the possibilities to collect reliable data for analysis and prove of concepts. Therefore, exercises have to replace MCI for data acquisition.
Methods: The authors developed a methodology to monitor exercises and collect qualitative as well as quantitative data for evaluation. A combination of different techniques are used to capture information in specific the actual performance of staff based on each patients' preclinical needs. Using observers for a qualitative monitoring, a mobileTEDsystem collects quantitative data in combination with a staff positioning tracking. The data are brought together in a new developed MCI-Benchmark. Each measure which the patients receive correctly and in-time, is awarded by points. A comparison of the collected points with the maximum points (ideal process) allows to determine the degree of efficiency in each patient-need-category.
Results: The degree of efficiency allows to make statements about the discovery and capture, rescue and relief, treatment and care as well as the patients' transport to hospital in the exercise. In combination with the qualitative data of the observers, the clever distribution of existing resources, the training status of forces as well as statements of the practicability of concepts can be derived.

Conclusion: The results can be used for debriefings with forces. Especially in combination with monitoring + tracking data, the different actions and decisions by the staff can be discussed and improved.

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doi:10.1017/S1049023X15000916

ID 185: Outcomes of Prehospital Asystole in a Major EMS System

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Study/Objective: We studied prehospital cases of cardiac arrest where asystole was the presenting rhythm or the rhythm at the time of physician base call. We hypothesized that with protocol changes, physician time could be conserved without quantifiable effect on cardiac arrest survival in non-responding asystole.
Background: Cardiac arrests are a common call for medical direction by EMS crews, utilizing large amounts of physician time.
Methods: *Design:* Retrospective observational convenience sample. *Setting:* Urban tertiary academic hospital. *Data set:* We reviewed all cardiac arrests in a major metropolitan EMS system from January to September 2013. *Protocol:* Cardiac arrests were reviewed for asystole. Survival rates were calculated and analyzed.
Results: Of the cardiac arrests reviewed, 363 cases were identified in which asystole was the initial rhythm or asystole was present at the time of physician base call. 290 cases were identified as asystole at the time of physician base call, of which 2 survived. 193 of these patients were asystolic throughout the entire encounter and none survived. Median length of time for unsuccessful calls was 9 minutes. 32 patients had return of spontaneous circulation with an initial presenting asystolic rhythm, of which 3 (9.4%) survived to discharge. 41 patients went from asystole to PEA at the time of base contact, of which 2 (4.9%) survived to discharge.
Conclusion: Of 193 patients with an initial prehospital presentation of asystole that remained in asystole at time of physician base contact, 193 died. This resulted in greater than thirty hours of physician base call time. We conclude no quantifiable effect on survival exists and physician time could be conserved by allowing paramedics to pronounce patients dead without physician contact when asystole was the only rhythm identified during the resuscitation attempt.

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ID 186: Down and Dirty: What Happens When the Index Case is the Hospital "Next-door"

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Study/Objective: September 30th, 2014, the first case of Ebola was diagnosed in the US outside of Africa. This a brief report from the first few weeks experience from the perspective of local academic physicians who are not involved in the direct care of Mr. Thomas Eric Duncan, but are involved with EMS planning, EMS medical direction, infectious disease, public health and hospital preparedness.
Background: After the first US case was identified, many things had to happen quickly: 1) case definition for Ebola had to be created to ensure that there would be no missed patients and 2) a screening tool had to be created that both the emergency department and infectious disease physician agreed would be effective, detailed, and efficiant. The result would have to be something that would not only ensure catching another Ebola case, but would also allay the fears of the medical staff.
Methods: We created a simple screening tool through concensus and using what was already available.
Results: A screening tool and guidance was created for both the prehospital environment and the county hospital system that was very sensitive.
Conclusion: The screening tool that we have developed is daily still being validated and practiced. We are screening large number of people for a low incident occurrence that is deemed that can be a "never" miss. We are confident that a highly sensitive multilayered questioning approach although time consuming, will minimize the chance of a patient being miss diagnosed in the ED.

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ID 192: Working Together for the 2012 London Olympic Games: A Conceptual Framework of Interagency Collaboration Among Public Health and Safety Providers

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Study/Objective: This study used the 2012 London Olympic Games as the empirical context to examine how interagency collaboration took place among the diverse public health and safety agencies involved in this mass gathering event. In order to develop our understanding of how collaboration among the key stakeholders in a mass event may be improved, a number of theoretical frameworks were identified and were further developed through empirical findings. These are synthesized into a novel conceptual framework.
Background: Mass gatherings often bring together organizations and actors that have never worked together previously or collaborate irregularly. Public health planning for such events requires the collaboration between local, regional, voluntary and national health-related services as well as with the official organizer.
Methods: An exploratory case study design was used. Data were collected before, during and after the Games through semi-structured interviews, direct observations and documentary analysis. Template analysis was used to analyze the interviews' transcripts, the fieldnotes from observations and the documents. The analysis, supplemented by the existing literature, generated a framework of factors influencing interagency collaboration.
Results: The proposed conceptual framework of interagency collaboration is based on the work of Gitlin et al (1994), Sicotte et al (2002) and D'Amour et al (2004). It includes four major components: starting conditions and personal, agency and

structural characteristics. The first component includes the conditions needed at the outset of collaboration such as recognizing one common goal, the second describes the characteristics of the professionals, the third includes the relationships between different actors and the fourth describes the structural and procedural interactions among the organizations.
Conclusion: A reconceptualization of how interagency collaboration between public health and safety providers evolved during the Olympic Games has the potential for useful and relevant learning applied to future events.
Prehosp Disaster Med 2015;30(Suppl. 1):s25–s26
doi:10.1017/S1049023X15000941

ID 194: GHHA Working Group I: Formulating the Organizational Plan

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Study/Objective: To develop a clear and concise organizational plan, with mission and vision statements, organizational structure, and strategic goals for the newly developing Global Humanitarian Health Association (GHHA).
Background: GHHA, representing the quality performance interests of the worldwide humanitarian health community will be initially registered as a charitable non-governmental organization in Canada (with global remit).
Methods: The organizational plan, including structure, mission and vision statements and strategic goals, were developed using key stakeholders, review of the ELHRA (Enhancing Learning and Research for Humanitarian Assistance) foundational documents, and the organizational plans from similar organizations. The working group crafted a mission statement to describe its core focus and purpose and vision statement for future goals. The organizational plan will be presented to key stakeholders in Montreal, Canada in January 2015 and a final version will be prepared based on input from this working meeting and presented at WCDEM in April 2015.
Results: A preliminary organizational plan for GHHA was developed to define how this nascent, timely and needed professional organization would further promote the sector and support all relevant actors. The work of this group will result in an operational plan that reflects that values and goals of the Global Humanitarian Health Association.
Conclusion: The work of this group will result in an operational plan that reflects that values and goals of the Global Humanitarian Health Association.
Prehosp Disaster Med 2015;30(Suppl. 1):s26
doi:10.1017/S1049023X15000953

ID 199: Typhoon Haiyan: The Impact of Free Access to Systematic Reviews

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3. John Wiley and Sons (Chichester/United Kingdom)

Study/Objective: To analyse usage data from the Philippines to determine the impact of complimentary access on usage during the free access period. To determine whether efforts in promoting the free access effectively reached aid workers in the target area.
Background: The Philippines experienced widespread destruction and additional casualties from Typhoon Haiyan in October and November of 2013. Cochrane and Wiley, working in consultation with Evidence Aid, made one-click access to *The Cochrane Library* freely available for all residents of the Philippines through the end of March 2014.
Methods: Wiley's usage figures will be used to analyse data on geographically targeted visitors from October 2013 through March 2014. Usage will be compared to prior years to determine how free access impacted usage. We will analyse whether Cochrane reviews specific to dealing with the aftermath of a natural disaster were among the most accessed content during the period following Typhoon Haiyan. The usage of Evidence Aid Special Collections will also be analysed to determine if there was an increase in usage of these resources.
Results: Usage of *The Cochrane Library* in the Philippines increased dramatically during the free access period from October 2013 to March 2014. We will analyse usage again in June 2014 to see whether temporary free access had a lasting effect on overall usage in the months following the free access period. In June 2014, we will survey Wiley sales teams in the region to assess whether the free access period led to increased interest in subscriptions in the intervening period.
Conclusion: Free access is a valuable tool to make available to communities dealing with disasters. We wish to continue to offer access to *The Cochrane Library* and promote its availability to aid workers in the most effective way possible. Conclusions will be drawn from the analysis once the data are available.
Prehosp Disaster Med 2015;30(Suppl. 1):s26
doi:10.1017/S1049023X15000965

ID 201: Timing Requirements for Vertical Evacuation of Pediatric Intensive Care Units: A Cross Sectional Observational Study Using Simulation

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Study/Objective: The study aimed to characterize the time needed to carry out a pediatric vertical evacuation through a simulation disaster exercise.
Background: Disasters may potentially cause unforeseen hospital incapacitation resulting in the need for vertical evacuations (between floors). The timing and limitations for such an evacuation may vary with the type of hospital unit. Previous studies range from 3.75 to 8 minutes per patient per floor when evacuating adult ICU patients. The time allocation required to complete evacuations from pediatric and neonatal intensive care units (PICU/NICU) is not well studied.
Methods: A full scale exercise was conducted in an urban academic medical center in Brooklyn, New York simulating a power outage in the third floor NICU and in the fourth floor PICU. Evaluators for each unit recorded times from the drill initiation to the last patient evacuated to a staging area in the emergency department.
Results: The NICU evacuation took 50 minutes to get 10 patients ready for transport and 13 minutes for transport. The rate to evacuate the NICU was 2.1 minutes per patient per floor. The PICU evacuation took 30 minutes to get 8 patients ready for transport and 27 minutes to transport. The rate to evacuate the PICU was 1.8 minutes per patient per floor.
Conclusion: The correct amount of time must be planned to facilitate a vertical evacuation within a given hospital unit. The rates achieved in our study were faster than in adult populations with the majority of evacuation time dedicated to patient preparation rather than the transport. The required NICU/PICU evacuation intervals in this study may guide other hospitals in evacuation planning and time requirements; however simulation in alternative settings to validate the findings is needed.

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doi:10.1017/S1049023X15000977

ID 202: Use of Medical Reserve Corps Volunteers in a Hospital-based Disaster Drill

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Study/Objective: This study sought to use a full-scale exercise as a vehicle for determining the best use of The Medical Reserve Corps (MRC) volunteers in hospital-based disaster drills and actual disasters.
Background: The MRC is a national network of community-based volunteer groups created in 2002 by the Office of the United States. Surgeon General to augment the nation's ability to respond to medical and public health emergencies. However, there is little evidence-based literature available to guide hospitals on the optimal use of medical volunteers and hesitancy on the part of hospitals to use them.
Methods: A full-scale exercise was designed in which the Emergency Medicine residents were divided into teams to complete one of five challenges: victim decontamination, victim registration, setting up a point of dispensing (POD) site, managing infection control, and setting up emergency tents. The MRC volunteers participated in POD set up, served as part of the suit support team for victim decontamination, and played the role of "victim evaluator" during a suspected Avian flu outbreak. The MRC provided feedback on their experience and evaluators provided feedback on the performance of the MRC using evaluation tools.
Results: A majority (90%) of MRC volunteers reported that they worked well the residents and hospital staff, felt the exercise was useful, and were assigned clearly defined roles. However, only 67% reported that their qualifications were assessed prior to role assignment. Only 45% of the MRC volunteers felt that the exercise was well organized. All of the evaluators of the MRC would recommend their participation in future disaster drills.
Conclusion: Through a full-scale exercise, our institution was able to identify roles the MRC can fill in a hospital's disaster response. Additionally, our study created a novel use for MRC volunteers in a hospital-based disaster drill as "victim evaluators."

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ID 204: Reperfusion Treatment Delays Amongst Patients with Painless ST-Segment Elevation Myocardial Infarction

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6. Cardiology, National Heart Centre (Singapore/Singapore)

Study/Objective: We aimed to characterize STEMI patients presenting to Emergency Departments (ED) in Singapore without complaints of any pain.
Background: Early reperfusion therapy in the treatment of patients experiencing ST-segment elevation myocardial infarction (STEMI) can improve outcomes. Silent myocardial infarction is associated with poor prognosis but little is known about the effect on treatment delays.
Methods: Retrospective data was requested from the Singapore Myocardial Infarction Registry (SMIR), a national level registry in Singapore. Painless STEMI (physician-diagnosed) was defined as the absence of pain (chest, back, shoulder, jaw, and epigastric pain) during ED presentation. Multivariate analysis was used to examine independent factors associated with D2B > 60 min. Primary outcome was door-to-balloon (D2B) time. Secondary outcomes include 30-day mortality and other adverse events.

Results: From January 2010 to December 2012, the SMIR collected 6412 STEMI cases. 1745 patients were excluded due to: inpatient STEMI, inter-hospital transfers, or occurrence of cardiac arrests. 10.9% of STEMI patients presented without any pain; they presented with breathlessness (56.6%), diaphoresis (19.8%), and syncope (6.7%). These patients were older (median age = 75 vs. 58 years old), more likely to be females (39.9% vs. 16.1%), Chinese (74.9% vs. 62.7%), obese (median BMI = 24.5 vs. 22.1), and with history of hypertension (71.1% vs. 54.6%), diabetes mellitus (48.6% vs. 37%), and acute myocardial infarction (20% vs. 12.3%). They have longer median D2B times (80.5 vs 63 minutes, $p < 0.01$) and have higher occurrence of 30-day mortality (34% vs. 4.8%). Female gender, past medical history of coronary artery bypass grafting surgery, painless presentation, private transport utilisation, after-office-hours presentation, and killip class 3 and 4 independently predict D2B > 60 min.
Conclusion: A small proportion of STEMI patients present without any pain to the ED. They tend to have higher D2B times and higher risks of mortality. Targeted effort is required to improve diagnostic and treatment efficiency in this group.
Prehosp Disaster Med 2015;30(Suppl. 1):s27–s28
doi:10.1017/S1049023X15000990

ID 205: Intensive Course as a Learning Experience for Disaster Preparedness Education

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Study/Objective: This paper presents the results gathered by feedback survey for intensive course. The main research question is if the intensive learning module with theoretical and field work dimensions is applicable way to study disaster preparedness in the beginning of master's programme.
Background: Diaconia and Arcada Universities of Applied Sciences (Finland) and University of Eastern Africa Baraton started a joint Master's Degree in Global health care in 2014. This programme is suitable for candidates with interest in disaster management. The pilot programme is funded by the Finnish Ministry for Foreign affairs and it emphasis the Finnish development policy. While this programme is basically based on the online-studies, still one intensive learning module was implemented in the beginning of programme. This course was organized in August 2014 in Kenya. It included theoretical learning period and the field work in Kendu Bay area.
Methods: The data was gathered in the end of the course by using the electronic questionnaire. Totally 23 students returned the questionnaire.
Results: According to the respondents this course met very well the overall objective to enhance the disaster preparedness in Kenyan rural communities (Mean 4,22, on the scale 1-5). Students were also satisfied with preparatory course which was obligatory part of their programme prior to the intensive course (Mean 4,04). According to the students the overall implementation of the intensive course met well the Finnish development policies (Mean 3,78). The factors which enhanced learning was the work in teams and with the local community.
Conclusion: As a conclusion it can be said that intensive learning module with the emphasis of the development goals can be seen as suitable method for disaster management studies. Students should have enough time to prepare themselves for field work in foreign country. The work in the multicultural teams can be both an asset and barrier for good learning experience.
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ID 207: Innovation in Graduate Education for Health in Complex Humanitarian Emergencies

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Study/Objective: Our objective is to show what the Center for Humanitarian Emergencies (CHE) at Emory University has done to train people through innovative educational programs, with the goal of positively impacting the global humanitarian workforce shortage.
Background: Disasters are on the rise with more than twice as many natural disasters occurring from 2000-2009 as there were from 1980-1989. In 2012 alone, 144 million people were affected by disaster or displaced by conflict. This has created an immense need for more trained humanitarian workers to effectively respond to emergencies.
Methods: Our model for educational programming targets learners along an educational continuum ranging from the undergraduate level through to continuing professional education. These programs, based in the Rollins School of Public Health, include a competency-based graduate certificate program in humanitarian emergencies; a fellowship program for mid-career professionals; and funded field practica opportunities.
Results: The competency-based graduate certificate program began with the first cohort of 14 students who received a certificate in 2010. Since then, 61 students have received the certificate with 50 more due for completion in 2014 and 2015 respectively. The fellowship program for mid-career professionals has hosted four fellows from conflict-affected or resource poor countries, who have then gone on to assume leadership positions with humanitarian organizations. From 2009-2013, the field practica program supported 27 students in international summer practicum experiences related to emergency response or preparedness. Students have participated in summer field experiences on every continent but Australia.
Conclusion: The CHE training programs at Emory University have educated learners along a continuum ranging from the graduate level through to continuing professional education. We plan to expand our efforts by evaluating existing programs and documenting the lessons learned to refine our current

programs. We also hope to influence the development of new programs and inform others interested in this area.

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ID 209: Pilot Study on the Use of Alcohol Among Patients Presenting with Injuries at the KATH ED

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Study/Objective: To determine the prevalence of blood alcohol concentrations among patients presenting with injuries at the KATH ED
Background: Alcohol is consumed by a large proportion of adults. Globally, alcohol causes 1.8 million deaths annually. 40% of these deaths are due to injuries. In middle and low income countries, alcohol consumption is increasing and injury rates are high. WHO found prevalence of alcohol use among injured patients who present to emergency departments (ED) to be 20.4%. KATH emergency department sees 30,000 patients annually. 40% of these patients are trauma patients. Until this study, there was no collection of alcohol data among injured patients in our ED.
Methods: A cross-sectional study of involving patients presenting with injuries was carried out from 2nd January to 2nd June 2014. Patients more than 18 years with GCS 13 and above were breathalyzed. Description of injuries and mechanism of injuries were abstracted from medical records. Analysis was done using STATA 11.0
Results: 105 patients were breathalyzed out of a total of 2000 patients who presented with injuries in KATH during the study. Mean age of patients was 34 years. Prevalence of detectable blood alcohol concentration was 28.6%. Of those with detectable BAC, 53% were above legal limits of 0.08%. Pedestrian knock-down and motor vehicle crash victims were mostly exposed to alcohol. Patients mainly had limb, pelvic and facial injuries. Of those with detectable BAC, 93% were admitted for care in the ED.
Conclusion: Injury occurrence may be related to alcohol exposure. Further study is required to establish types of alcohol and reason for alcohol use by patients.

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ID 211: Findings From the Ise of Mobile Phone Text Messaging to Improve Patient Flow at KATH ED: A Low Resource Setting

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Study/Objective: To investigate how the use of mobile phone text messaging could improve patient flow in KATH ED.
Background: Overcrowding in the ED is a recognized cause of poor patient outcomes. The transfer of admitted emergency patients from the ED to the wards is an answer to overcrowding in the ED and can be supported in a positive way by reliable hospital bed occupancy data. Bed state reports from the admitting wards have been prepared once daily and form the basis for transferring emergency admissions to a ward in KATH. In our low resource setting where mobile telephone penetrance is higher than 80%, this technology has the potential to improve bed management and impact positively on overcrowding.
Methods: A non-randomised interventional study set to run for 12 months starting from October 2013. Dedicated mobile phones were given to charge nurses in the surgical and medical admitting wards in KATH. Nurses were trained to send bed occupancy data via mobile text messages to bed managers in the ED every 2 hours. These coded messages are interpreted and entered into a Microsoft Access database. This served as basic information for transfering patients to admitting wards. Analysis of weekly bed flow and patient transfers was done using Microsoft Excel.
Results: We found opportunities for admitting patients to the wards from the ED between 10am to 2pm and from 4pm to 7pm; a phenomenon the traditional once-daily bed states could not show. A month into implementation we demonstrated an increase (13%) in patient transfers to admitting beds from the ED with use of mobile phone text messaging.
Conclusion: It may be early to conclude that mobile phone text messaging could improve patient flow but evidence of hourly dynamics in bed occupancy in the admitting wards has been successfully proven.

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ID 216: Disaster Preparedness is Not a Game: An Interactive Game Workshop, Provides a Toolbox for Disaster Management

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2. Emergency Department, Maayne Hyeshua (Bnei Brak/Israel)

Study/Objective: The Disaster Game Workshop is a unique tool that promotes personal development of management and life skills in an interactive manner, while laughing, playing and returning to childhood.
Background: Professional teams provided disaster care should be Skilled, Trained Experienced and Ready (STER). Disaster management requires not only qualified staff with high level of clinical performances, but also it does require managerial capabilities and knowledge which are not apply automatically
Methods: Professional teams provided disaster care should be Skilled, Trained Experienced and Ready (STER). Disaster

management requires not only qualified staff with high level of clinical performances, but also it does require managerial capabilities and knowledge which are not apply automatically

Results: Games motivate a vast spectrum of behaviors otherwise gained over a long period of time and emerge indicative of leadership, communication or personal responsibility.

Conclusion: Games as microcosm of life motivate a vast spectrum of behaviors that indicative of leadership, communication and personal responsibility. The experience of "just a game" is breaking barriers and developed "out of the box" creative thinking that is important to managers.

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ID 219: Repeated Chest Compression Training Determining the Effectiveness of Cardiopulmonary Resuscitation

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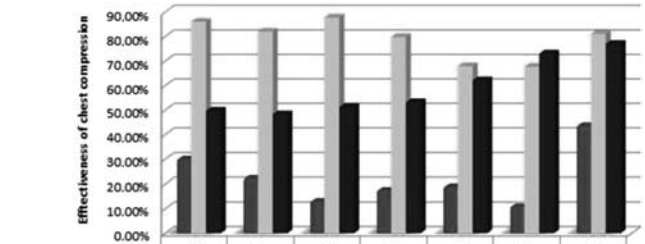
Study/Objective: The quality of chest compression performed by Emergency Medicine first year's students at the beginning of BLS course, at the end of the course and during the final exam was analized.

Background: Performing of high quality chest compression is the basic condition, which allows the support of coronary and cerebral perfusion at patient with sudden cardiac arrest.

Methods: 69 students divided into 8 training groups took part in the research. Each group, at the different times, did 3-weeks-long course lasting 30 hours. The final exam was organised at the same time for all students, when all groups completed their courses. The research was carried out on the BLS training manikin, which was equipped with electronic performance monitoring and evaluation module. The effectiveness of chest compression considering regularity of compression and decompression, the frequency of compression and position of hands on chest.

Results: The percentage of properly performed chest compression amounted for all students averagely 21,7% at the course beginning day and 79,6% after 3 weeks, at the day of the end of course. The most frequent errors made at the beginning of the course were too shallow compression or incorrect hands on chest position, 57,4% and 24% accordingly. At the last day of the course, the percentage of earlier mentioned errors, decreased significantly and amounted 9% and 5% accordingly. Students, which took their final exam at the time not longer than 22 weeks after the course completion, achieved high chest compression effectiveness comparable to the one observed during the course credit. On the contrary, students, which brake between course credit and the final exam amounted 26 weeks and more, achieved fundamentally worse results during the exam.

Conclusion: The high quality chest compression during the cardiopulmonary resuscitation are determined by constant training in this area, done at least every 4 months.



	38 weeks	34 weeks	29 weeks	26 weeks	22 weeks	16 weeks	10 weeks
The beginning of course	30.25%	22,45%	13.25%	17,72%	19,19%	11,13%	43,92%
The end of course	86%	82%	87,68%	79,73%	67,81%	67,59%	81%
Exam	49,69%	48,26%	51,25%	53,16%	62,14%	73%	77%

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ID 220: Les Répercussions en France de la Catastrophe Nucléaire de Fukushima

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Study/Objective: La catastrophe de Fukushima Daiishi survenue le 11 mars 2011 après le séisme et le tsunami au Japon a été une crise mondiale, l'objet est de présenter les répercussions en France.

Background: Les répercussions ont été fortes nécessitant de répondre: - aux inquiétudes de la population, - à la pression médiatique - à la nécessité de prendre des mesures de précaution à la fois pour la population française et les expatriés français au Japon - assurer l'accueil des Français qui en revenaient. - gérer la communication gouvernementale

Methods: La méthode a consisté à créer une coordination interministérielle avec l'association de référents scientifiques et d'opérateurs privés du nucléaire en France comme EDF, AREVA et le CEA.

Results: Cette organisation nouvelle a permise de faire taire les multiples rumeurs qui polluaient les réseaux sociaux avec un souci de transparence et de crédibilité de la parole publique qui avait fait grandement défaut lors de l'accident de Tchernobyl mais surtout une organisation de crise plus intégrée et une nouvelle approche des situations d'incertitude.

Conclusion: Cette crise hors norme associant les effets d'un séisme, d'un tsunami et d'un accident nucléaire a également entraîné un besoin de pilotage nouveau en France aboutissant à une refonte du plan national de réponse à un accident nucléaire ou radiologique majeur en tenant compte des leçons apprises après Fukushima.

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ID 223: Life Recovery After Disaster in Iran: A Grounded Theory

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Study/Objective: We tried to explore the recovery process by conducting a qualitative study in Iran, which has experienced some natural disasters in past decade - 2003 Bam, 2005 Zarand, 2006 Lorestan and most recently 2012 Azerbaijan earthquake.
Background: Since life recovery after disasters is a subjective and multifaceted construct which is influenced by different factors, and survivors" main concerns and experiences are not clear, researchers intended to explore this process.
Methods: This study conducted based on Grounded Theory approach in 2010-2013. Participants were selected by purposeful sampling following by theoretical sampling to achieve conceptual and theoretical saturation. Data were collected through interviews, observation, focus group discussion and documents review. Data were analyzed by Strauss & Corbin (2008) recommended approach.
Results: Transcribed data from twenty six interviews (managers, health care providers and receivers), field notes and other documents were analyzed and 1652 open codes were identified. The codes were categorized using constant comparative analysis to five main categories including reactive exposure, subsiding emotions, need for comprehensive health recovery, improvement of normalization (new normality achievement) and contextual factors. Also the process of life recovery is shown. The most abstract concept emerged in data was "need for comprehensive health recovery" which integrated other categories.
Conclusion: The results clarified deep perception of participants' experiences life recovery after disaster. The trend of life recovery after disasters is participants' striving for comprehensive health recovery improvement which starts with need for comprehensive health recovery as main concern and it is the motivator for main strategy. This strategy is participating. The process is progressive and new normality achievement is final goal with new development and empowerment level, therefore it is recommended to provide an operational plan, which can help survivors recover faster and more effective.

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ID 224: Women After Disaster in Iran: A Qualitative Study

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Study/Objective: To provide new knowledge and promote women's involvement in all phases of the disaster management, we decided to capture the perspectives and experiences of the women themselves; and to explore the conditions affecting Iranian women after recent earthquake disasters.
Background: Men and women are equally affected by disasters, but they experience disaster in different ways. Women's specific needs during a disaster – in particular, in recovering from a disaster – have been less well researched. The paper thus seeks to explore this relatively unstudied area, i.e., the status of Iranian women after disaster.
Methods: The study was designed as a qualitative content analysis. Twenty individuals were selected by purposeful sampling and data collected by in-depth, semi-structured interviews analyzed qualitatively.
Results: Three main themes were evident reflecting women's status after disaster: individual impacts of disaster, women and family, and women in the community. Participants experienced the emotional impact of loss, disorganization of livelihood and challenges due to physical injuries. Women experienced changes in family function due to separation and conflicts which created challenges and needed to be managed after the disaster. Their most urgent request was to be settled in their own permanent home. This motivated the women to help reconstruction efforts.
Conclusion: Clarification of women's need after a disaster can help to mainstream gender-sensitive approaches in planning response and recovery efforts.

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ID 225: Projecting Armed Civil Conflict Along Future Socioeconomic and Climate Change Scenarios

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Study/Objective: First, we develop projections of country-level armed conflict using yearly to decadal time scales. Second, we discuss the use of these projections for planning of emergency relief efforts.
Background: Evaluating the propensity for future armed intrastate conflict can provide critical information for planning emergency relief efforts and preventive actions that may

anticipate humanitarian need. Here, we investigate how future changes in the socioeconomic and climate change conditions will influence the global and country-level patterns of armed conflict.
Methods: We start by developing empirical relationships between socioeconomic and climate change predictors and the propensity for armed intrastate conflict. We then use these empirical relationships to estimate future conflict burdens along a range of plausible scenarios of future development to the end of the century. We generate our projections using a unique simulation approach that allows us to incorporate relationships that are endogenous to conflict as well as address uncertainty in the empirical model.
Results: We find that the highest proportion of conflicts globally occur in scenarios with high population growth and restricted economic growth. Our projections also reveal that across all scenarios, armed intrastate conflict at the end of this century are likely to cluster in central parts of Africa and Asia, hotspots of contemporary civil wars. This suggests the need for continued preparation for emergency relief efforts as well as broader humanitarian relief planning.
Conclusion: Developing estimates of the future burdens of conflict can provide a critical input into humanitarian relief planning. Specifically, identifying the countries and regions that are most likely to observe continued and renewed conflict may inform planning for future relief efforts.

Figure 1a: Conflict burdens under Optimistic Scenario, 2060
Preliminary Results

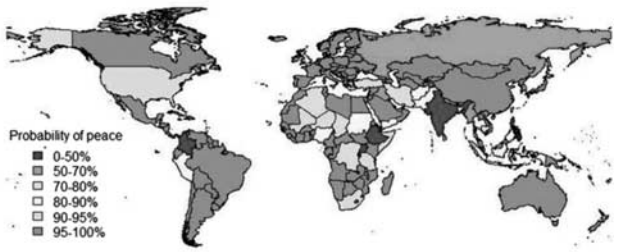
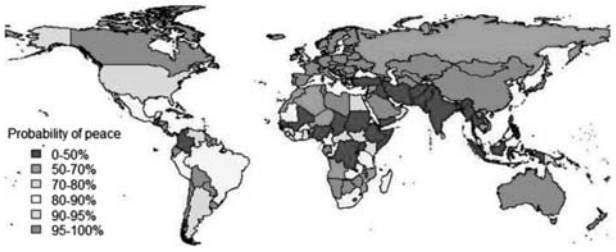


Figure 1b: Conflict burdens under Pessimistic Scenario, 2060
Preliminary Results



Prehosp Disaster Med 2015;30(Suppl. 1):s31–s32
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ID 227: Demands for Community Health Services During Times of Emergency: Myths versus Evidence-based

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Study/Objective: To compare the demands for community health services before, during and following conflicts.
Background: Emergencies including man-made conflicts frequently occur world-wide in the last decade. The population consumes medical services in routine as well as during emergencies. It has been assumed that demands for medical services during conflicts decrease, resulting from fear of individuals to be exposed to the danger of leaving their house.
Methods: The demands for community routine medical services were measured a year prior to and during two conflict periods, one lasting 34 days (2006) and the second lasting 50 days (2014). The data concerning services consumed during 2006 were also compared to the demands a year after the conflict.
Results: Demands for medical services during the 2006 conflict decreased in all professions compared to 2005, but were insignificant ($p > 0.05$) concerning family (18% vs 20%) and pediatric medicine (17% vs 20). Significant ($p < 0.05$) decrease was noted concerning specialist medicine, such as endocrinologists (13% vs 22%) and surgeons (16% vs 22%). Demands for all types of medical services were significantly higher in the same period one year later, 2007 ($p < 0.05$). A similar trend pre and during conflict was identified in 2014, in which an 11% decrease was noted in demands for family medicine and pediatrics versus a 13% decrease in specialist medicine ($p < 0.05$).
Conclusion: Contrary to prevalent assumptions that demands for community medical services during emergencies will decrease drastically in all types of professions, the most common services consumed such as family practitioners and pediatricians did not significantly decrease. Further studies should be conducted to investigate whether there is a correlation between resilience of the population as well as protective measures implemented by the authorities, and population's perceptions of safety that result in continuance of routine levels of demands for medical attention.

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ID 233: Challenges and Lessons Learnt from Conducting National Public Health Emergency and Disaster Management Training Programmes for 10 Years

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Study/Objective: Capacity building challenges and lessons learnt.
Background: When Sri Lanka was struck by the devastating 2004 tsunami, the lack of trained personnel, proper contingency plans, protocols and pro-active machinery to this situations was evident. Therefore, a Health Emergency & Disaster Management Training Centre (HEDMaTC) was established in the Faculty of Medicine, University of Peradeniya, in collaboration with the World Health Organization, to increase

national capacity in Health Emergency and Disaster Management.
Methods: There was no formal comprehensive academic/ training course on health sector disaster management in the country. HEDMaTC adapted, and adopted, the course conducted by the Asian Disaster Preparedness Centre, Thailand, to train senior and middle level health professionals assigned for health disaster management and pre hospital emergency care training was conducted for nurses, ambulance drivers and doctors from the Ministry of Health, in collaboration with the South Australian Paramedics Abroad, Australia
Results: A unique tri-partite collaboration between the WHO, University of Peradeniya and the Ministry of Health (beneficiary and service provider) enabled 271 personnel being trained in Health Emergency and Disaster Management and 1075 in pre- hospital emergency care. The trained personnel were deployed in one of the largest humanitarian catastrophes, where nearly 300,000 internally displaced persons were successfully managed at the end of the 30 year civil war in Sri Lanka. This year the curriculum was evaluated, reviewed, developed and the 2nd generation programmes will be conducted from next year.
Conclusion: HEDMaTC is the first, and only, institution in Sri Lanka accredited by the Ministry of Health to conduct such national trainings. Therefore, many difficulties, from advocacy to implementation, were faced. Despite these difficulties, over the past 10 years, HEDMaTC has achieved the objectives and developed tailor made courses for Sri Lanka, which can be adopted by other countries. Therefore, we would like to share our experiences with the rest of the world.
Prehosp Disaster Med 2015;30(Suppl. 1):s32–s33
doi:10.1017/S1049023X15001119

ID 234: Minimizing Risk at Handovers: Standardize Physicians Handover Tool Strategy at Change of Shift in a Busy Emergency Department

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Objective: To determine whether introduction of a Compulsory Standardize Physician Handover tool in a busy Emergency department improves safety and patient care with improvement in communication and disposition of information.
Background: It is a well established fact now that Patient handovers in an Emergency Department is an important and complex issue with unique challenges and obstacles. Lack of conceptual framework and guidelines leads to break down in communications which is the leading cause for sentinel events.
Methods: A prospective observational study at a large tertiary care hospital in Saudi Arabia comprising of changes in practice after introduction of a comprehensive Emergency Room Physician Hand over Tool. The study also identified different strategies, opportunities and challenges related to handovers in the urgent care / emergency department.
Results: The handovers of 1050 patients were observed during a 200 handover sessions in a 6 weeks period after introduction of a Standardize Physician Handover Tool. The results were compared from previous handovers prior to introduction of handover tool. Improvements were seen in consistency of information transfer for all SBAR contents including Location, Medical Status, 2 Identifying information, Pending Jobs etc ($p = 0.01$).The pre and post implementation physician survey showed improvement in perceptions of ease of use, efficiency, readability and in perceptions of patient safety and quality without causing omission or commission of information.
Discussion: The ABC of Handover provides a standardized framework for shift handover in the Emergency Department. It includes clinical and operational information necessary for efficient management and organization of the next shift. The ABC of Handover promotes better communication and proactive management of issues relating to the shift, allowing the user to anticipate problems and ultimately heighten awareness of potential patient safety issues.
Prehosp Disaster Med 2015;30(Suppl. 1):s33
doi:10.1017/S1049023X15001120

ID 235: Capacity Building in Sri Lanka: Experience Gained After 11 National "Sexual & Reproductive Health in Crises" Training Programmes

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Study/Objective: Sharing of experiences in capacity building
Background: There was no training in Sexual and Reproductive Health (SRH) in Sri Lanka, the repercussions of which were evident during crises. The Millennium Development Goal 5 -"Universal access to reproductive Health"- and the principles of the SPHERE Humanitarian charter and minimum standards in disaster response, is the basis of the SRH in crises training developed by the Health Emergency & Disaster Management Training Centre (HEDMaTC), Faculty of Medicine, University of Peradeniya, Sri Lanka
Methods: A 3-day, residential training programme to increase the national capacity to face SRH challenges in health emergencies and disasters, and thereby, effectively coordinate and deliver RH services, is conducted for the national focal points for SRH. The academic staff in faculties of medicine are also trained in order to integrate SRH into teaching curricula
Results: A unique tri-partite collaboration between HEDMaTC, the UNFPA and the Ministry of Health (beneficiary and service provider) enabled training 255 participants in eleven programmes. The value of these trainings were appreciated, not only by the trained health personnel, but also by nearly 300,000 internally displaced persons, during the largest humanitarian crisis in the Sri Lanka, since they saw, and understood, how the provision of sexual and reproductive health services in humanitarian settings saves lives and protects human rights.
Conclusion: HEDMaTC is the first, and only, institution in Sri Lanka accredited by the Ministry of Health to conduct such national trainings. Therefore, many challenges, from advocacy to implementation, were faced. These challenges, lessons learnt

and recommendations and mechanisms for transferring knowledge and skills, which were shared at the monitoring and evaluation workshop and stakeholders meeting of the SPRINT Project, International Planned Parenthood Federation, South Asia will be discussed. The way forward in research, E learning platforms, intra and inter regional networking and partnerships to ensure sustainability is also addressed.

Prehosp Disaster Med 2015;30(Suppl. 1):s33–s34
doi:10.1017/S1049023X15001132

ID 237: Disaster Victim Identification: Lessons Learned in Sri Lanka and Thailand Following the 2004 Tsunami

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Study/Objective: Way forward from lessons learned in DVI.
Background: The management of the dead is often neglected in disaster management. However, since disasters cause multiple fatalities, the efficient management of the dead, according to cultural and religious beliefs in a dignified manner is of paramount importance.
Methods: The Tsunami was the largest disaster in the recent past, causing approximately 40,000 deaths in Sri Lanka and 5000 deaths in Thailand. In Sri Lanka, 95% were locals, while in Thailand, approximately 80% were foreign nationals from over 30 countries. Even though, in the initial stages, the management of the dead was uncoordinated and haphazard in both countries, the necessity to identify and repatriate the remains of the foreign nationals in Thailand, resulted in a massive Disaster Victim Identification (DVI) operation which was set up with the financial, operational and technical assistance of the international community.
Results: In Sri Lanka, lack of DVI protocol resulted in bodies being disposed without documentation or identification in some areas, whereas in others, proper storage, identification and disposal were done. In contrast, in Thailand, all bodies were transferred to a single location specifically designed for storage, autopsy and special investigations in a temporary facility. Ante mortem data obtained was reconciled with post mortem data using the Interpol protocol electronically, then checked and confirmed manually. This approach resulted in the victims being correctly identified, before release and repatriation to next-of-kin. Contrary to popular belief, DNA analysis was not one of the important methods in identification.
Conclusion: This presentation will discuss challenges faced, lessons learnt and the ideal DVI process, using the Thai operation as a model and will be supplemented by numerous photographs taken during the operation as a member of the DVI team. It is expected that this will create awareness about the international DVI process amongst those involved in disaster management.

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ID 238: Africa's Largest Peace Time Civilian Medevac: The Response to the 2014 Lagos Church Collapse

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Study/Objective: 12 September 2014: In a densely populated informal settlement within Lagos, a guest house belonging to the pastor T B Joshua's Synagogue Church of All Nations collapsed killing 114, including 85 South Africans, and injuring an unknown number more. Estimates put the injured at around 200; the vast majority were treated and discharged on the same day at 5 local hospitals. Information flow was very slow; as details emerged it became clear that there were up to 40 injured South Africans still in hospital. This presentation will describe the author's response to Lagos, the patients assessed, the working conditions and other challenges, and the repatriation effort involving the South African Military Health Services.
Background: As per the objective.
Methods: 26 patients were assessed in 5 Lagos hospitals; the presentation will detail the types of injury, conditions treated, logistic arrangements and the details of the medevac on 21 September.
Results: A C130 transport plane repatriated 25 injured South Africans on 21 September, including 2 critically ill. the medical care was compounded by the underlying health problems which the patients had been seeking faith healing for at the church.
Conclusion: This represented the largest peacetime repatriation of injured civilians in African history. there are important lessons for other such deployments, including the realities of working in low resource sites.

Prehosp Disaster Med 2015;30(Suppl. 1):s34
doi:10.1017/S1049023X15001156

ID 240: The Importance of Moulage, Providing Realism: An Example of A Hospital Disaster Drill.

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2. Turkish Armed Forces Medical Command (Ankara/Turkey)

Study/Objective: Moulage is the art of creating fake wounds for the purpose of emergency and other medical and military training. Moulage may be as complex as using makeup and theatre techniques such as blood, fractures, burn etc. to provide elements of realism to the training simulation. The aim of this study is to create awareness for using moulage at realistic disaster drill.
Background: A disaster drill is an exercise in which people simulate the circumstances of a disaster so that they have an opportunity to practice their responses. Such drills are used to identify weak points in a disaster response plan and if people do not practice their responses, they will usually not be prepared when disaster does happen; while a disaster drill may not anticipate every potential scenario, it gives people an idea of how to behave during a disaster.
Methods: Gulhane Military Medical Academy Hospital Disaster Drill, the volunteers would present an injury card with their assigned medical conditions, and the personnel who had moulage course certificate have would made up. From burns to large contusion and open fractures, nearly 20

different medical conditions moulage were made according to scanario.
Results: The ShakeOut focuses on improving emergency response in three areas: triage, treatment and transportation. The drill has been completed successfully. Emergency response teams have correctly identified the wounded, have given medical attention and transportable patients were taken to hospital on time. All medical staff said that the moulage were fantastic and realistic.
Conclusion: The condition of readiness of all stakeholders are tried to increase with these disaster drills. As the disaster scanerio is real-like, disaster response performance will be so successfull. The morbid makeup ensures that emergency responders have realistic-looking victims for disaster preparation drills.
Prehosp Disaster Med 2015;30(Suppl. 1):s34–s35
doi:10.1017/S1049023X15001168

ID 241: The Impact of Terrorism and Imperfect Mechanism for Disaster Management on Emergency Trauma Care in Northern Nigeria

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Study/Objective: To discuss the challenges in disaster management in developing countries and make recommendations on mechanisms for strengthening disaster care in a resource constraint setting.
Background: Disaster is dramatic, sudden, and unscheduled events that are often accompanied by large losses of human life, suffering and affliction to a society or a significant part of it. This decade has witnessed a steady rise on the activities of terrorists in the West African sub region ranging from targeted bombings to mass firearm executions. The magnitude of this type of manmade disaster is particularly enormous in developing low- and middle-income countries like Nigeria with underdeveloped disaster services and planning leading to disparate unacceptably higher mortality and morbidity. Standard disaster management protocol of prevention, preparedness, emergency response, recovery and rehabilitation should be adequately emphasized and the knowledge made versatile.
Methods: Literature search on the topic, data obtained from National Emergency Management Agency and consistent tracking of chronological events on the activities of terrorist group in the nation's and international news agencies.
Results: In northern Nigeria, between June 2009 to November 2014, there were about 6500 deaths in more than 500 separate attacks, with more than 2000 deaths (>30%) in 2014 alone. Thousands were injured, 1.5 million people were displaced, properties worth millions of dollars destroyed and socioeconomic activities severely disrupted. Depleted or overwhelmed health workers, inadequate facilities for emergency care to cater for mass casualty, poor infrastructure, telecommunication and access to disaster site, poor record keeping and planning are some of the challenges identified.
Conclusion: We recommend establishment of disaster and emergency medicine department in all teaching hospitals, inclusion of disaster management course in universities curriculum, mobilization and training of societies at risk in disaster prevention and basic pre hospital care and strengthening of Health institutions and National Emergency Management Agency with adequate personnel, funds and equipments.
Prehosp Disaster Med 2015;30(Suppl. 1):s35
doi:10.1017/S1049023X1500117X

ID 242: Evaluation of an Online Disaster/Humanitarian Crisis Program

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Study/Objective: 1. To understand factors that associated with better online learning outcome. 2. To discuss lessons learnt for future MOOC development for improving community disaster literacy and resilience.
Background: Resilience is the ability that to anticipate, withstand, respond and recovery from adverse situation. Improved public awareness and knowledge is a preventive measure to reduce adverse health impact of disaster and enhance community resilience. Collaboration Centre of CUHK and Oxford University for Disaster and Humanitarian Response (CCOUC) has been developed and launched an online training program named Public Health Principles in Disaster and Medical Humanitarian Response. Massive Online Open Course (MOOC) is considered a useful tool in modern education. Lack of study has been conducted to evaluate the effect of this remote learning approaches and what predicting factors may affects participants' outcomes, particular when it apples to disaster and humanitarian field.
Methods: Data was obtained from program user registry (Cohort 1, Jul-Dec 2014). Predictor variables including demographics, education and training received, work experience in disaster and humanitarian field. Learning outcome was measured by the score of course final quiz which consist of 30 questions. Descriptive and Logistics regression analysis was preformed to identify to factors linked with better learning outcome.
Results: By end of Cohort 1, 1075 participants has registered the course, of which 152 (14.1%) has completed the final assessment. The social-demographic factors and previous training experience is significantly associated with the learning outcome. More than 80% of participants indicated that the online course has fulfilled their exception. Other results will be presented in the congress.
Conclusion: Online training preprogram is a useful tool to improve knowledge and skills for participants. Further development and research is needed to meet the training needs for certain sub-population group.
Prehosp Disaster Med 2015;30(Suppl. 1):s35
doi:10.1017/S1049023X15001181

ID 244: STREET; Swedish Tool for Risk Estimation at EvenTs - A Collaborative Risk Assessment Tool for High Reliability Organizations

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Study/Objective: The aim of current study is to develop a validated and generalized HRO collaborative tool in order to conduct common assessments and information sharing of potential risks during mass gatherings.
Background: There are an increased number of national and international events in Sweden and worldwide, which has resulted in higher risk for unexpected man-made disturbances for High Reliability Organizations (HROs). As a result, a better cooperation between three main actors i.e. Police and Rescue/fire departments and healthcare and also event organizers is inevitable. Such cooperation may lead to a more accurate risk and vulnerability analysis, saving lives and money.
Methods: The Swedish resource and risk estimation guide was used as foundation for the development of the generalized collaborative tool, by three different expert groups, and then analyzed. Analysis of inter-rater reliability was conducted through simulated cases that showed weighted and unweight k-statistics.
Results: The results revealed a mean of unweight k-value from the three cases of 0.37 and a mean accuracy of 62% of the tool.
Conclusion: The STREET collaboration tool showed acceptable reliability and validity to be used as a foundation for risk assessment by HRO before major events and mass gathering in a simulated environment. However, the result also highlights the challenges of creating measurable values from simulated cases. A study on real events can provide higher reliability but needs, on the other hand, an already developed tool.

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ID 245: STREET - Swedish Tool for Resource Estimation at EvenTs: A Collaborative Resource Assessment Tool for High Reliability Organizations

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Study/Objective: The aim of current study is to develop a validated and generalized collaborative tool to be utilized of HRO in order to conduct common resource assessment before major events and mass gatherings.
Background: With increasing number of national and international events in Sweden and elsewhere, there is a higher risk for unexpected man-made disturbances for High Reliability Organizations (HROs). As a result, cooperation between three main actors i.e. Police and Rescue/fire departments and healthcare, but also event organizers is inevitable. Such cooperation may lead to a more accurate risk and resource assessment, saving lives and money.
Methods: The Swedish resource and risk estimation guide was used as foundation for the development of the generalized collaborative tool, by three different expert groups, and then analyzed. Analysis of inter-rater reliability was conducted through simulated cases that showed weighted and unweight k-statistics.
Results: The results revealed a better collaboration ability and more accurate resource assessment expressed by mean of unweight k-value from the three cases of 0.44 and a mean accuracy of 61% of the tool.
Conclusion: The collaboration tool showed acceptable reliability and validity to be used as a foundation for resource assessment before major events and mass gathering in a simulated environment. It has a potential to be used before different events, however, the result also indicates the challenges of creating measurable values from simulated cases. A study on real events can provide higher reliability but needs, on the other hand, an already developed tool.

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ID 246: Emergency Medical Services in & Around Durgapur, West Bengal, India: Transportation Time & Utilization of Emergency Medical Services

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Study/Objective: We analysed the EMS transport in and around Durgapur with respect to 1) frequency of out of hospital calls & 2)average time duration(s)/call.
Background: EMS transport in India is a largely under studied topic, with minimal data available on the time taken in transportation. The average call response time for a triage 1 patient was 5:19 min, & triage 2-3 patient was 6:47 min, in 2013, in New York. while the response time for whole of USA was 9.4 mins in 2010-11. Also, the average total time for USA was 36.5 mins in 2010-11. The breakdown of patients transported by EMS in 2011 in USA was: Inter Hospital Transfer-8.1%, Field Calls-91.9%. With this background, we decided to conduct our study based on the above mentioned parameters.
Methods: Study design- Retrospective Setting- Dept. of Accident & Emergency Medicine, The Mission Hospital, Durgapur, West Bengal EMS calls enrolled- 500 Duration-01.01.2013-31.03.2014 Eligibility Criteria- All calls within 180 km; All calls attended by ACLS Ambulance.
Results: 47 calls (9.4%) -primary responders, 453 calls (90.6%) –Inter Hospital Transfers. Average speed -33.67 km/hr, while average traffic speed estimated by google maps was 43 km/hr. Average transport time per call -78 mins. Average total time per call -133 mins. Average call response time -56 minutes.
Conclusion: Utilization of EMS is skewed,with greater emphasis on use for inter hospital transfers. Creating Awareness

in public, about EMS as primary responders, & encouraging private EMS systems like 108, as well as increasing the total number of ambulances, & stationing them at strategic locations, are the need of the hour.Our EMS Lags behind in terms of quick transfer of patients. Special congestion free corridors for emergency services can be a solution, as can be the use of technology like GPS, use of multi coloured ambulance lights.

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ID 247: Sensitivity of Kaiser Permanente Hazard Vulnerability Analysis Tool to Prioritize Ebola Outbreak Planning in a Hospital Emergency Management Program in Monrovia, Liberia

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Study/Objective: This case study describes the efficacy of the Kaiser Permanente Hazard Vulnerability Analysis (HVA) tool to prioritize planning for Ebola outbreak planning at the JFK Medical Center in Monrovia, Liberia (JFK).
Background: Liberia is a post-conflict developing nation in West Africa that faces predictable health and social challenges, including an underdeveloped healthcare infrastructure. JFK is the largest and only tertiary-care hospital in Liberia. In 2013, in collaboration with the Indiana University Schools of Medicine and Nursing, JFK began development of a comprehensive emergency management program. In 2014, an epidemic of Ebola Virus Disease (EVD) killed four JFK clinicians and shuttered the hospital for several months.
Methods: In September 2013, the authors conducted an on-site HVA at JFK that included a physical plant inspection and the conduct of a workshop with clinical leaders. We used the Kaiser-Permanente HVA tool commonly used in U.S. hospitals. The tool estimates relative risk of any hazard based on informants' beliefs regarding the likelihood of occurrence, three measures of magnitude (human, property and business impacts) and three measures of mitigation (preparedness, internal response and external response). Results of the HVA can be used to inform emergency management planning priorities.
Results: Highest risk hazards identified from HVA were fires (100%), resource shortages (100%) and civil disturbances (100%). Epidemics were rated as highly likely, and one clinician raised concern about a potential outbreak of VHF. However, epidemic risk was only 89% as the impact on the physical plant was deemed minimal. Sadly the clinician who raised the issue later died from EVD.
Conclusion: We conclude that the Kaiser Permanente tool is not sensitive enough to prioritize planning for Ebola outbreaks in low-resource settings with ongoing hazards such as infrastructure failure. One suggested modification is the reduction in emphasis on property impact, which may have less overall impact in an already degraded infrastructure.

Prehosp Disaster Med 2015;30(Suppl. 1):s37
doi:10.1017/S1049023X15001223

ID 248: Emergency Prehospital Disaster Response Training: What's the State of Play?

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Study/Objective: This study examines the current state of disaster response education for Australian paramedics from a national and international perspective and identifies both potential gaps in content and challenges to the sustainability of knowledge acquired through occasional training.
Background: As demands for domestic and international disaster response increase, experience in the field has begun to challenge traditional assumptions that response to mass casualty events requires little specialist training. The need for a "streamlined process of safe medical team deployment into disaster regions"1 is generally accepted and, in Australia, the emergence national humanitarian aid training has begun to respond to this gap. However, calls for a national framework for disaster health education2 haven't received much traction.
Methods: A critical analysis of the peer reviewed and grey literature on the core components/competencies and training methods required to prepare Australian paramedics to contribute to effective health disaster response has been conducted. Research from the past 10 years has been examined along with federal and state policy with regard to paramedic disaster education.
Results: The literature shows that education and training for disaster response is variable and that an evidence based study specifically designed to outline sets of core competencies for Australian health care professionals has never been undertaken. While such competencies in disaster response have been developed for the American paradigm it is suggested that disaster response within the Australian context is somewhat different to that of the US, and therefore a gap in the current knowledge base exists.
Conclusion: Further research is needed to develop core competencies specific to Australian paramedics in order to standardise teaching in the area of health disaster management. Until this occurs the task of evaluating or creating disaster curricula that adequately prepares and maintains paramedics for an effective all hazards disaster response is seen as largely unattainable.

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ID 250: The Challenges of On-site Coordination of Medical Support in Disaster Settings

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Study/Objective: This report will compare the coordination of the medical teams responding after typhoon Haiyan and the

Great East Japan Earthquake (GEJE), and examined the way of the on-site coordination mechanism.
Background: In the case of Typhoon Haiyan, the FMT coordination has first introduced FMT Classification, Health Cluster/ WHO published, on trial basis in the Philippines 2013. WHO-PHL had announced that hold-off the deployment of new medical team on 15 Nov 2013 (one week passed from on-set). On the other hand, many health needs still existed at rural affected area.
Methods: 1) Collect the data of FMT coordination and management from literature review and key informant interviews. 2) Compare the coordination and management view from organizational structure for health sector response to the disasters.
Results: The six success factors of this coordination system as below. 1) Describe the structural organization. 2) Delegation of Authority to Area Manger. 3) On-Site Coordinator Support System. 4) Office Work Support System for Information management. 5) Coordination MTG with reporting system. 6) Line and Spot system.
Conclusion: The success factors of on-site coordination are 1) establishing the On-Site Coordination Center to manage external medical support teams including information management. 2) Use of Incident Command System would be beneficial for On-Site Coordination. Especially, delegation of authority is key point of the management in disaster settings. 3) The Line and Spot system is enabled bridging of medical services from the external support teams which the span of service varied from a couple of days to weeks.
Prehosp Disaster Med 2015;30(Suppl. 1):s37–s38
doi:10.1017/S1049023X15001247

ID 251: Swedish Teen Intoxication with Alcohol or Drugs: Nine Year Follow up of Hospital Care in Gothenburg

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Study/Objective: Retrospective cohort study.
Background: The network "Karl-Astrid" was created 2000 to improve hospital care and follow up of teen intoxication. The medical and psychiatric emergency department were represented as well as the school ward, social services and the pediatric outpatient unit. We made a retrospective study in the second largest city, the youth hospital receiving all intoxicated patients up to 16 years.
Methods: The patients were identified for the years 1999-2001 and 2005-2007 by attending reason and ICD 10 diagnosis. Deceased patients were identified at follow up 2008 in the Swedish population register.
Results: Intoxications were constant during 1999 (132), 2000 (119), 2001 (142), 2005 (155), 2006 (153) and 2007 (165). Age and sex distribution were also constant with twice as many girls. Alcohol was equally common in boys and girls and more frequent during weekends and Mondays. Drug and mixed intoxications occurred evenly during the week. Girls relapse thrice more often, around 10% in the studied years. Only three patients died during the nine years of follow up. Teen intoxication is by law to be reported to the Social Service. Karl-Astrid increased intoxication reporting from 30% to 100% and the rate of patient consent for informing school nurses to a 1/3 of the admissions.
Conclusion: Teen intoxications, relapses, age and sex distribution were constant in the studied periods with twice as many girls. Alcohol was equally common but girls dominate the tablet intoxication. Hospital admission often signals social risk and it is important to engage school, Social Services and other networks around teens in preventive actions.
Prehosp Disaster Med 2015;30(Suppl. 1):s38
doi:10.1017/S1049023X15001259

ID 254: An Analysis of Patient Arrivals in an Academic Emergency Department in Baltimore, Maryland, USA, During the Heat Wave of July 2012

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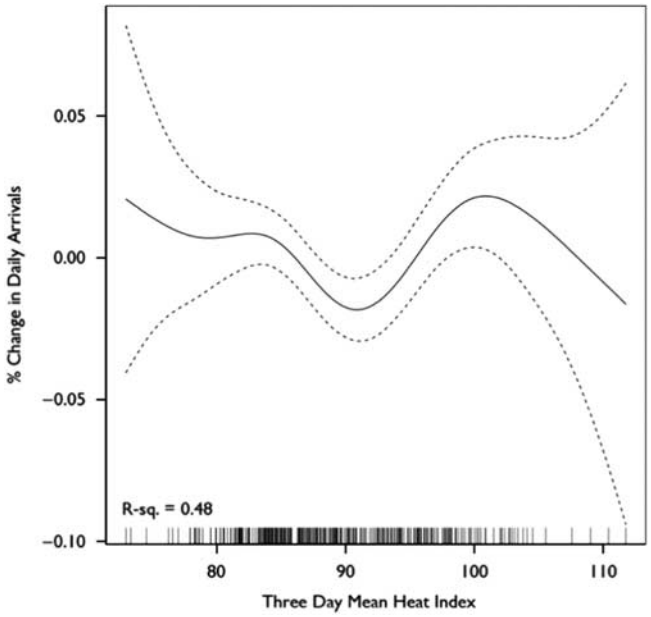
Study/Objective: In July 2012, Baltimore City suffered a 12-day heat emergency, with temperatures ranging from 90°-104°. This analysis describes how Baltimore's July 2012 heat wave impacted an inner-city academic hospital's emergency department (ED).
Background: Heat waves are one of the deadliest weather-related situations, and climate change is expected to increase their incidence and severity. Risk factors for heat-related morbidity and mortality include age, chronic disease, and urban environment. Cities require heat wave action plans individualized to their climates and their given populations, and that address surge capacity of pre-hospital systems and EDs.
Methods: A review of all Johns Hopkins Hospital ED patients between 15 April and 15 August for 2008-2013 was performed. Scatter plots with locally-weighted regression and generalized additive models were used to examine the relationship between the daily/hourly number of ED arrivals and corresponding heat index (HI).
Results: During the study period there were 91,578 total and 246 average daily ED arrivals. Figure 1 summarizes the effect of the mean HI of the current plus two preceding days on the number of arrivals in the ED. There were fewer admissions to the ED on weekends ($p < .001$). The HI ($p < .05$) and time ($p < .001$) were significantly associated with arrivals, and the effect of the HI was non-linear, with an increasing number of arrivals when the mean HI for three days approached 100. Further analysis found that non-acute patients had a similar pattern ($p < .05$) but acute arrivals were not significantly affected.
Conclusion: A statistically significant association between increased ED volume of low-acuity patients and a three-day

period of elevated HI was found. The pattern of arrivals related to changes in HI was nonlinear and appeared to drop off once it was "too hot outside" (>100°). As a busier ED complicates patient flow, opportunities exist to adjust staffing and patient flow planning when anticipating a heat wave.



Prehosp Disaster Med 2015;30(Suppl. 1):s38–s39
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ID 255: Development of Public Health Management Guideline in Case of Volcanic Ash Dispersion

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Study/Objective: The objective of this study is to develop the public health management guideline in case of volcanic ash dispersion, for adequate response of disaster medical system against volcanic eruption in the remote area from volcano.
Background: Volcanoes can pose health hazards between, as well as during, eruptions; the intensity or magnitude of an eruption is only loosely associated with the scale of its health impacts. This paper focuses on the effects and management guideline of volcanic ashes on human health which is differ in distance and time. It was found that indirect and long-term damages are significant in remote areas from the volcanoes, while the direct and physical damages in adjacent areas are observed.
Methods: The public health management guideline for volcanic ash dispersion had been developed based on the literature review, on-the-spot survey of related institution or field study of volcanic region and expert interview. This research had been performed for three years.
Results: By providing a four-step instructions based on the PM10 standards in public health management level in case of the volcanic ash spreading, disease management guideline, hospital preparedness guideline, pharmaceutical preparations guideline, medical equipment preparations guideline and the healthcare system guideline were developed. The core structures of these guidelines are composed of 4 level with each matching color; level 1 (Blue), level 2 (Yellow), level 3 (Orange), and level 4 (Red).
Conclusion: This public health management guideline for volcanic ash dispersion is base on the size of the volcanic ash particle and the four level guideline system was deveolped. It was found to be important to plan ahead and to place operational resources for public health management of response resources.

Level (color)	PM10 (1hour mean)
Level 1 (Blue)	< 50 μg/m3
Level 2 (Yellow)	51-100 μμg/m3
Level 3 (Orange)	101-300 μg/m3
Level 4 (Red)	> 300 μg/m3

Prehosp Disaster Med 2015;30(Suppl. 1):s39
doi:10.1017/S1049023X15001272

ID 260: Disaster Radio: A Tool to Meet Experienced Needs After the Haiyan Typhoon

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Study/Objective: To describe survivors' experiences of the immediate aftermath of a natural disaster and the impact disaster radio made on recovery from the perspectives of the individuals affected.
Background: The Hayian super typhoon which hit the Philippines in November 2013 was one of the worst natural disasters in history. In Tacloban, the capital of Region of Eastern Visayas, the typhoon caused a complete loss of electricity and a severely damaged infrastructure. In the immediate aftermath of the typhoon disaster radio was used to disseminate information and music to the affected population.
Methods: A qualitative design using phenomenological hermeneutical method was used. Twenty eight persons between 19-84 years old were interviewed in four focus group interviews and seven individual interviews, five months after the disaster.
Results: The overall experience from being in the immediate aftermath of the disaster was a change in individuals' sense of coherence. Needs expressed were to make contact with family and relatives, to get general information and practical advice and to find moments of rest and hope again. The participants described the impact of disaster radio as something that enabled them to recover by helping them to retake control of their situation, just for the moment or in a longer perspective.
Conclusion: Disaster Radio seems to be a way to promote individual recovery after a natural disaster. Further studies on the use

and impact of disaster radio in the response phase after disasters are suggested.

Prehosp Disaster Med 2015;30(Suppl. 1):s39–s40
doi:10.1017/S1049023X15001284

ID 261: Can Introduction of a Burns Protocol in Paediatric Emergency Departments Increase Application of Delayed Active First Aid Cooling for Thermal Burns?

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Study/Objective: To assess whether introduction of a flow-chart for delayed cooling in to the burns protocol of a dedicated paediatric emergency department (PED), increases detection of thermal burns which would benefit from delayed tap water cooling and application of this first aid measure in PED.
Background: There is evidence to demonstrate delayed tap water cooling for 20 minutes is effective up to 3hours from a thermal burn, where initial first aid cooling hasn't taken place.
Methods: The case notes of all children who attended the PED with burns over a 3 month period were reviewed, after introduction of the delayed cooling flowchart in to the paediatric burns protocol. This process assessed the usage of protocol, identification of patients who would benefit from delayed cooling (presenting within 3hours since burn) and application of this first aid measure.
Results: 101 case notes were reviewed. In half of the patients with burns, the protocol was used and identified the time since burn in 69% of cases. Out of that 69%, 85% presented within 3hours since burn & were suitable for delayed cooling. 29% of these suitable patients had documented active tap water cooling for 20minutes in PED. Out of the total number of patients, in whom the time since burn was identified, 82% presented within 3hours (49% within the first hour & 33% within 1 to 3 hours) where delayed active cooling would have been useful.
Conclusion: Delayed active cooling with tap water for 20minutes in PED would be useful for a significant number patients presenting to our department with burns. Usage of the protocol with the flowchart increased the identification of suitable patients for this simple first aid measure & application of it. Furthermore, this would give a good first aid learning experience for the parents to take back to the community.

Prehosp Disaster Med 2015;30(Suppl. 1):s40
doi:10.1017/S1049023X15001296

ID 265: Paediatric Trauma: An Experience from a Level One Trauma Center, India

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Study/Objective: At level one trauma ceter where more than 50000 patients are seen annually,we wanted to know the burden of pediatric trauma and the etiology of sustaining these injuries.
Background: Pediatric trauma is a growing menace in the developing countries and the burden is not yet established well.
Methods: Data collected at the time of admission of pediatric patients was analysed retrospectively.300 patients between the age group of 0-18 yrs admitted between jan 2006 to jan 2012 were included in the study. The outcomes assessed were duration of hospital stay, ICU stay and mortality.
Results: Among the 300 patients, total number of injuries was 435. 195 patients had isolated organ sytem injuries (65%) while 105 had injuries involving multiple organ systems (35%). Males were 237 (79%) while 63 patients were females (21%). abdominal injuries were the most common (27.3%) followed by soft tissue injuries (17.01%), chest injuries (15.86%), extremity and bony injuries (14.4%), face and maxillofacial injuries (6.4%), pelvic injuries (5.5%), head injuries (4.36%), vascular and nerve injuries (4.13%), neck injuries (3.21%) and spinal injuries (1.6%). The average hospital stay was 6.7 days and average ICU stay was 3.4 days. Mortality rate was 3.67% (11 patients).
Conclusion: The incidence of paediatric injuries are on the rise with most patients sustaining multiple system injuries. Though the mortality rate is low, establishment of dedicated pediatric trauma centres may further help in reducing the hospital stay and mortality among the pediatric population.

Prehosp Disaster Med 2015;30(Suppl. 1):s40
doi:10.1017/S1049023X15001302

ID 267: Management of a Severe Haemophilia: A Child with Foreign Body Nose Removal in Emergency

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Study/Objective: All the patients with haemophilia, regardless of the severity of the disease, are at risk of excessive bleeding during surgery. The complicating factor in management of haemophilia A is development of antibodies to factor VIII (inhibitor) after multiple exposures to factor VIII.what are the recent conses in emergency management of hemophilia patient.
Background: Haemophilia is a bleeding disorder characterized by prolonged blood clotting time. Individuals with haemophilia have deficient or defective coagulation (or clotting) proteins in their bloodstream, which causes the body to bleed uncontrollably from even minor injuries. The two most common forms of haemophilia are: Haemophilia A - characterized by deficient or defective clotting factor VIII. Haemophilia B - caused by deficient or defective clotting factor IX. Surgery was impossible, as even dental extractions were life-threatening events. The development of recombinant factor VIII concentrates has greatly revolutionized the management of haemophiliac patients.
Methods: We are presenting case of 4 yrs male child who was a diagnosed case of severe haemophilia –A (factor VIII 0%) was

taking regular treatment in haematology department of our institute. Presented with foul smelling discharge for two month with recent episodes of upper respiratory tract infection and sneezing in ENT outdoor suspected as foreign body (FB). For confirmation X-ray nasal sinus, CT scan sinuses (irregular soft tissue density in nasal cavity? FB maxillary sinus left) done that confirm diagnosis of foreign body. He was on regular follow up and getting iron preparation orally. History of getting i.v recombinant factor VIII once in past.
Results: Factor VIII dose as planned, two vials of (30 U/kg) factor human recombinant VIII (Hemofil –M, Baxter) given one hour before shifting in OR than under GA endoscopically removal was done.
Conclusion: The complicating factor in management of haemophilia A is antibodies to factor VIII (inhibitor). Give recomb VIII and FFP, use multidisciplinary team.
Prehosp Disaster Med 2015;30(Suppl. 1):s40–s41
doi:10.1017/S1049023X15001314

ID 273: The Impact of Public Health Emergency & Disaster Management Training Programmes on Sri Lankan Disaster Managers

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Study/Objective: Assess graduates of 5 out of 7 National Public Health Emergency and Disaster Management programmes on the impact the training has had at personal and institutional level preparedness and response.
Background: Sri Lanka has been susceptible to natural disasters for millennia but an increasing tendency of occurrence, leaving behind greater destruction has been observed in the recent past highlighting the need for preparedness at all levels. The Health Emergency and Disaster Management Training Centre (HEDMaTC), Faculty of Medicine, University of Peradeniya, Sri Lanka, was established in 2005 to train health and other professionals in management of public health emergencies. HEDMaTC has conducted seven 6-day national training courses in public health emergency management, eleven 3-day national training courses in sexual and reproductive health in crises and six 7-day national pre hospital and emergency care training courses.
Methods: 74 (57%) out of a total of 128 trainees completed a self administered questionnaire consisting of a 14 point checklist and some open ended questions.
Results: 68% had prepared disaster management plans for their institutions. 47% had faced crises. 36% had initiated trials or drills and 34% had used emergency preparedness plans when handling emergencies. The 47% who faced emergencies agreed that the knowledge gained from the training helped them face the emergency confidently. All respondents said they would recommend the training for their colleagues and 93% requested refresher courses.
Conclusion: HEDMaTC has been in the forefront of conducting health emergency and disaster management and sexual and reproductive health trainings in Sri Lanka. These trainings have had a positive impact on disaster preparedness in the country by better preparing medical responders to face emergency situations.
Prehosp Disaster Med 2015;30(Suppl. 1):s41
doi:10.1017/S1049023X15001338

ID 274: The Disaster Preparedness Program (DPP): A New Model for Sustainable Capacity-Building in Disaster Risk Management

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Study/Objective: To demonstrate an effective approach used by the United States Africa Command (USAFRICOM) for sustainable capacity building in disaster risk management through a long-term program focused on whole-of-society planning at the country, regional and international level.
Background: Since 2009, the Center for Disaster and Humanitarian Assistance Medicine (CDHAM) has implemented DPP on behalf of USAFRICOM and assisted twelve African nations in developing a whole-of-society approach to disaster preparedness and response.
Methods: DPP works to identify key government ministries and agencies involved in all aspects of disaster preparedness and response (not limited to health), and assists them in conducting a comprehensive evaluation of their existing disaster management capabilities. The country then designs a disaster management strategic work plan that details specific gaps they want to address over the next several years. A disaster exercise is utilized to validate this strategic work plan and identify any additional shortfalls. The finalized work plan is then used by the government to prioritize and fulfil immediate needs either internally or through coordinated donor support.
Results: Over the past five years, ten countries have developed national pandemic influenza preparedness and response plans, eight African militaries have drafted "military support to civil authorities" disaster contingency plans, and ten countries have developed disaster management strategic work plans to build specific capabilities. To date, one country has used the influenza plan to effectively prevent the spread of Ebola, and three others have adapted the plans to meet the immediate threat of this disease.
Conclusion: DPP has successfully demonstrated a new model for successful long-term programming focused on a whole-of-society approach to capacity building in disaster risk management. Although outcomes from this type of engagement may take years to observe, Ebola has highlighted many of the benefits that arise from such an approach.
Prehosp Disaster Med 2015;30(Suppl. 1):s41
doi:10.1017/S1049023X1500134X

ID 275: First Aid Response Course in Mbarara, Uganda

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Study/Objective: Engage the community and key stakeholders in pre-hospital care as a gateway to improve disaster preparedness in low resource settings.
Background: A key factor in making road traffic accidents the 9th leading cause of death worldwide is minimally existent pre-hospital care. Studies show the viability of pre-hospital care programs for community first responders in low resource settings. A pilot first aid response course was introduced in Mbarara, Uganda at the 2nd largest referral hospital in the country.
Methods: In collaboration with Mbarara University of Science and Technology (MUST) and Mbarara Regional Referral Hospital (MRRH), known as the Global Health Collaborative, forty Ugandan participants were trained using locally sourced materials in first aid kits, which were given as a resource at the completion of the course. Curriculum focused on scene safety, universal precautions, airway, recovery position, wound dressing, tourniquets, splints, and cervical spine precautions. Ugandan physicians were trained in a train the trainer model. Each kit included a first aid response card illustrating each skill and a list of locations, with negotiated prices, where supplies were obtained. A six-question survey was completed at the end of the course. Stakeholder meetings were held with the Vice-Chancellor of MUST, Dean of the MUST Medical School, Chief of Police, Chief of Fire, Nursing leadership, and Department Chiefs of MRRH to address the implementation of a disaster preparedness plan.
Results: Ninety-six percent of participants reported they would take the course again and would inform their colleagues about the course. All key stakeholders agreed that this model was useful and should be incorporated in future curriculum and collaborations.
Conclusion: A key initial step in building a robust disaster preparedness system in low resource settings includes a train the trainers model through a first aid responder course that includes locally resourced first aid kits and key stakeholder involvement.
Prehosp Disaster Med 2015;30(Suppl. 1):s41–s42
doi:10.1017/S1049023X15001351

ID 276: The Development of Role Descriptions of Triage Nurse in Emergency Departments: A Delphi Study

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2. Mashhad University of Medical Sciences (Mashhad/Iran)
3. Kerman University of Medical Sciences (Kerman/Iran)
4. Bam University of Medical Sciences (Bam/Iran)

Study/Objective: The aim was to develop a role description of triage nurse relying on the experts.
Background: Triage nurse plays a pivotal role in the emergency department. However some researchers tried to expand role of triage nurse, remarkable discrepancies exist among scholar communities.
Methods: A modified Delphi study consists of 3 rounds was performed from March 2014 to October 2014. In the first round, an extensive review of the literature was conducted. Expert selection was conducted through a purposeful sample of 38 ED experts.
Results: Response rate for the second and third rounds were 37%, 58%. Average age of panelists was (38.42 ± 5.94). 39 from 54 items were reached to the final round. Prioritizing had the higher agreement and least agreement on triage related interventions.
Conclusion: Triage nursing as a relatively new role for nurses is a challenging role in a dynamic environment which needs significant development to be practiced. Comprehensive educational programs and developmental research are required to support diagnostic and therapeutic interventions in triage practice by nurses.
Prehosp Disaster Med 2015;30(Suppl. 1):s42
doi:10.1017/S1049023X15001363

ID 277: How Does Emergency Severity Index Work in the Emergency Department?

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Study/Objective: This study aimed to determine the impact of the emergency severity index (ESI) triage scale in the emergency department.
Background: Hospital triage scale in emergency departments needs to be valid and reliable. Lack of sufficient data exists on triage scale rigor in emergency departments of Iran.
Methods: A single-center study was conducted. Proportion of triage categories allocated to high-risk patients admitted to high-acuity departments was examined in observational period in June 2012 and May 2013. True triage score was reported based on patients` paper- based scenario questionnaire. Interrater reliability was assessed using unweighted kappa. Concordance among experts, nurses and physicians was examined. The Chi-square test and Kappa statistics was used for statistical analysis.
Results: Triage decisions regarding high-risk patients before and after implementation period are independent from each other ($\chi^2 = 22.254$; df = 1; $p < 0.00$) and more high-risk patients were recognized after implementation of the ESI. Overall agreement and concordance were (79%) and ($\kappa = 0.54$) among nurses; (71%) and ($\kappa = 0.45$) among physicians, (85%) and ($\kappa = 0.81$) among experts, respectively. Correct triage decisions among clinicians were increased after implementation of the ESI.
Conclusion: The ESI as valid and reliable tool improving desirable outcomes` in the emergency department has been recommended but it may not reveal optimal outcomes in developing countries comparing to what have been achieved in the developed countries. In addition, patient influx in ESI level II could create considerable controversy with clinicians.
Prehosp Disaster Med 2015;30(Suppl. 1):s45
doi:10.1017/S1049023X15001375

ID 278: Reducing the Impact of Mass Gatherings on Local Emergency Department Services: A Case Study from the United Kingdom

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Study/Objective: What is the role of a robust risk assessment in identifying on-site medical service requirements at a Mass Gathering?
Background: In the UK the onus is placed on event organisers to use a risk assessment approach to determining the necessary medical cover required at Mass Gatherings. This paper reviews the risk assessment applied for an event in the South of England and analyses whether the risk assessment led to a provision of care that minimised the impact on the local National Health Services.
Methods: The event risk assessment was evaluated by reviewing the number and types of presentation to the on-site medical service and the number of those successfully treated on-site. Analysing the Accident and Emergency department caseload in the weekends prior to and after the event, and comparing it to the weekend of the event, was also used to evaluate the success of the medical service.
Results: A broad case mix was seen by the on-site medical service, as might be expected through the local emergency medical services. The majority of these cases were treated on site. This suggests the services that were provided as a result of the risk assessment were suitable for the event. A drop in attendances to the local Accident and Emergency department was seen on the weekend of the event compared to the weekends around it. A discussion is presented around the potential reasons for this.
Conclusion: Responsible event organisers will ensure their event is delivered with minimal impact on the services of the local community. The risk assessment performed by event organisers when planning medical care should consider the impact on the community in additional to meeting the immediate urgent needs of those attending the event. Providing sophisticated on-site medical services that go above first aid provision can be demonstrated to meet this requirement.
Prehosp Disaster Med 2015;30(Suppl. 1):s42–s43
doi:10.1017/S1049023X15001387

ID 279: Italian Civil Protection-ARES Advanced Medical Post Mobilization Strategies for Hayan Typhoon: Have the Materials Been Properly Selected?

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Study/Objective: To assess the effectiveness of the current mobilization strategy adopted by ARES Marche, Italian Civil Protection, to predict the number of resources needed for the first week of medical response after a typhoon.
Background: Rapid deployment of adequately equipped medical teams to assist disaster victims requires good intentions, but also appropriate preparation. Currently there is a Foreign Medical Teams (FMTs) international classification according to level of care, size, capacity and capabilities to deliver predefined services[i]. However, medical supplies and equipment in terms of quantities still remain a grey zone. [i] Classification and minimum standards for FMT in sudden onset disasters-WHO 2013.
Methods: A descriptive study comparing the number of resources allocated (drugs, equipment and devices) before the deployment and the actual resources used during the first week of medical response in Philippines' Hayan Typhoon by ARES Marche Advanced Medical Post (AMP) was performed.
Results: The Italian AMP activity started 15 days after the disaster and was located at Burauen, Leyte. The storage was adapted to the local requests for a 7-day self-sufficiency and the treatment of 150 patients/day (50 severe patients and 100 stable patients) according to the FMTs classification. At the departure, considering materials mainly used to respond to a typhoon, the mobilization strategy estimated: analgesics: 4370 pieces (pills/vials); antibiotics 17477: pieces (pills/vials); gauzes: 6456 pieces; gloves: 5020 pieces; ECG system: 1; ultrasound maker: 1 During the first week, 877 patients were treated using: analgesics: 159 pieces; antibiotics: 169 pieces; gauzes: 2000 pieces; gloves: 1809 pieces; ECG machine was used 28 times; ultrasound 47 times.
Conclusion: The study demonstrated that the current mobilization strategy adopted by ARES Marche overestimated the number of resources needed for the first week of medical response after a typhoon. This result confirms the necessity to create a mathematical model to predict the storage required before the deployment.
Prehosp Disaster Med 2015;30(Suppl. 1):s44
doi:10.1017/S1049023X15001399

ID 282: KAT-TAG (Korean Acute Triage-TAG): Proposal for a Re-triageable, Visibility Enhanced Triage Tag

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Study/Objective: The goal of this manuscript is to propose a triage tag system, KAT-TAG (Korean Acute Triage-TAG).
Background: Triage tags play critical roles during initial stage of disaster by categorization, documentation, and communication of patient conditions. Although numerous types of tags were introduced to markets, many of the triage tags still present short-comings and inefficiency.
Methods: Extensive review on literature and products were performed. The commonly used triage tags were chosen for analysis. A project group of disaster experts and industrial designers listed common problems of previous triage tags. Then, the same group suggested designs to satisfy suggested requirements.
Results: The most commonly used triage tags were MET-TAG (Medical Emergency Triage tag) or SMART tag, designated as official triage tags across the US and Europe. The MET-TAG is very simple and based on a 'tear off' mechanism, which makes it difficult to re-triage. Although the SMART tag has good

visibility and re-triage capability, its sleeve makes it difficult to read or write clinical information. To overcome these problems with prior tags, a new design was proposed. Essential features include: enhanced and identical visibility from both side, capability to triage and re-triage easily and capability to read and write clinical information easily. In addition to essential features, minor features such as material requirements were also suggested. These include durability, and water resistance without the need of an accessory component. From analysis of current products and necessary features, we were able to develop a new concept triage tag that fit to needs of disaster.

Conclusion: We would like to suggest KAT-TAG as a new type of triage tag system that is re-triageable with enhanced visibility.

Prehosp Disaster Med 2015;30(Suppl. 1):s43–s44
doi:10.1017/S1049023X15001405

ID 283: Management of EMS in Georgia, Our Experience

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Study/Objective: Georgia is a country in the Caucasus region. Located at the crossroads of Asia and Europe. Population of Georgia is approximately 4 million. In 2011 innovative reforms were implemented in health care system. Various services, that once were under administration of Georgian government, were given to private sector and insurance companies with some obligations. Providing of emergency medical assistance in 8 regions was given up to LLC "Emergency medical service".

Background: Functioning of service during that time was full of errors: The auto park was demolished and equipment was out of date. This service was funded by global budget.

Methods: Our organization started implementing innovative programs, in particular: Operative center staffed with middle educated personal was abolished and Central operative center was formed in Tbilisi. staff members with high medical education were selected and trained according to PHTLS, BLS courses. Income call was represented as electronic message on screen and after that operator reported message to brigade. Operator aimed to obtain some information and double check it, to make sure that incorrect or false call was avoided. Directors of regional branches were responsible for their own branch. Medical assistance services was under control. Medical guidelines and protocol were created for operators and for doctors. Medical personal was trained. for: "Prehospital emergency care", Drivers were trained for "Rescue course". The auto park was renovated "pool" type ambulance vehicles were changed for high performance automobiles. GPS service was added all ambulance. Vehicles were equipped with Cardio monitors, defibrillators, immobilizing splints and products for fixation.

Results: Late arrival after income call was eradicated. Service was functioning properly without any errors.

Conclusion: The introduction of new technologies and retraining of medical stuff, gave rise to the improvement of EMS quality within the same funding conditions.

Prehosp Disaster Med 2015;30(Suppl. 1):s44
doi:10.1017/S1049023X15001417

ID 284: Emergency Preparedness: Familiarity of Emergency Personnel in 4 Hospitals of Northern Region, Malaysia

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Study/Objective: To identify emergency healthcare personnel of four hospitals of northern region on the familiarity towards emergency preparedness and its associated factors.

Background: Emergency preparedness is important, as it will reduce the impact after the disaster. Since Malaysia received less disaster, familiarity had become a gap as unfamiliar with disaster will cause incompetency in management, skills, knowledge and many more.

Methods: A quantitative comparative cross-sectional study design. The data were collected from 192 emergency personnel by using Emergency Preparedness Information Questionnaire (EPIQ) based on inclusion and exclusion criteria.

Results: The mean of familiarity of emergency personnel by hospitals are HTF = 2.72, HSB = 2.72, HPP = 2.42 and HRPB = 2.52. There is a significant association between age and familiarity for 3 hospitals as $p < 0.05$ with HSB ($p = 0.005$), HPP ($p = 0.019$) and HRPB ($p = 0.000$). There is also a significant association between working experience and familiarity in HSB ($p = 0.002$), HPP ($p = 0.044$) and HRPB ($p = 0.000$) as $p < 0.05$. Apart from that, there is a significant association between involvement in disaster response with familiarity in HSB ($p = 0.023$), HPP ($p = 0.013$) and HRPB ($p = 0.003$) as $p < 0.05$. Besides, there is a significant association also between attended disaster-related education/training with familiarity in HTF ($p = 0.022$), HSB ($p = 0.000$) and HRPB ($p = 0.000$) as $p < 0.05$. Result revealed there is no significant difference among those 4 hospitals as $p > 0.05$.

Conclusion: Results revealed that age, working experience, involvement in disaster response and involvement in disaster-related education/ training are significantly associated with familiarity. However, there is no significant difference between familiarities of emergency personnel in four hospitals. It was expected that more education and training will be conducted by the department, or even at states level in order to improve familiarity of emergency personnel on emergency preparedness.

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ID 289: Post-Hurricane Sandy Needs Assessment of Chronic Care Facilities in the Rockaway Peninsula

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Study/Objective: We will conduct a post-Sandy needs assessment survey of chronic care facilities in the Rockaway Peninsula to identify their needs during Sandy, assess preparedness, and evaluate the adequacy of prior disaster plans. This will be one of the few studies to examine which specific resources were

needed and describe the efficacy of disaster planning and relief efforts.

Background: Hurricane Sandy was a tropical cyclone that devastated much of New York City in 2012, particularly affecting the Rockaway Peninsula. Despite the difficulties chronic care facilities experienced, there is little published research formally evaluating their specific needs and challenges during Hurricane Sandy.

Methods: A cross-sectional survey two years after Sandy will gather information regarding access to utilities and relief assistance as well as perceptions of preparedness. We identified all chronic care facilities located in the ZIP codes 11691-11694 in the Rockaways [Figure 1]. Facilities were approached with a goal of at least two surveys per facility representing staff members from administrators, caregivers, or facilities personnel. Subjects completed a structured interview-based survey for quantitative analysis which also included a free-response section which was audio recorded for qualitative analysis.

Results: Results will be presented at WCDEM 2015. Quantitative data will be presented as frequencies. Qualitative data will be analyzed for repetitive patterns using tk software/method.

Conclusion: We hope to identify trends in chronic care facilities' experiences during Sandy, highlighting resources of particular need with the aim of developing recommendations for policymakers and disaster planners in similar circumstances. The efficacy of previous plans will also be examined. As little data exists regarding this vulnerable population, this study allows for a better understanding of chronic care facilities' needs in order to develop more informed disaster preparedness plans and facilitate planning to provide the unique resources this vulnerable population needs during disasters.

Prehosp Disaster Med 2015;30(Suppl. 1):s44–s45
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ID 292: Reperfusion Delays Amongst Patients with ST-Segment Elevation Myocardial Infarction with Non-Chest Pain Presentations in Singapore

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Study/Objective: Early reperfusion therapy in the patients experiencing ST-segment elevation myocardial infarction (STEMI) can improve outcomes. Silent myocardial infarction is linked to poor outcomes but little is known about the effect on treatment delays.

Background: We aimed to characterize STEMI patients presenting to Emergency Departments (ED) in Singapore without complaints of chest pain. Primary outcome is door-to-balloon time. Secondary outcomes include 30-day mortality and cardiogenic shock.

Methods: We analyzed STEMI patients enrolled by SMIR from January 2010 to December 2012. We excluded patients who were transferred, occurred while inpatient or suffered cardiac arrest out-of-hospital or in the ED. Multivariate analysis was used to examine independent factors associated with proportion door-to-balloon time more than 60 min.

Results: During the study period, SMIR enrolled 6412 STEMI patients. 4667 patients qualified for analysis, giving an annual community STEMI rate of 27.8/100,000 population. 12.9% presented without chest pain. They presented with breathlessness (53.4%), diaphoresis (24.0%), syncope (6.0%), and electrocardiogram changes (15.3%). These patients were more likely older, female, obese, Chinese, smokers, and have concomitant hypertension, dyslipidemia, diabetes and coronary artery disease. They have longer median door-to-balloon times (78 vs 63 minutes, $p < 0.01$), shorter median symptom-to-door times (102 vs 148 minutes, $p < 0.01$), but no significant difference in symptom to balloon time. After multivariate analysis, they are independently associated with door-to-balloon >60 minutes (OR 5.96, $p < 0.01$). They were less likely to receive primary percutaneous coronary intervention (27% vs 75.6%, $p < 0.01$). They have higher rates of cardiogenic shock (15.1% vs 5.2%, $p < 0.01$), supraventricular arrhythmias (95.6% vs 86.7%, $p < 0.01$), acute renal failure (13.5% vs 3.7%, $p < 0.01$). They have higher 30-day mortality (31.3% vs 4.5%, $p < 0.01$).

Conclusion: STEMI patients commonly present without chest pain. They are independently associated with longer door-to-balloon times and higher mortality. Targeted effort is required to improve diagnostic and treatment efficiency in this group.

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ID 293: Core Competencies of Medical Staff in Respect of CBRN Emergencies: A Training Course

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Study/Objective: The objective of this study is to determine competencies of medical staff for responding to CBRN emergencies, and their educational needs to fulfil these competencies.

Background: Training and education is a key element of health system preparedness for possible disasters and crisis, such as CBRN emergencies. To manage CBRN emergencies need special capabilities of health system responders including hospital staff. Medical staff should have sufficient knowledge and skill to control contamination, toxic and psychological impacts of CBRN events. A competency based training curriculum was developed in this study.
Methods: This study was conducted in 2014, a part of a European Project. Core competencies of medical responders to CBRN emergencies were defined on the basis of review literatures and experts' consensus. The target group was classified in 4 sets, as: pre-hospital responders, medical staff in emergency department, supportive staff in emergency department, managerial staff. Training topics, and relevant duration and method of teaching was defined.
Results: The course consists of different topics, as: threat identification and risk analysis, health effects of CBRN agent, planning and organization of medical chain, hospital incident command system, safety and protective equipment, decontamination, psychological support, communication and information management, ethical consideration, resources and surge capacity. For each of 4 target groups, the educational topics were chosen. As educational method, a blended approach was chosen, consists of 20 h e-learning, 3 h lecture, and 13 h drill and exercise.
Conclusion: Core competencies based training curriculum with a comprehensive and integrated view of whole medical chain in responding to CBRN emergencies will enhance preparedness of medical system in face of disasters. A blended method of education could be the best choice of teaching method that let all medical staff to attend same training programs, despite time and location differences.
Prehosp Disaster Med 2015;30(Suppl. 1):s45–s46
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ID 294: What are the Research Needs for the Field of Disaster Nursing? An International Delphi Study

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Study/Objective: The aim of this research was to determine the international research priorities for disaster nursing.
Background: Internationally there is an increasing amount of peer-reviewed literature pertaining to disaster nursing. The literature includes personal anecdotes, reflections, and accounts of single case studies. Furthermore, issues such as the willingness of nurses to assist in disasters, the role of nurses in disasters, leadership, competencies, and educational preparedness for nurses have been the focus of the literature.
Methods: This research used a three-round Delphi technique. The first round used a face-to-face workshop to generate research statements with nursing members of the World Association for Disaster and Emergency Medicine (WADEM). The second and third rounds included the ranking of statements on a 5-point Likert scale with nursing members of WADEM and the World Society of Disaster Nursing (WSDN). Statements that achieved a mean of four or greater were considered a priority and progressed.
Results: Participants were from multiple countries. Research statements were generated in the areas of: education, training, and curriculum; psychosocial; strategy, relationship, and networking; and clinical practice. Psychosocial aspects of disaster nursing ranked the highest, with five statements appearing in the top ten research areas, followed by statements relating to: education, training, and curriculum; clinical practice; and finally, strategy, relationship, and networking.
Conclusion: Future disaster nursing research should focus on the area of psychosocial aspects of disaster nursing, in particular, both the psychosocial needs of a disaster-affected community and the psychosocial wellbeing of nurses who assist in disaster health activities.
Prehosp Disaster Med 2015;30(Suppl. 1):s46
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ID 297: Advancing Effective Communication of Public Health Guidance to Emergency Department Clinicians in the Setting of Emerging Public Health Incidents

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Study/Objective: To explore current practices, barriers and facilitators for communicating public health (PH) guidance for emerging public health incidents (EPHIs) from the perspectives of emergency department (ED) clinicians and PH physicians in the province of Ontario, Canada.
Background: All-hazards EPHIs such as emerging infectious diseases, outbreaks and extreme weather emergencies pose challenges in disseminating information and guidance from PH organizations to front-line clinicians. The ED represents the front line of the acute care system where clinicians confront numerous issues related to emerging health threats. A knowledge gap exists regarding effective communication of PH guidance (e.g., laboratory testing, clinical management, appropriate infection prevention and control measures) to ED clinicians in the context of EPHIs or other PH emergencies; addressing this gap can promote greater resilience within the health system to emergencies.
Methods: We conducted a qualitative study to investigate the study objective using in-depth, semi-structured interviews. The sample consisted of PH senior decision-makers and ED clinician administrators in Ontario, Canada to examine both perspectives. Interviews explored channels, frequency and content of communications, as well as how specific contexts shape

or frame communication about EPHIs from PH to ED clinicians.

Results: Results will be presented for EPHI communication practices as they relate to specific contexts (e.g., institutional/organizational, systems, interpersonal). Barriers and facilitators to communication will focus on the following themes: coordination and consistency of information; pathways and points of contact through which messages flow; and features of communication particular to EPHIs, such as communicating guidance under conditions of uncertainty or perception of risk.

Conclusion: This study presents findings on barriers and facilitators to effective communication of PH guidance to ED clinicians in Ontario, Canada which will inform research to improve practice and contribute to enhancing resilience within the health system.

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ID 298: Preparing and Deploying a Training Program for Mass Casualty Incident Preparedness for Emergency Medical Providers in Karachi, Pakistan

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Study/Objective: To decrease morbidity and mortality among persons injured in Mass Casualty Incidents (MCI's) in Karachi, Pakistan.

Background: Karachi has a population of over 20 million, is vulnerable to multiple potential natural disasters, and experiences frequent man-made MCI's including bombings and coordinated terrorist attacks.

Methods: An assessment conducted in 2013 identified little MCI response training among emergency medical personnel in Karachi. An MCI response training program, including didactic and simulation components, was designed in collaboration with local stakeholders. One training was designed for hospital personnel and a second training was created for pre-hospital providers. A post-course evaluation form was developed to assess program effectiveness and quality.

Results: Two training sessions were conducted targeting both hospital and pre-hospital personnel. Each training program occurred over two days and the curricula were customized for the Karachi context and the abilities and resources available to the students. The hospital training included 50 physicians from four regional hospitals who were instructed on incident command, triage, medical care, media interface, and security. A separate training program of 55 pre-hospital providers included paramedics, police, navy, and medical students. Course feedback revealed overall satisfaction among participants regarding course content and multiple opportunities for improvement including increasing Urdu-based lecture content. Of the 48 provider who provided feedback, 46 (95.8%) stated they were very likely to recommend the course. Most providers felt that the course provided relevant information, scoring 3.43 on a 4 point scale. Based on this feedback the curricula were modified and translated to Urdu and subsequent training sessions have been conducted by Pakistani partners in Karachi.

Conclusion: An MCI response and preparedness curriculum fills an unmet need and can be effectively implemented with the partnership of local collaborators in middle-income countries such as Pakistan. Further MCI morbidity and mortality data is needed to assess the impact of such programs in Karachi, Pakistan.

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ID 299: Global Health and Nursing: Teaching Disaster Nursing in at Hiroshima Peace Seminars

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Study/Objective: Nursing schools participating in the International Network of Universities program on global citizenship developed a workshop on disaster nursing to develop nurses who are able to:

- Communicate clearly to a group which is culturally and linguistically diverse
- Identify key nursing actions to be taken in a disaster
- Identify resources critical to nursing care in a range of disaster settings
- Describe how nurses fit into broader disaster planning, response and recovery activities.

This presentation will review the structure of the learning experiences and the evaluation material collected.

Background: The International Network of Universities (INU) presents courses with a theme of global citizenship in Hiroshima during the anniversary week of the WWII atomic bombing. Nursing schools from 6 universities developed a workshop with a focus on disaster nursing. While some nurses will be part of disaster teams most will be receiving transported victims & caring for other patients. Most will not be specialists, yet all require basic disaster nursing skills in order to be effective in response.

Methods: The 6 day interactive workshop has 20 students from participating universities, taught in English by faculty from participating schools. Lectures and other activities occur between small group sessions. Scenarios encourage students to think about how they might manage particular health conditions in a community in the event of a disaster.

Results: Evaluation included pre- and post-course assessment of core disaster competencies for health professionals, and

extensive post-course assessment of the learning experience. All responses were in the highly positive direction, though the pre- to post- course change was limited by knowledge prior to the course, possibly due to student attention to pre-course readings.

Conclusion: This approach to building a larger international community of nurses prepared to be a part of disaster response is successful but very intensive. Replication would be difficult without the backup of the entire INU network.

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ID 300: Promote Awareness of the Critical Role of Sustaining Technology and Utilities in Healthcare Institutions Facing Disaster by Exploring the Development and Establishment of an International Center for Information and Training of Health Technology Managers on Disaster Preparedness

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Study/Objective: Promote awareness of critical role of sustaining technology and utilities in healthcare institutions facing disaster by exploring development and establishment of international center for information and training of health technology managers on disaster preparedness and situation-awareness methodologies.

Background: Review of disasters that affected healthcare institutions suggests a need to make technological systems more robust and better trained users about disaster preparedness. The burden is magnified due to ever growing critical dependency on technology, i.e. central oxygen, vacuum, nuclear, radiological equipment, communication systems.

Methods: The need for a training center based on a case study of the impact on several hospitals: a flood from tropical storm affected several hospitals and their technological systems in Houston, Texas, 2001. The problems caused by rising water, the immediate response, the recovery efforts and the financial losses will be analyzed. This will also include the transfer of learned lessons to environment of resource-poor countries.

Results: Water caused shutdown of electrical, air, vacuum systems and submerged areas containing radiological equipment. Patients had to be evacuated, unfortunately four patients died, research animals, and years of investigation data lost. The case shows lack of technology-focused plans for triaging healthcare systems and of training programs. There was lack of understanding of systems (including networks) and devices' vulnerability, especially when multiple systems crushed. The possibility of unique hazards like those from radiation-emitting devices and radioactive materials, other biomedical equipment such as mechanical ventilators were considered last. Prioritization of backup and strengthening resilience of technology prior to disaster and during disaster were a last minute approach. The recovery focused on commissioning technologies critical to life. Had the facility been better prepared, lives and financial losses would have been minimized.

Conclusion: Disaster preparedness plans in healthcare institutions must include knowledge of the vulnerabilities they may face and plans to mitigate risk of operations disruption due to technology and utility issues.

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ID 301: Disaster Management: Legacy in a University Hospital in Brazil

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Study/Objective: To identify the legacy left from the care provided to the victims admitted to the Hospital de Clínicas de Porto Alegre.

Background: Responding to disaster situations challenges hospitals, which have to be prepared to receive new demand, while giving continuous assistance to the existing patients. There is evidence that learning about risk management happens from situations experienced by the health institutions, which legacy consists of improved planning and assistance in a disaster situation. In January 2013, a fire affected a nightclub in the city of Santa Maria, with 142 victims and 160 injured, 18 of them transferred to the University Hospital in Porto Alegre – Hospital de Clínicas de Porto.

Methods: A qualitative retrospective research was developed. The hospital was chosen for both methodological and practical reasons, since this is not the first time it serves as a reference in disaster situations. Data was collected from professionals involved in the management of care for the victims and documents created or modified after the experience. Thematic analisys of data allowed the development of three categories.

Results: Legacy was identified in the qualification of health professionals to the use of new technologies, improved articulation of services and integration of areas. A structured plan for external catastrophes was developed, a commission to develop routines for the hospital was set and a greater awareness of the need to prevent and prepare for disaster in order to minimize the impact for the hospital.

Conclusion: Legacy was identified in the qualification of health professionals to the use of new technologies, improved articulation of services and integration of areas. A structured plan for external catastrophes was developed, a commission to develop routines for the hospital was set and a greater awareness of the need to prevent and prepare for disaster in order to minimize the impact for the hospital.

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ID 302: IFRC Emergency Health Competency Matrix

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Study/Objective: To build a comprehensive competency framework of knowledge, skills and behaviours required of emergency health responders.
Background: A more effective training approach was needed to train potential delegates on public health prevention and promotion principles and more active and responsive community engagement through evidence-based training methods. RCRC teams agreed that all necessary health-team tasks and activities that may be needed to respond to any disaster should be identified and categorized according to specialty and levels of expertise on a competency matrix. These competencies would identify the knowledge, skills and behaviours required in a response by RCRC health delegates and help teams to prioritise tasks and check in with all responding RCRC partners to streamline activities and ensure that all necessary actions are being done.
Methods: In 2013, emergency health representatives from IFRC and eight partner National Societies identified and mapped core and supporting competencies at three tiers of competency into an initial six strands of content, including General; Nutrition; MISP; Diarrheal Diseases; Vector-Borne Diseases; and, Field Epidemiology. The competency matrix continues to be refined during and after each emergency health deployment by contributing and host National Societies.
Results: The system of mapping PHiE competencies effectively quantifies critical content to better prepare training programmes and to evaluate the performance of the trainees in a response. The emergency health competency matrix allows for better identification and classification of what RCRC teams should be doing in those first critical days, weeks and months after a crisis. When there are delays and/or an ineffective response by RCRC-deployed teams, IFRC and NSs can use the matrix to identify gaps in implementation, capacities, and resources.
Conclusion: RCRC's Emergency health competency matrix effectively allows RCRC teams to identify and evaluate critical knowledge, skills and behaviours required in an emergency health response.

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ID 303: INSARAG External Classification Preparedness: Role of USAR Medical Team

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Study/Objective: The International Search and Rescue Advisory Group INSARAG External Classification (IEC) started in 2005. It aims to provide a global level strategic approach to ensure that there are well qualified and professional teams all around the world ready to respond on globally accepted standards.
Background: The IEC evaluate the various components (Management, Logistics, Search, Rescue and Medical) of an INSARAG USAR Team. The medical component is essential for effective IEC preparation.
Methods: USAR Teams are classified according to the IEC Checklist obtainable from the INSARAG Secretariat. The Director of the medical component actively participates on the preparation of the written documents provided in the Portfolio of Evidence.
Results: The IEC process starts the first day with a review of these written documents and a presentation to the IEC Team by the team being classified. The Director of the medical component answers the questions related to the health and medical issues. Documentation includes a record of vaccinations required for international travel, Copies of valid documentation to support right to medical practice, a manifest of Controlled Substances, a medical evacuation and repatriation plan, a personnel training records, and the medical cache maintenance. During the second day of the IEC (observation of a continuous 36 hours field exercise), the role of the medical team is to prepare the equipment and location for the medical screening immediately prior to departure, provide physical and psychological support to the USAR team during transit, reconnaissance and operations in collapsed structures, provide necessary veterinary care to the search dogs, control sanitation and hygiene in the Base of Operation and prepare repatriation and donation of medical equipment.
Conclusion: The medical team plays an important role during IEC preparation. It is one of the components that allow USAR team to successfully complete all criteria required by the INSARAG guidelines.

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ID 309: The Current & the Vision of Disaster Medicine in China

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Study/Objective: China is a vast country with an enormous population. However the country's capacity and resilience to various disasters are still a challenge to the Chinese disaster medical professionals.
Background: China has suffered almost all kinds of disasters. From the SARS epidemic in 2003 to the recent terrorist attack in Kunming and Xinjiang, the whole country's capacity and resilience is far from satisfactory.
Methods: The unified command and management system for disaster medicine have been established in China. Chinese Society of Disaster Medicine is making specific guideline for disaster management according the Chinese reality, spreading the knowledge to the professionals also the public by holding the academic activities, giving advices to the government to improve the capacity and resilience of the community. The disaster medicine education has been developed further. Many universities have established disaster medicine majority. Current medical professionals must undergo training for disaster medicine. The regional and international cooperation have been strengthened. We take active part in the global and regional disaster medicine organizations to bridge the gap.
Results: The prevention and preparedness to minimize the impact of disasters is the key in the disaster management.

Through the work from the Chinese disaster management professionals, more disaster resilient communities will be built.
Conclusion: We will try to explore a China mode on disaster medical management, to achieve the combination of modern concepts and the real situation of China, to create a bigger capacity and build a better resilience to face the challenges.

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ID 311: Impact of Prolonged Warning on Public Fatigue: Knowledge, Attitudes, and Practices of Hong Kong Population Towards Pandemic Preparedness of Human A/H7N9 Influenza Epidemic in China in 2014

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Study/Objective: Knowledge, Attitudes, and Practices of Hong Kong population towards pandemic preparedness of human A/H7N9 influenza epidemic in China in 2014
Background: Hong Kong is an urban Asian community connected to mainland China characterized by a very high population density. Since SARS epidemic in 2003, the city had experiences several major epidemic risks but how general community might react to the repeated infectious diseases health risks are not studied. In 2013, imported human H7N9 influenza infected cases from China have been reported. Our study aims to assess the knowledge, attitude and practice (KAP) concerning A/H7N9 among Hong Kong general population during the second wave of the pandemic preparedness.
Methods: A cross-sectional, population-based telephone survey pilot study was conducted among the non-institutionalized Cantonese-speaking population aged over 15 years in Hong Kong in February 2014. The study survey was composed of 78 KAP questions. Factors associated with individual and household pandemic preparedness were analyzed.
Results: Study sample was 1,020 with response rate of 72.0%. Most respondants believed personal hygiene and avoidance of avian contacts were effective in preventing H7N9 infections. The majority had satisfactory hand hygiene practices and avoided touching avian species but did not employ other preventive measures. Female, elder age, white collar workers, people with chronic diseases and people living in the city center tended to report better hygiene practices. The average State-Trait Anxiety Inventory score was 1.85, similar to that of the period during the first wave and at the start of the second wave of the H7N9 epidemic. Self-reported face masks wearing when having influenza-like illness in general population had dropped from 92.4% during H5N1 period in 2007 to 39.0% in this study.
Conclusion: The Hong Kong general public have low H7N9 risk perception towards this H7N9 outbreak and did not practice seriously for prevention and control. Health education should be targeted.

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ID 312: A Holistic and Systematic Problem Detection Methodology Project: 112 Izmir Turkey Ambulance Service Unit Case

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Study/Objective: This study aims to develop a specific problem identification methodology, which has a holistic and systematic approach, and to test this methodology by applying to Izmir Ambulance Service (IZAS).
Background: The response time, dispatching the correct vehicle, and the team, transporting the patient to the suitable hospital and implementing correct medical intervention are crucial; these decision making process must be sustainable, errorless and organized manner for prehospital emergency medical services. The importance of identifying problem areas which dominate strategic decisions are apparent in this context. It should be noted that the information derived from implementation process should be interpreted through managers' cognitive maps and with a multiple perspective. While cognitive map reveals a manager's individual construction and accumulation of knowledge, the multiple perspectives require participation of all managers. Thus, the strategic decisions made to solve problems will be based on all managers' views.
Methods: The research was conducted at IZAS, which is the third biggest ambulance service in Turkey. This research comprises three phases, that is, *preliminary evaluation*, *prioritization* and *elaboration*. In order to identify problems, the managers from lowest level up to the top were interviewed. Decision Explorer cognitive mapping method was used to identify the problem areas. Then the problem areas were prioritized by applying Analytic Hierarchy Process (AHP) in order to examine them in detail. Beginning from the first, the problem areas were analyzed by Statistical Quality Control methods.
Results: Problem areas according to management levels are as follows; top managers: funding, communication, R&D, human resources, mid-level managers: training, stations' conditions, legislation, vehicle fleet, financial autonomy, lower level managers: coordination failures among staff, training, stations' conditions, vehicle fleet.
Conclusion: Given the managers working in the same institution but performing in different levels and tasks have different viewpoints; the research methodology brings together various viewpoints as regards the problem areas of IZAS.

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ID 315: Addressing the Importance of Animal Preparedness: Lessons Learned from the Great East Japan Earthquakes of 2011

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Study/Objective: To review the extent of harm to companion animals in Fukushima since the earthquakes of 2011, and the impact of the animal rescue operation subsequently undertaken.
Background: Relevance of disaster preparedness in Japan has not always been apparent or considered for animals. The main contribution veterinarians made was their focus on post-disaster sheltering of companion animals. Mass sheltering of dogs and cats occurred at two locations, but problems like the spread of infectious diseases predominantly arose from lack of guidelines for humane management and veterinary care of homeless animals, and disposition of unclaimed animals. Animal control measures were not established in the post-disaster restricted area, which caused enormous animal welfare and public health issues, and reproduction of remaining animals became a growing threat to the regional ecosystem.
Methods: Records of animal victims and rescue operation in the restricted area were retrieved and reviewed. Medical records at the temporary shelters were reviewed, and disease incidence was reported.
Results: An estimated 10,000 dogs and an unknown number of cats originally resided in the prohibited area. Approximately 26% of these pets succumbed in the aftermath of the tsunami. Many died in collapsed houses, 5,000 starved to death, and 2,000 dogs and cats were illegally taken by various animal rescue groups. An official animal rescue operation was performed at two temporary shelters, which housed 1,002 animals. Health problems, such as gastrointestinal symptoms, were observed in approximately 90% of dogs, and feline upper respiratory infections in more than 80% of cats during the first six months of sheltering.
Conclusion: Animals are more than possessions: they are in reality vulnerable dependents of their owners, and influence people's evacuation decisions as well as consequences in the aftermath of post-disaster recovery. Addressing the importance of animal emergency planning is important not only for animal welfare, but also for public health.

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ID 316: The Need and the Enhancement of Cultural Competence in Civil Protection: Results from a German Research Project

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Study/Objective: The research project "Rescue, Aid & Culture" – funded by the German Federal Office of Civil Protection and Disaster Assistance – aimed to assess the requirements for cultural competence in the field of civil protection and to develop an adjusted cultural competence training concept.
Background: As migration increases worldwide, encounters between persons affected by emergencies and emergency service providers are becoming more culturally and linguistically diverse. Although already 20% of Germany's population has a migration history or background, scientifically developed and evaluated concepts to enhance the cultural competence of operational and managerial staff in civil protection were lacking.
Methods: For the assessment of requirements, interviews with field experts (n = 20) and migrants affected by emergencies (n = 43) as well as a quantitative survey among the latter group (n = 230) were conducted. Based on these results and those from a systematic review of literature, training concepts and materials, a cultural competence training concept was designed, piloted (24 pilot trainings with 441 participants in total), and evaluated.
Results: Results from the assessment of requirements and the review indicated the need to consider and address characteristic circumstances in civil protection (e.g. time pressure, life-threatening conditions, and elevated stress levels in all persons affected) in the development of the cultural competence training concept. Feedback from pilot training participants concerning their acceptance was predominantly positive while results for learning effects were mixed. Some evidence was obtained that participation could reduce the stress levels in first responders during intercultural emergency situations.
Conclusion: Cultural competence is increasingly crucial for the resilience of civil protection systems and respective training concepts need to be specific. The developed training concept provided progress concerning that issue. Further research should investigate how socio-cultural differences between persons affected by an emergency and emergency service providers influence their particular stress levels during encounters and the service outcomes.

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ID 317: Factors Associated with Use of Helmets Among Commercial Motorcyclists in a Peri-urban Community in Uganda.

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Study/Objective: To explore factors associated with crash helmets use among commercial motorcyclists. Specifically to assess the level of utilization of helmets, awareness of legislation and the practice of helmet use.
Background: Road traffic crashes impose an enormous public health burden globally. Motorcycle use has increased globally in recent years both for transport and recreation. Motorcycles are a significant cause of RTIs and fatalities, accounting for up to 57% of RTAs in low and middle-income countries. Motorcycle riders have a 34 times risk of death as compared to the drivers of four-wheeled vehicles and 8 times more likely to be injured. Non-helmet use is a leading contributor to head injuries and fatalities from motorcycle crashes.
Methods: A cross-sectional survey was conducted in January 2014 at randomly selected motorcycle stages in Nansana town council, 13.8 kilometers north west of Uganda's capital city,

Kampala. A total of 319 commercial motorcyclists participated in the study. Face-to-face interviewer administered questionnaires were used. Data was also collected from helmet sellers and a traffic officer.
Results: Over 85% had ever used a helmet, 70% reported having had a helmet at the time of the study while only 52.1% were observed wearing helmets. Only 27% knew about any related legislation. Knowledge about importance of helmets ($p = 0.013$) and awareness about the existence of traffic regulations regarding helmet use ($p = 0.032$) were significant predictors of helmet use. Helmet usage was higher in the morning than in the afternoon and 90% of those observed wore actual crash helmets.
Conclusion: Observed helmet wearing is lower than reported and awareness of legislation is still low, possession of a helmet and knowledge about the importance of a helmet were significant factors associated with helmet use. Undertaking a bigger study is recommended for more generalizable results.
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ID 320: Response to a Flood in Porto Alegre, Brazil

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Study/Objective: Case report of flood response its immediate response and an assessment of gaps met and not met.
Background: Floods are common. When caused by expected rainfall, it is possible, to mitigate damage. However, when floods occur due to acute factors, it may create a community disaster.
Methods: Interview with doctors, those affected by the flood and data collection in the media.
Results: In August of 2014 a dam broke, and flooded about 700 homes in Porto Alegre, Brazil. The newly homeless were initially housed in a nearby church however this site accommodated only 200 it is estimated that 2,000 needed shelter. Additional space was found at a school. The recovery of property was dangerous in addition there was reported looting. On day one of the event, health care providers volunteered their services to the government to provide care to people affected by the disaster. Emergency services with basic medications and a nursing technician were available at the school site. Non-ambulatory victims were rescued from their residence. 5 people needed transport to the hospital. Many seeking care complained of headache and dizziness. Some victims were tearful during evaluation. Objective signs of stress were noted in the elevated blood pressures and blood glucose. Most victims evaluated were elderly with chronic diseases, who had lost their medications and prescriptions the response teams were unable to replace exact medications due to lack of availability or victims not able to provide name and dosing information, some could not even give a medical history. A small "pharmacy" for emergent medications was assembled on site.
Conclusion: No deaths were reported in addition, no hypothermia was treated this is believed to be as a result of the mild temperatures. However long term effects to the chronically ill should be assessed over time.
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ID 321: Ebola at a Liberian Hospital: A Case Study and Comparison with U.S. Hospital Systems

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Study/Objective: The objective is to describe a the first case of Ebola and the subsequent response at JFK Medical Center (JFK) in Monrovia, Liberia and to compare factors affecting preparedness and response between JFK and U.S. healthcare systems.
Background: JFK is a tertiary-care teaching hospital. It suffers from infrastructure failures, resource shortages, and lack of personnel. In June, 2014 the first Ebola patient presented at the hospital and went unrecognized for 7 hours. Once he was diagnosed, staff isolated the patient and quickly developed and implemented an Ebola response plan. Subsequently three doctors and one physician assistant contracted Ebola with three deaths. Hospital systems in the U.S. emphasize preparedness, training, and personal protective equipment (PPE) in response to the Ebola threat.
Methods: The authors were present at JFK for the first case presentation and subsequent response. We discuss qualitatively the barriers to adequate preparedness at JFK and compare efforts at U.S. hospital systems in a large American city where we participate in a collaborative Ebola preparedness task force between three major hospital systems.
Results: A number of factors including resource shortages, lack of training, and poor communication led to a lack of preparedness at JFK during the initial stages of the Ebola outbreak with tragic consequences. Immediate response emphasized screening, access control, and infection control training. In comparison, U.S. hospital systems emphasize early training and heavy resource utilization but remain largely untested by the current Ebola epidemic. Similar to JFK U.S. systems struggle with appropriate patient screening, system-wide communication, and coordination between hospitals and public health entities.
Conclusion: While JFK lacks supplies and adequate training, the staff is well-versed in crisis operations and has marked resilience while the opposite is true in U.S. healthcare systems, though both face similar obstacles in preparing for and addressing the Ebola outbreak.
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ID 325: The Prehospital Care and Emergency Medical Services in the Province of Albay, Philippines: A Descriptive Study

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Study/Objective: This study described components of Emergency Medical Services in six government hospitals in Albay province based on the standard 15 elements of EMS Systems.
Background: Emergency care is frequently overlooked in health system discussion and delivery platforms. From 2011 to 2013, the World Risk Index ranked Philippines 3rd most vulnerable to disaster risks and natural hazards. The Bicol Region, where the province of Albay is located, has been known to be one of the disaster prone areas in the country.The province of Albay's vulnerability to typhoons, landslides, floods, storm surge, tsunami, and volcanic eruption and their impact on life, property, livelihood and the environment emanates from the combination of factors and depends among others, on competent Emergency Medical Services delivery.
Methods: A pre-tested questionnaire based on the 15 elements of EMS was administered to the ED Staff of the hospitals for data collection. Key informant interviews and focused group discussions were held using guide questions and a checklist.
Results: The research subjects showed lack of familiarity with the 15 elements of the EMS system. There was no designated official emergency number and there were noted deficiencies in ambulances, emergency equipment and medications, staffing and professional training. Only one hospital has an ICU with the complement of specialists. Lack of active public information and education about pre-hospital care/EMS compromised the hospitals' disaster plan implementation, review and evaluation.
Conclusion: There is a need to introduce the 15 elements of the EMS system to identified stakeholders to achieve stable and effective EMS in the province of Albay. Training opportunities must be made available for the ED and EMS staff. Hospitals and agencies can provide better services during emergencies and disasters by having appropriate emergency medications and equipment and by enhancing participation in existing EMS elements and implementing locality applicable EMS policies.
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ID 327: Disaster Metrics and Performance Evaluation of Hospital Preparedness and Response: A Systematic Review of the Literature

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Study/Objective: To identify possible metrics for evaluating a disaster drill or response.
Background: A major gap in disaster medicine is the lack of quantitative measures that allows objective evaluation of hospital performance during disaster drills or actual events. In-spite of more than $3.6 Billion in congressional funding for hospital emergency management since September 11, 2001; to date, there are no comprehensive hospital performance disaster metrics methodologically developed. Therefore, developing quantitative measures for hospital performance evaluation in disaster drills and actual events is not only an important concept in disaster medicine, but also is urgently needed.
Methods: Peer-reviewed literature was searched to identify journal articles that contained specific information related to the evaluation of hospital disaster drills (preparedness) or actual events (response). Pubmed, Embase, Scopus, Web of Science and the Cochrane Library databases were searched from 1950 until December 19, 2012. Each title, abstract, and article were evaluated by at least two independent reviewers with arbitration to remedy any disagreement.
Results: The search identified 6,698 citations, 5,634 were excluded by title review and 941 by abstract review. Of the 123 full text reviewed, 102 were excluded and 3 were added from references. Data was abstracted from the final list of twenty one peer-reviewed articles, and used to compile a master list of capabilities, functions (sub-capabilities), and tasks (sub-functions). The seven capabilities identified include communication and coordination, continuity of operations, fatality management, incident management, medical surge capability, occupant safety and security capability, and volunteer management capability. Within each of these capabilities, a number of functions, tasks were identified. The latter represent candidate performance measures or metrics.
Conclusion: The review identified 96 dual-purpose candidate performance metrics that can be incorporated in the performance evaluation of hospital preparedness and response. Further research is needed to determine the specifications of the metrics, assess their feasibility and test their validity.
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ID 328: A Needs Assessment within New York City Four-Months After Hurricane Sandy and the Relationship of Socioeconomic Status to Recovery: A One-year Case Series in the Rockaway Peninsula

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Study/Objective: A cross-sectional study of the Rockaway Peninsula, an area of New York City severely affected by Hurricane Sandy, was conducted 4- and 15-months post-storm to assess for the return of basic utilities, safety, health, and finances. We also evaluated the relationship between socioeconomic status (SES) and post-storm recovery.
Background: Hurricane Sandy devastated the US on October 25, 2012, resulting in widespread power outages, flooding, and damage to infrastructure. Months later some localities are still struggling with recovery.
Methods: A cross-sectional study was undertaken in the Rockaways 4- and 15-months after Sandy. Surveys were modified from the CDC's Community Assessment for Public

Health Emergency Response toolkit. A modified cluster technique was used to randomly select households from 7 of the 11 neighborhoods in the Rockaway Peninsula. Surveys elicited information on demographics, access to basic utilities, health, personal safety, loans, and socioeconomic status.
Results: *4-month data:* Thirty to forty percent of respondents were without basic utilities and had difficulty obtaining food for months after Sandy. Healthcare access was disrupted, with 30% of households changing their healthcare location to outside the peninsula after the storm. Our population exhibited high rates of anxiety (52%) and sleep disturbances (37%). There was evidence for an association with lower SES and longer duration of weeks without electricity (OR 1.49, p = 0.036), and duration without heat, but the latter did not reach statistical significance (OR 1.26, p = 0.055). *Data from one-year survey currently being analyzed and will be included in final submission.*
Conclusion: Four months post-storm, there were persistent disruptions of basic public utilities, health access, and finances in the Rockaways. Psychological sequelae from the storm were prevalent and may present barriers to full recovery. Lower SES was associated with longer disruption of basic utilities after the storm, and likely slower recovery. Further research can help identify vulnerable populations to better allocate resources post-disaster.
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ID 329: Medical Response and Outcomes for Shambhala Music Festival, an Annual 5-day Electronic Dance Music Event with Embedded Harm Reduction Services

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Study/Objective: In this manuscript, we provide a detailed report regarding the on-site medical response for an electronic dance music event (EDME) with embedded harm reduction (HR) services.
Background: Large-scale EDMEs are becoming increasingly common and have a unique risk profile for attendees. On-site medical care is one strategy aimed at mitigating risk and reducing strain on local health resources. Shambhala Music Festival is a multi-day EDME in a rural setting with a recognized history of providing HR services in addition to dedicated medical care.
Methods: This study is a descriptive case report. Medical encounters, event-related data and description of the HR services were documented using an established event registry database.
Results: Attendance peaked at 15,380 people over the 5 day period (range 2859 – 15380; cumulative daily attendance of 58,865). There were 1291 patient encounters and the patient presentation rate was 20.7 per thousand. The majority of these (90.8%) were for non-urgent complaints. Higher-level care (beyond first aid) was required for more than 200 encounters, and a number required extended monitoring. The ambulance transfer rate was 0.221 per thousand attendees, and many encounters that would have otherwise required off-site health services were managed by on site medical care. No patients were intubated and there were no fatalities. HR services included mobile outreach teams, educational materials and drug testing facilities for safe partying, and a "sanctuary space" for overwhelmed guests.
Conclusion: Shambhala Music Festival combines medical and HR services to minimize the known risk profile of a multi-day EDME in a rural setting. The specific extent to which HR strategies reduce the medical care needs is not well understood. Incorporation of HR practices when planning on-site medical protocols at EDMEs has the potential to inform patient care, decrease presentation rates and acuity, and decrease impact on the host community's local health services.
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ID 333: Findings from Phase 1 of an International Delphi Project to Establish a Minimum Data Set for Mass Gathering Health

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Study/Objective: The aim of this international consensus project is to develop a conceptual Mass Gathering Health (MGH) framework with a recommended Minimum Data Set (MDS) and accompanying Data Dictionary (DD). This paper presents the findings from the first survey in the ongoing Delphi process.
Background: Mass gatherings (MGs) are planned or unplanned events where crowds gather in sufficient numbers to strain a host community's resources. The science underpinning MGs lacks theory development and standardised terminology. Developing consensus and standardising concepts and data element of interest will progress the creation of a robust MGH evidence-base for governments, clinicians, event planners and researchers.
Methods: This project uses a traditional Delphi design. The first round comprised an online survey distributed to members of the World Association for Disaster and Emergency

Medicine (MG Stream; n = 60) and the WHO Virtual Interdisciplinary Advisory Group on MGs (n = 151). The survey contained seven questions relating to basic concepts, models and definitions. Data was analysed using simple descriptive statistics and basic content analysis. For purposes of this first round, 80% agreement was considered consensus.

Results: A total of 35 people completed the first round, representing 18 different countries. Participants' MGH experience ranged from 2-41 years (Mean = 19 years ±12). Consensus was met on using the term 'MGH' (92%); the stated purposes for the MDS and DD (100%); two proposed MG population models (82%); and the proposal of focusing on the identified 'before, during and after' stages for event preparedness (94%). Consensus was not reached on the overall conceptual MGH diagram (67%) and the proposed matrix to organise MGH data elements (77%).

Conclusion: There is high agreement on some concepts at this early stage. Refinement is needed regarding the overall conceptual diagram and the proposed organisation of data. As planned, further survey rounds are required and will be undertaken in the near future.

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ID 334: Crisis Leadership in the Intensive Care Unit Following Christchurch Earthquake

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Study/Objective: The objective of this study was to investigate approach to leadership in a crisis situation, through an exploration of both specialists' and nursing leadership in the ICU of Christchurch Hospital within the first seventy two hours of the earthquake.

Background: On Tuesday February 22, at 12:51 pm local time, a 6.3 magnitude earthquake struck Christchurch. This study explored the Intensive Care's staff experiences and adopted leadership approaches to manage large scale crisis resulting from the city-wide disaster.

Methods: This study adopted qualitative approach. A semi-structured, audio taped personal interview method was chosen as a single data collection method. Thematic analysis was employed to analyse data.

Results: Formal team leadership refers to the actions undertaken by a team leader to ensure the needs of the team are met. Three core formal crisis leadership themes were identified in the transcripts: decision making, ability to remain calm and effective communication. Informal leaders are those individuals who exert significant influence over other members in the group to which they belong, although no formal authority has been assigned to them. Four core informal crisis leadership themes were identified in the transcripts: motivation to lead, autonomy and self -reliance, emotional leadership, and crisis as opportunity. Shared leadership can be defined as a dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals. Two core shared leadership themes were identified in the transcripts: shared leadership within formal medical and nursing leadership groups and shared leadership between formal and informal leaders in the Intensive Care Unit.

Conclusion: While in many ways the research on shared leadership in crisis is still in its early stages of development, there are some clear benefits from adopting this leadership approach in the management of complex crises.

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ID 336: CBRN Preparedness in Dutch Ambulance Teams, Effect of Training

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Study/Objective: To evaluate CBRN preparedness of Dutch ambulance teams and the effect of training.

Background: Holland is a densely populated country in Northern Europe. With heavy petrochemical industry, nuclear plants and possible terrorist targets the risk for CBRN incidents is eminent. In such an incident ambulance personnel will be the first to be confronted with victims but are they prepared to? The Dutch Ambulance Academy organised a pilot course on working in CBRN circumstances.

Methods: An online survey on demographics, perceived knowledge, capability, willingness to work and training was completed by 50 participants the year after the course and offered online to other ambulance personnel. The answers were controlled with theoretical/practical questions.

Results: 318 untrained respondents completed the survey. Demographics for both groups were comparable except for a higher mean age in the trainees. The trained group had a significantly higher knowledge and capability to deal with nuclear incidents (3.61/10 vs 2.92/10 and 3.59/10 vs 2.28/10). Also the practical knowledge on decontamination (4.48/10 vs 3.35/10) and PPE use (4.02/10 vs3.22/10) as well as the score on the theoretical test (5.98/10 vs 4.69/10) was significantly better for the trained group. Capability to deal with chemical incidents was slightly higher after training (4.63/10 vs 4.07/10) but insignificant. There were no significant differences in willingness to work. In case of a nuclear incident 24% will report to work unconditionally and up to 22% will not go to work. The rest works under conditions, mainly availability of appropriate PPE's (97%) and radiodetection equipment (88%), previous training convinces 67%. In case of chemical incidents up to 33% works unconditionally with 13% refusing to work. Availability of appropriate PPE's convinces 97%, previous training gets 65% to work.

Conclusion: We can conclude that our population is rather prepared with a positive effect of the training.

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ID 337: Potential Contamination During Doffing Process of Personal Protective Equipment by Hospital Providers: A Pilot Study

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Study/Objective: The aim of this study is to evaluate the potential contamination that may occur during doffing personal protective equipment (PPE).
Background: Since the emergence of Ebola since February 2014, high mortality among healthcare providers has alarmed healthcare authorities about significance of personal protective protocols.
Methods: This study is a simulation study with volunteers from an emergency department. First, a didactic lesson was given with current CDC guidelines for 30 minutes. PPE items were introduced one by one, and an introductory movie clip by the Korean CDC was included. Participants paired as health care provider and assistant took turns donning and doffing PPE. The process was recorded with two video cameras from different angles to minimize blind spots. A trained examiner coded all recordings with delays and errors along with potential contamination events and locations. The data was demonstrated in the order of donning and doffing procedures.
Results: Overall, 27 participants volunteered for the study. 18 (66%) were physicians and 9 (33%) were nurses. 9 participants (30%) were male. The average age was 29 years (SD: 3.3), and the average job experience was 2.8 years (SD: 2.6). 23 (80%) had no previous training with PPE. For the donning process, the average duration was 234 seconds (SD: 65.7) and the average number of errors were 30 (SD: 2.7). For the doffing process, the average duration was 183 seconds (SD: 38.4) and the average number of errors were 38 (SD: 2.7). Potential contamination events happened most frequently when removing shoes in 20 out of 27 contamination events (80%), followed by removing masks in 19 out of 27 events (76%) and removing hoods in 15 out of 27 events. (60%). The most frequently contaminated sites were ankles, neck, and hair, respectively.
Conclusion: Regardless of didactic lectures with a demonstration video, providers are still vulnerable to contamination during the doffing process.

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ID 339: Building a Model for Comprehensive Disaster Preparedness and Response Training in Hong Kong

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Study/Objective: The objective is to describe a training framework with its key components, highlighting the basis of the tier systems, with different learning modalities to bring about comprehensive medical preparedness and community resilience.
Background: With a generous donation from the Hong Kong Jockey Club, Hong Kong Academy of Medicine is collaborating with The Chinese University of Hong Kong and University of Hong Kong, with participation of the Harvard University and other world renowned organizations to develop a centre of excellence in disaster preparedness and response.
Methods: Experience were drawn from local experts and our international partners, and lessons learned from mixed method teaching with the combination of didactic teaching, online e-learning, experimental learning with simulation exercise.
Results: Over a 5-year period, HKJCDPRI aims to train around 30,000 healthcare professionals, NGOs workers/ practitioners, teachers/ students and members of the community in Hong Kong on disaster preparedness and responses; to provide a central platform for ongoing professional education, networking and policy conversations; and to explore opportunities to engage with China, the broader Asia Pacific region and globally. Detailed description of the six key compoents will be highlighted in the presentation, including 1) Centre of Excellence; 2) Capacity building; 3) Expert Directory; 4) Regional Consultative Platform; 5) Total Community Resilience; 6) Program Evaluation.
Conclusion: HKJCDPRI aims to establish Hong Kong as a regional and international leader in disaster preparedness and response training, and to promote community resilience in Hong Kong. This can be achieved through well designed cirriculum tailoring to the local and regional needs, the use of a variety of teaching and research method and support from local and international partners.

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ID 340: Are We Better Prepared for CBRN Incidents than Our African Colleagues?

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Study/Objective: This study was performed to evaluate CBRN preparedness in Northern European and African Emergency Physicians and possible disparities between both groups.
Background: The risk for CBRN incidents is eminent worldwide, regardless borders, countries or continents. We think we're experienced in our wealthy industrial western world but are we really better prepared than our african colleagues?

Methods: The results of an online survey on cbrn preparedness amongst Belgian and Dutch Emergency Physicians were compared with a similar survey amongst the African physicians on the mailing list of the African Federation on Emergency Medicine.
Results: There were 637 European participants versus 101 Africans. The Africans had a significant higher rate of previous disaster training (76 vs 49%) with a higher estimated knowledge on these incidents (4.74/10 vs 4.49/10 for chemical and 3.61/10 vs 3.49/10 for nuclear incidents), however, their risk estimation for these incidents to appear was significantly lower (3.96/10 vs 5.33/10 for chemical and 2.16/10 vs 2.6/10 for nuclear incidents). They were significantly better trained in the use of personal protective equipment (74% vs 27%) and decontamination (68% vs 37%). There was no significant difference in the use of radiodetection equipment. The African population had significant more males (69 vs 54%), a positive factor for preparedness but scored lower for 2 other positive predictive parameters: prehospital activity (40% vs 77%) and mean age (although this was not significant: 38 yrs vs 39.3 yrs).
Conclusion: Our African colleagues present a very good score compared with our high tech European group. Disaster Medicine education seems to be a key factor, illustrating the importance of a European Disaster Medicine Curriculum.
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ID 341: Disaster Medicine Education in Senior Dutch Medical Students: A Disaster?

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Study/Objective: To evaluate disaster education in Dutch medical schools.
Background: Medical students have been deployed in disaster victim care throughout history. They are corner stones in first line care in recent pandemic planning. Are they ever educated to do so? Our hypothesis is that Dutch senior medical students are not prepared at all.
Methods: Senior medical students were invited to complete an online survey on Disaster Medicine, training and knowledge. This reported knowledge was tested by a mixed set of 10 questions. The results were compared with a similar study amongst their Belgian colleagues.
Results: 999 responded with a mean age of 25 years. 51% considered that Disaster Medicine should absolutely be taught in the regular medical curriculum. Self estimated capability to deal with various disaster situations varied from 1.47/10 in nuclear incidents to 3.92/10 in influenza pandemics. Self estimated knowledge on these incidents was in the same line. Despite this limited confidence, there is a high willingness to assist (from 4.31/10 in Ebola outbreaks to 7.54/10 in pandemics). The case/theoretical mix raised some food for thought. 48% will place potentially contaminated walking wounded in the waiting room and 52% would use iodine tablets as step one in nuclear decontamination. 52% even believes that these tablets protect against external radiation and 41% thinks that these tablets limit radiation effects more than shielding, limiting exposure time and increased distance. 57% believes that decontamination of chemical victims consists of a specific antidote spray in military cabins. If we compare these results with data from a Belgian survey we can see that the Dutch students have an overall lower score.
Conclusion: Despite a high willingness to respond, Dutch students are not educated for disaster situations.
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ID 342: Fight or Flight: Will Hospital Personnel Go to Work When Disaster Strikes?

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Study/Objective: To evaluate the hospital willingness to work and promoting factors in different mass casualty settings.
Background: When disaster strikes, getting care to the victims is at the top of everyone's attention. But who will provide that care? A part of the hospital personnel will be absent as they are inflicted in the incident where as the management expects that the rest deploys a higher engagement to cope with the surge. However, care for inflicted family and fear of becoming a secondary victim could prevent people to go to work.
Methods: 4 groups (physicians, nurses, administration and supportive services) in 7 Belgian hospitals were presented an online questionnaire checking for demographics, knowledge of and intention to work in 11 potential MCI disaster scenarios.
Results: Preliminary results reveal an overall highest response rate in the administrators, even with 51% having regular patient contacts. The physicians score second best followed by he nurses and supportive services. Highest response rate in all groups is found in seasonal influenza epidemics (45% works unconditionally). Nuclear incidents have the lowest rate of unconditional response (17%). Incidents where people will not respond to work, even with the risk of losing their job, are Ebola and nuclear incidents (8% and 8.5% respectively). The majority of personnel will work under conditions. Factors that convince people to respond are in order of importance: availability of appropriate personal protective equipment, free availability of preventive medication or antidotes, insurance that family is safe, regular feed back on the evolution of the incident, previous training and communication channels with the family.
Conclusion: Hospital managers should be aware that just a part of their personnel would come to work unconditionally in

case of a disaster. Local evaluation can help identifying promoting measures to maximize response.

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ID 346: Emergency Health Management Training for Disaster Preparedness in North East India

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Study/Objective: North East India is graced with natural beauty and hazards. This area is prone to major earthquakes, floods, landslides, accidents, terrorist activities etc. Academy of Trauma, an NGO of Doctors, conducts training programs, mock drills, field trials amongst the doctors and paramedics in North East India. The present study is to evaluate the efficacy of such training in terms of sensitivity, awareness, and delivery systems of the products.
Background: Here the health care delivery system for disaster management is inadequate. Clear guideline of mass casualty management is unavailable. AOT has initiated steps to increase the awareness and handling of mass casualty management to improve the emergency health care delivery system.
Methods: AOT has conducted training programmes on emergency health management, mass casualty management and hospital preparedness amongst 800 doctors and 1200 paramedics in twenty two districts of Assam in North east India. The training module consists of lectures, hands-on workshop using manikins, mock drills, distribution of manuals, Emergency Management Exercises, periodic exchange of experience and debriefings. AOT evaluates the impact of these trainings by conducting pre and post tests of delegates, trainer's evaluation, delegate's satisfaction and confidence level and their suggestions.
Results: The module, training, hand-on workshops, mock drills were highly appreciated. There is significant improvement in scores in the post training tests. The confidence level of the participants has risen to deal with emergency medical situation
Conclusion: These kinds of trainings increase the awareness of the medical members to handle mass casualties in different situations. One such training actually sensitises the delegates. Repetition of such training, TOT programs, and individual efforts of delegates are extremely important for sustenance and success of health care delivery service during disasters in the developing countries. Further collaboration, assistance, networking, suggestions from established global agencies in this field will be highly appreciated.

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ID 347: Usefulness of Location Monitoring System and Real-time Mobile Video Transmission System Using Smartphones for Controlling "Doctor-helicopter Fleet" in Disaster Situation.

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Study/Objective: Validation of new technologies in disaster situation.
Background: A suitable information collection system is necessary for the development of disaster medical care. However, it was so difficult for headquarters to control "doctor-helicopter fleet" in the Great East Japan Earthquake 2011, because headquarters didn't have useful information collection system. The position-monitoring of "doctor-helicopter" using satellite connection had been developed (JAXA, weathernews, inc.). And a real-time mobile video transmission system using smartphones has been also developed in collaboration between our center and a telecommunications company (NTT docomo, inc.).
Methods: We had National medical transport training using 8 "doctor-helicopters" in last August. We used the new technologies for headquarters to control "doctor-helicopter fleet" and evaluated their usefulness.
Results: We could recognize the real-time position and activity on site of each "doctor-helicopter". Therefore, we were able to utilize them efficiently. Image and video data can provide a large amount of objective information at once. It is possible to initiate the system from the command point, and therefore commander at headquarters can select and access specific teams and can also connect to multiple teams at the same time. Furthermore, two-way voice communication is also possible, allowing headquarters to provide information and direct instructions to individual teams. In addition, we are developing the system further to be able to use satellite links. A system capable of using satellite links would be useful when mobile phone lines fail during large-scale disasters, as happened during the Great East Japan Earthquake.
Conclusion: In a disaster situation, it would be useful for headquarters to be able to monitor the location of "doctor-helicopters" and on-site activities in real time.

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ID 348: Transforming Development Plans into a Clinical Reality: Australian Foreign Medical Teams in the Comoros

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Study/Objective: To demonstrate how a sound development plan maximised outcomes by an Australian Doctors for Africa

(ADFA) medical team in the delivery of orthopaedic services and training to the Comoros Islands.

Background: Following an invitation to the AFDA in 2012 to consider providing orthopaedic surgery services and training to the Comores, the organisation visited the Comores in September 2013 to assess the health facilities and infrastructure. The aim of the initial visit was to determine the local needs and aspirations of all clinicians and the health department, which was then articulated in a scoping study for future activity.

Methods: A clinical team travelled to the island of Njazidja to work at the main hospital El Maarouf Hospital in Moroni for two weeks in April 2014. The team consisted of an anaesthetist, theatre nurse and two orthopaedic surgeons. The group's trip prioritised the recommedations from the previous case study, which was to apply a progressive and systematic approach to clinical development via a phased development plan.

Results: The team performed 27 procedures during the two week period. The age range of patients was from five months to 91 years old, 14 female and 13 male patients. A significant number of operations were performed to correct congenital talipes equinovarus (CTEV). ADFA orthopaedic surgeons implemented a CTEV early correction program by educating the local surgeons in the Ponseti, a manipulative technique that corrects CTEV without invasive surgery.

Conclusion: Through the use of the phased development approach, the initial trip was deemed to have met the initial objectives. The plan enabled the team to remain focused on tangible and sustainable outcomes for the local community, with the ultimate aim of achieving an independent, comprehensive Comrean run orthopaedic service with on-going interaction with visiting orthopaedic surgeons. There is significant scope for further field work to be undertaken in this context, with ADFAdeploying a further two teams in 2015.

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ID 351: Climate Change, Disasters and Their Impact on Children Health

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Study/Objective: To identify direct and indirect health risks to children due to weather-related disasters linked to climate change in developing countries.

Background: Climate change has increased the incidence of disasters such as major storms, droughts, floods, and fires. In the past two decades, 86% of all natural disasters were weather-related. Nearly 95% of deaths associated with such disasters occur in low- and middle-income countries. Children represent a large share of the population (from 30 to 50%) in developing countries and are highly vulnerable to weather-related disasters. For example, the published literature suggests higher risk of mortality for children due to drowning during severe storms; following typhoon Haiyan in the Philippines, a sharp increase in asthma and respiratory infections in children was reported due to exposure to fumes and dust and acute or cumulative stress. Other climate-related direct health impacts include malnutrition, malaria, diarrhea and dehydration, bacterial infections and sepsis, heat-stroke and mental health problems. While research has focused on health risks to children from climate change, and on risks of climate-related disasters on health generally, few researchers have examined risks to children of climate-related disasters.

Methods: Using systematic review we will search the medical online databases for evidence of acute and chronic health impacts on children (18 years or younger) due to major weather-related disasters, including cyclones, floods, droughts and fires in low- and middle-income countries.

Results: Depending on findings, we expect to identify the prevalence and range of direct and indirect health impacts on children associated with climate-driven disasters in developing countries.

Conclusion: We also expect to be able to propose a typology of these health risks, as well as identify gaps in the research, and conclude with implications for clinical practice and public health policy.

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ID 352: Syrian Refugees: Health Services Support and Hospitality in Turkey

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Study/Objective: Since the outset of the conflict in March 2011, from the outset of the conflict, The Republic of Turkey, with its historical, cultural and neighborhood ties, followed an open door policy to Syrian refugees. Consequently an important public health problem has been encountered. The aim of this study is to gain attention for this issue that is refugees and delivery of health care to this population on the example of Turkey.

Background: Turkey is hosting nearly 820 thousand Syrian Refugees and 220 thousand of these are located in the camps, 580 thousand are located out of camps according to 2014 October data. %36 percent of the total Syrian refugees to Turkey came from Aleppo and %20 percent came from Idlip. One reason for this large share of Aleppo is that it is very close to the Turkish border and the second reason is that it was one of the centers of intense conflict.

Methods: We benefited from Syrian Refugees in Turkey, 2013 Field Survey Results, AFAD and The UN Refugee Agency recent data.

Results: 35 thousand tents and 15 thousand containers are located in the 20 camps in the 10 cities. There are 21 field hospitals located inside the camps equipped with doctors and nurses for giving health services and serves about 120 doctors and 400 allied health personnel. Syrian refugee children are vaccinated against polio and measles. 74 percent of children in

the camps and 55 percent of children out of the camps are vaccinated against polio. 72 percent of children in the camps and about 59 percent of children out of camps are vaccinated against measles.
Conclusion: As a conclusion these camps health services provided by the Ministry of Health successfully and the patients are transferred to state hospital for advanced diagnosis and treatment. It is continue to provide top-level services.
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ID 353: The Mine Accidents in Turkey

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Study/Objective: The mining industry is one of the sector where occupational accidents and occupational diseases are seen frequently.
Background: Mine accidents are common in Turkey, which has poor mine-safety conditions. Soma and Ermenek mine accidents have raised the questions related to the structure of the mines, occupational health and safety.
Methods: Literature was reviewed and accident causes and what to do were analysed within the framework of recent accidents, Soma and Ermenek.
Results: According to a report issued in 2010 by the Turkish Economy Policies Research Foundation (TEPAV), in 2008, deaths per 1 million tons of coal mined were 7.22 in Turkey (the highest figure in the world), 5 times the rate in China (1.27) and 361 times the rate in the US (0.02). Official statistics record that more than 3,000 coal miners died in mining accidents from 1941 to 2014. 78 miners were killed in accidents in 2012, and 95 died in 2013. Prior to the Soma disaster, the deadliest accident in recent Turkish mining history was an explosion in Kozlu which killed 263 people in 1992. At last On October 28, 2014, 18 mine1"rs were trapped underground in the Has Sekerler mine, a coal mine in the Turkish town of Ermenek.
Conclusion: The studies on literature and examples of countries are shown that the using technological mining systems are related to occurrence of occupational accidents and levels of mortality. Risk maps should be removed and necessary planning and training should be started for the prevention of accidents. All the legislation about working life should be revised and arranged to meet the requirements again. Controls should be more frequent and certainly should not be compromised. Shelters should be made as soon as possible. Also serious policies should be developed on the use of renewable energy sources.
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ID 354: Weight Estimation in Emergencies in Children: A Meta-analysis of the Accuracy of Current Methodologies

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Study/Objective: To determine the accuracy of currently-used paediatric weight estimation systems using standard meta-analysis methodology.
Background: Weight often cannot be measured when children present with medical or traumatic emergencies, either in the hospital or in the pre-hospital environment. An accurate estimation of weight is therefore essential to permit accurate drug dose calculations. The existing methods of weight estimation have shown mixed results in single studies, but mostly with poor predictive accuracy. Despite these findings, many of these weight-estimation techniques are still in regular clinical use. This field of research has never been evaluated using meta-analysis.
Methods: Relevant studies containing original data were identified from online databases using appropriate keywords. Studies with fatal flaws or irreparable methodologies were excluded. Standard meta-analytical techniques were used to synthesise and compare data using percentage of estimations within 10% of actual weight (PW10) as the main indicator of accuracy. The main weight estimation methodologies evaulated were: guessses of weight, age-based formulas, Broselow tape, PAWPER tape, the Wozniak method and the Mercy Method.
Results: See Figure. Guesses and age-based formulas had the overall worst performance, while methodologies that evaulated body habitus performed best (Wozniak, Mercy and PAWPER). The Broselow tape had an intermediate accuracy, outside of what could be reasonabley considered as acceptable.
Conclusion: Only the PAWPER tape, Wozniak method and Mercy method performed within acceptable parameters of accuracy. None of these techniques have been evaulated during the management of actual emergencies, however, and their efficacy in this situation needs to be tested. Based on the demonstrated inaccuracy of guesses and age-based formulas, it is essential that the use of these methodologies be abandoned: not only are they devastatingly inaccurate but the cognitive burden they impose on the user is inappropriate.
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ID 355: Delivering of Safe and Effective Cardiopulmonary Resuscitation (CPR) by Means of an External Chest Compression Sevice at Hamad Medical Corporation-Ambulance Service

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Study/Objective: The objective of this study was to collect feedback from ambulance paramedics (AP) with respect of their experience of using an external chest compression device (ECCD) on cardiac arrest patients. Aspects of particular interest were ease of use and their perceived effectiveness of delivered CPR.

Background: HMCAS crews attend to hundreds of cardiac arrests a year. To achieve Return of Spontaneous Circulation (ROSC), the key requirements are the provision of effective chest compressions delivering oxygen to the brain, maintaining coronary perfusion pressure, and priming the heart for successful defibrillation. Providing effective manual chest compressions in the austere Qatar pre-hospital setting with high temperatures is challenging, hence all HMCAS emergency vehicles have been equipped with ECCD.
Methods: HMCAS receives daily reports compiled by its documentation Officers, which highlights specific cases in which use of the ECCD was indicated but not implemented. These cases are followed up and audited to assess if non-provision of automated chest compressions was clinically acceptable. HMCAS monitors specific key performance indicators, i.e. 'Use of the LUCAS™2 in Adult Medical CPR Cases' as well as 'ROSC in Medical CPR'. Feedback was collected over a 3-month period using a 10-point Likert scale type questionnaire distributed to ambulance paramedic teams who had used the ECCD during a real medical cardiac arrest case.
Results: The results are based on 54 returned feedback questionnaires. Using a scale with 1 being "very difficult" and 10 being "very easy", APs' mean rating of the device's ease of use was of 8.8/10. Similarly, on a scale indicating perceived effectiveness, staff indicated that they found the chest compressions provided by ECCD to be highly effective (mean = 9.41/10).
Conclusion: HMCAS staff are highly satisfied with making use of the device since it provides them with a safer work environment and reduces physical exertion during a CPR, especially during the summer months.

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ID 357: Isolation and Quarantine During Biological Major Emergencies and Ebola Outbreak: How to Balance Civil Liberties, Human Rights and Public Health Laws in Times of Disasters and Biological Threats

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Study/Objective: The authors would like to review and analyze the international treaties and declarations on human rights and civil liberties in times of disasters, or biological threats, on international level, and how to apply the legitimate use of the derogation clause during non-conventional situations, in times of declared "State of Public Health Emergency", focusing on Ebola and bioterrorism emergencies, and paying particular attention to quarantine and isolation.
Background: The "Universal Declaration of Human Rights" of 1948, and later many other international treaties have been adopted to guarantee human rights and civil liberties, in the hope of ending discrimination. On the other hand, the European Convention on human rights in 1950 provides for a derogation in time of emergency, in particular during an "Emergency" or in "Disaster situations". However, during disasters or humanitarian emergencies we have often witnessed many serious violations of Human Rights in the name of derogation.
Methods: The authors would like to review and analyzem international treaties and declarations on human rights and civil liberties in times of disaster, or biological threats, focusing on Ebola and bioterrorism emergencies, and paying particular attention on widespread countermeasures such as quarantine and isolation.
Results: The analysis was focused on balancing the protection of human rights, civil liberties, public health safety and homeland security during a "State of Public Health Emergency".
Conclusion: The idea is to create an open global forum on this complex matter of discussion that will help to construct a modern and globalized system of biological surveillance and prevention inside an international integrated public health system, to meet the needs of promoting international new laws in these fields with the aim of improving community resilience to fight biological emergencies.

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ID 363: Knowledge Concerning Cardiopulmonary Resuscitation Among People Employed in Selected Units Cooperating with the National Emergency Medical Services

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Study/Objective: This paper evaluates the knowledge of the state and voluntary fire-fighters, the police officers and the rescuers of the Water Voluntary Rescue Service regarding performance of CPR.
Background: There should be no doubt concerning the skills level of people performing cardiopulmonary resuscitation, especially if CPR is performed within the professional units cooperating with the National Emergency Medical Services.
Methods: The research was conducted based on a questionnaire technique. 165 questionnaires were distributed, with 35 of them distributed in the Water Voluntary Rescue Service, 40 in the Police unit, 50 in the Voluntary Fire Service and 40 in the State Fire Service. Each questionnaire contained an overall question regarding a place of work, job tenure, gender, age, education and training as well as 17 content-related questions regarding knowledge concerning cardiopulmonary resuscitation.
Results: The study population consisted mainly of men under the age of 40 who have been working in the units cooperating with the National Emergency Medical Services for no longer than 10 years. As regards the rescuers of the Water Voluntary Rescue Service, the state and voluntary fire-fighters and the police officers, the percentage of correct answers amounted to 79%, 59%, 46% and 52%, respectively. The largest percentage of correct answers was observed in the 18-30 and 31-40 age groups, with 72% and 60% of questions answered correctly, respectively, and among the respondents with short job tenure. The respondents who have been employed for less than 5 years provided correct answers to 76% of questions, while the

respondents employed for 5-10 years gave correct answers to 64% of questions. Taking into account all of the study groups, 61% of 17 knowledge-related questions were answered correctly.

Conclusion: The level of respondents' knowledge should be assessed as insufficient, and the training system in which they participated as inefficient in terms of theoretical knowledge concerning cardiopulmonary resuscitation.

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ID 364: Teaching Terror Medicine

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Study/Objective: Despite the global threat of terrorism, the teaching of medical countermeasures specific to terrorist attacks has been erratic. To address this concern a course on Terror Medicine was developed for 4th year students at Rutgers New Jersey Medical School in Newark, USA. The course is part of a plan to broaden familiarity with the subject throughout the medical school curriculum.[1] This study provides an overview of the course and reactions to it by participants. [1]Terror Medicine As Part of the Medical School Curriculum http://journal.frontiersin.org/Journal/10.3389/fpubh.2014.00138/abstract.

Background: The 2-week elective was offered twice in 2014. More than 30 individuals participated including 8 students, 12 faculty members, and teams of observers, mock patients, and exercise facilitators.

Methods: The course content is built on four pillars of Terror Medicine: Preparedness, Incident Management, Nature of Injuries, and Psychological Effects of Terrorist Attacks. The faculty comprises experts in relevant areas including in biological and chemical terrorism, disaster management, trauma surgery, and psychiatry. The teaching format includes lectures, videos, and tabletop and hands-on exercises. Participants offered assessments at debriefing sessions and students filled out end-of-course evaluation forms.

Results: Descriptions of the course were uniformly favorable. Student evaluations included enthusiastic comments about the subject, the manner of instruction, and especially the simulation exercises. One student called the course "a valuable springboard" to a field "that future doctors should be aware of." Others described it as "a terrific primer on disaster medicine, preparedness, and logistics," and "great, informative, and relevant." Critiques largely focused on flaws in performance during exercises, as noted in student self-assessments and comments by observers.

Conclusion: The teaching of Terror Medicine is a demonstrated value. Aspects of the subject also apply to natural or accidentally induced incidents. Thus, while the focus of the course is terror-related, its academic and pragmatic value extends beyond.

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ID 365: Evaluation of a Community Organization's Intervention as it Transitions from Relief Work to Capacity Building and Community Outreach

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Study/Objective: This study aims to qualitatively assess JP/HRO's impact on the community and identify areas for further outreach.

Background: Natural disasters along with significant socioeconomic factors have left Haiti with a fractured health care system. The consequences of these problems were largely tackled by various homeland and overseas organizations including JP/HRO. JP/HRO supplied money, education and training aimed at providing short and long-term solutions. Not only did they support and rehouse Haitians living in Port-au-Prince's Pétionville camp, but they also continue to develop strategies to provide self-sustaining community medical services. Within the Delmas 32 neighborhood, services include free emergency care and gynecological/primary care for nominal fees that will elevate the standard of living and overall quality of life.

Methods: A qualitative study design using "grounded theory" developed codes, categories and themes in an iterative process.

Results: All five focus groups identified JP/HRO's program, offering free/low cost care, as successful. Participants identified the availability of ambulance transfers to tertiary care clinics as a key draw to the organization. Areas of improvement included lack of radiological and pharmaceutical services, as well as education on gynecological and non-communicable diseases. Knowledge gaps included sexually transmitted diseases, hypertension and diabetes mellitus. Participants also identified environmental effects and consequences as concerning.

Conclusion: Delmas 32's community widely recognizes and appreciates JP/HRO's services. Further education and community outreach concerning women's health and non-communicable diseases is needed.

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ID 366: Emergency Experiences of Trauma First Responder Course Participants in Potosí, Bolivia

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8. Bolivian National Police (La Paz/Bolivia)

Study/Objective: To assess the emergency training and response experience of trauma first responder course (TFRC) participants in the Potosí district of Bolivia.
Background: Despite a significant suspected trauma burden, Bolivia lacks an effective injury surveillance strategy or emergency response and training program. These are essential components of a successful, comprehensive trauma system to improve survival and quality of care.
Methods: Participants completed a survey at the start of an eight-hour TFRC offered at ten medical and fire centers in seven towns and cities in the district of Potosí in Bolivia in April-May, 2013. Information collected included participant demographics, medical emergency experience, and prior first-aid training. Data were assessed via the one-sample chi-squared test and the signed rank test for categorical and continuous variables.
Results: A total of 315 people participated in the TFRC, with 47% having prior first aid training, learning the ABCs (23.4%), proper patient lifting/moving (20.3%), and triage (10.1%) (p-values <0.0001). There was no significant difference in prior training based on location (rural $p = 0.95$, urban $p = 0.41$). In the past 6 months, 32% of respondents witnessed an emergency (median: 3, range: 1-50, $p < 0.0001$), including falls (90.3%), road crashs (89.4%), burns (87%), and assaults/robberies (66.7%) ($p < 0.0001$). Assistance was offered by 116 participants (36.8%, $p < 0.0001$), including breathing or bleeding assessments, triage, splinting, or lifting/moving, with 61.6% ($n = 194$) having access to first-aid kits containing mixtures of basic supplies: gauze, gloves, scissors, and/or bandages. Twenty-six point three percent ($p < 0.0001$) reported calling an emergency number.
Conclusion: The survey of TFRC participant experience sheds light on the emergency burden in Potosí, Bolivia, demonstrating a variety of preventable mechanisms. The overall low prevalence and unsystematic nature of training, supplies, and services highlight the immense need for an organized emergency response system and accessible trauma first responder training.

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ID 370: Preparation for Disaster in Israel: A Single Hospital Perspective

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Study/Objective: To evaluate the quality of one hospital's response to disasters.
Background: Israeli hospitals prepare for seven disaster scenarios: conventional mass casualty incident; chemical warfare; industrial spillage; biologic incident; radiologic incident, fire and earthquakes. Each hospital is drilled at least once a year in one of these scenarios.
Methods: Large scale planned drills, small scale surprise drills and real events occurring during 2010-2014 were evaluated. Hospital disaster planners discussed the validity of the assumptions underlying contingency plans. Staff response following drills was assessed.
Results: Four large scale drills, 10 small scale drills, and two events with potential for disaster were evaluated. The validity of basic assumptions underlying contingency plan were questionable in one scenario. Though overall results of large scale drills were satisfactory, deficiencies were found in staff response to surprise drills. The major constraints found were over reliability on memory rather than pre-prepared checklists and inability of staff to differentiate between relatively similar scenarios. The emergency medical staff outperformed other sectors in almost all scenarios.
Conclusion: Hospital disaster plans tend to be cumbersome and some of the scenarios confusing. Even in a medical system where disaster preparedness is rehearsed, innovative methods may be necessary to conserve the hospital staff's knowledge and readiness.

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ID 371: Developing Leaders Through Mentorship

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Study/Objective: To share the process and outcomes of a disaster/emergency mentorship pilot, undertaken in 2014 by WADEM in partnership with the University of Tennessee, Global Disaster Nursing Program. The Pilot aims were to build leadership and provide guidance for young disaster professionals by pairing them on projects with international leaders in the field.
Background: There is consensus that mentorship is critical to developing future generations of leaders, but little has been done to develop models of mentorship specific to disaster response/humanitarian relief and how the transfer of knowledge occurs. Yet global collaborations are crucial to helping those in need, and public health emergencies such as the Ebola outbreak highlight the acute shortage of manpower. Professionals young in their disaster/emergency careers need expert guidance and perspective of global mentors if we are to develop the next generation of humanitarian leaders.
Methods: Nine graduate students concluding studies in Global Disaster Nursing were paired with WADEM-members who hold disaster leadership positions in their respective nations. WADEM members selected mentees based on student-submitted bios and shared interests. Mentor-mentee pairs worked on projects relevant to the field. Students contributed 125 hours over 4-6 months, communicating largely via distance though some students traveled to work side-by-side with their mentor.
Results: Projects included the design and conduct of research studies, paper publications, and development of training/education modules. Mentorship facilitated creation of new, international collaborative groups; offered students diverse perspectives and knowledge of how other nations plan for and respond to disaster; and resulted in contributions to the literature. It brought new WADEM membership, expanding opportunities for young professionals to connect, learn, and grow.
Conclusion: Mentorship proved effective in validating that students had meaningful contributions to make to the field. New collaborative groups were created. Synergy generated innovation, and new members for WADEM were recruited.
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ID 372: Dead on Arrival?

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Study/Objective: Death is defined as a permanent cessation of all vital functions: the end of life One of the hardest decisions that pre-hospital physicians and other medical personnel make on a regular basis is when to withhold treatment in a patient regarded to be unsalvageable, in other words, when is the cessation of vital functions permanent. How good are we at assessing when the patient is irreversibly dead? Based on the literature, we investigated which extreme circumstances patients have survived with a good neurological outcome.
Background: Based on these extreme circumstances, this group of patients can be divided into 4 categories: Soon to be dead Reversibly dead Reversibly, irreversibly dead Irreversibly dead The "reversibly, irreversibly dead" group of patient are those with a so-called Lazarus phenomenon, where there is unexpected return of spontaneous circulation (ROSC) after cessation of the resuscitation. It is a group of patients assessed as being irreversibly dead, such that the resuscitation attempt is aborted, but retrospectively are "reversibly, irreversibly dead" and ROSC (return of spontaneous circulation) occurs and they may recover with good neurological outcome.
Methods: Pubmed search using search criteria for the different aspects of extreme physiological circumstances that patients have survived with good neurological outcome. Investigated physiological aspects include among others extreme hypothermia, submersion time, extreme hyper and hypokalaemia, extreme metabolic acidosis and hypercapnia.
Results: Extreme metabolic abnormalities and circumstances that patients have survived with good neurological outcome described in the literature are included.
Conclusion: Case reports of unexpected survivor are commonly seen in the literature and patients have survived extreme conditions. Therefore not all that looks dead, is dead.
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ID 373: Combining Disaster Preparedness and Wilderness Medicine Education in Argentinian Patagonia: A Model for Improving Practice in Austere Settings

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Study/Objective: We sought to develop a program in which a recurring Wilderness Medicine (WM) training course developed in concert with a collaborative educational exchange focused on disaster response and emergency care in a remote district hospital.
Background: Communities in need of disaster and mass casualty preparedness strategies often exist in austere settings. Unique characteristics in these settings include prolonged response and evacuation times, limited technology, and unpredictable communications. Wilderness medicine (WM) providers function in similar settings. We piloted a WM training opportunity designed to foster an ongoing capacity-building relationship with a hospital in El Maiten, in Argentinian Patagonia.
Methods: In early 2014 we initiated a program combining a training course in remote and wilderness medicine with an emergency medicine focused symposium and community-wide disaster drill in the town of El Maiten.

Results: A group of six emergency physicians and an emergency physician assistant underwent a two-week WM and mountain medicine course in Argentinian Patagonia, developing partnerships with local guide services and search and rescue teams. Medical staff and pre-hospital providers in the region then sponsored a symposium and disaster drill meant to foster educational exchange among all participants, reinforcing skills and theory common to practice in remote areas. The WM course facilitators and students simultaneously functioned as educators, drill planners and evaluators and students of local practice while working with the staff of the district hospital. Language barriers were sometimes a challenge given local providers and students spoke only Spanish, while some WM participants spoke only English.
Conclusion: The relationship between WM and disaster medicine and preparedness is strong. Longitudinal educational programs focusing on the key skills and competencies of both domains may be unique and beneficial to both local and visiting participants, particularly in the setting of an ongoing relationship that emphasizes practical skills training, drills, and distance learning.
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ID 374: Use of Competencies in Disaster Global Response: An Integrative Review

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Study/Objective: The purpose of this review was to determine the best evidence surrounding competencies for disaster preparedness and response in the global health care setting.
Background: While much work has been done to develop disaster competencies, little is known about the actual use, evaluation and scientific validation of the disaster competencies currently in use. Additionally, much research in this arena has been developed globally in recent years, calling for an organized and clear understanding of the current evidence surrounding what is known disaster competencies being used throughout the world.
Methods: An integrative review of English-language literature pertaining to the development, evaluation and validation of disaster competencies was undertaken. Articles were identified using a structured search strategy of five databases and indexing services: PubMed, CINAHL, EMBase, Scopus, and Web of Science. Inclusion criteria included disaster, competency(ies), emergency preparedness, health care worker, nurse/nursing, physician, EMT, public health. Articles were initially reviewed by one author, and consensus was reached with three other authors, all of whom are experts within the field of disaster health.
Results: A total of 185 articles were identified in the initial search. After careful review, a final sample of 37 articles were included in this literature review. Over nine countries were represented in the literature, the majority of literature being in the USA, followed by China. Themes included roles of providers, community/public health response, post-graduate education, all-hazards approaches and communication.
Conclusion: There is currently no consensus on the use of disaster competencies, and few have undergone scientific validation or an evaluative process. Limited literature exists pertaining specifically to the evaluation of disaster competencies. Collaborative research is needed on a global setting in order to establish a scientific consensus on the use of disaster competencies.
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ID 375: Voices from the Community: Understanding Long-term Impact of Disaster on Health in Indonesia

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Study/Objective: A multidisciplinary team including engineers, scientists, and health providers propose to evaluate 1) associations between environmental exposures and adverse health effects and 2) survivors' and professionals' experiences and mental health in the community pre-and post-disaster in Indonesia, the fourth most populous nation, which has been unusually affected by multiple disasters (e.g. earthquakes, tsunamis, volcanic eruptions, and floods).
Background: Disaster response efforts are often limited to addressing immediate health needs. However, disasters frequently lead to secondary disasters and potentially long-term public health threats which can include physical (e.g. chronic infections and poisonings) and mental issues (e.g. post-traumatic stress disorder) among both survivors and related professionals. Disaster response plans tend to focus less on long-term effects, especially in low- and middle-income countries, which are hampered by a lack of resources and scientific evidence. It is hypothesized that environmental hazards (e.g. chemical, biological, and physical) differ in type of disasters and social factors (e.g. income, education, and culture) also differ by communities. The development of sustainable long-term interventions that protect and improve the physical and mental health of disaster-affected populations are key to healthy communities.
Methods: A combination of focus group and multiple surveys (e.g. questionnaires and environmental) will be applied to achieve each objective. For objective 1, risk assessments will be conducted along with a cross-sectional cohort survey. Photovoice, a collaborative participatory methodology which utilizes photographs taken by participants to gain individual and group perspectives, will be used to address objective 2.

Results: The expected outputs of this study include the identification of previously unknown or understudied long-term health concerns associated with disasters from both professional (e.g. environmental and health professionals) and community perspectives.
Conclusion: The study potentially can advance future public health planning and disaster preparedness and response in Indonesia.

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ID 376: Your Patient is Too Young to Have a Heart Attack, You Think? Think Again: A Case of Missed MI in a 19 Year Old Male — Challenges and Perspectives in Resource Constrained Settings

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Study/Objective: Diagnosing and managing acute coronary syndromes (ACS) in resource limited settings remains a huge challenge. The incidence of coronary artery disease (CAD) in low income countries is rising due to rapid socioeconomic growth which increases exposure to risk factors. Age is one of the main non modifiable risk factors for CAD: the older the patient, the greater the risk of having an ACS. However, younger age doesn't rule out ACS. The aim of the case study is to discuss ACS in the subset of very young patients, with emphasis on patients risk stratification.
Background: ACS in the subset of very young patients is relatively rare, but a misdiagnosis could prove very harmful. Discussing a rare case of MI in a very young african patient offers great learning points.
Methods: This is a case study describing the clinical presentation, the work-up and management of a young adult with chest. Key learning points are discussed in the light of the current evidence in the litterature.
Results: A 19 year old man presented to his local clinic with chest pain for two days and was discharged on oral analgesics. No ECG was done. The Doctor didn't elicit his past medical history of minimal change glomerulonephritis, hypercholesterolemia and smoking. He subsequently attended hospital after worsening of chest pain. The ECG revealed anteroseptal ST segment elevation with corresponding Q waves. His examination, was grossly normal, except for an elevated BP. He was managed as per ACS protocol. His laboratory results showed thrombophilia, hypercholesterolemia and a significant Troponin leak. His coronary angiogram showed a high thrombus burden in the LAD with distal occlusion. He was commenced on warfarin, and other modifiable risk factors controled.
Conclusion: Although ACS is relatively rare in very young patients, it is fundamental to adequately risk stratify every patient presenting with chest pain.

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ID 379: Hospital Evacuation: What Lessons Can we Learn from the Past? A Literature Review

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Study/Objective: Hospitals do become victim to a disaster and an emergency situation does occur when hospitals themselves need to be evacuated instead of supporting first responders during disaster. However, the prevalence of hospital evacuations is unknown. What leads to a successful evacuation?
Background: Great Tohoku Earthquake occurred in northeastern Japan on March 11, 2011. The event began with a powerful earthquake, which caused widespread damage on land and initiated a series of large tsunami waves that devastated many coastal areas of the country. More than 19,000 human lives were lost. 10 hospitals and 84 clinics were completely collapsed and 581 hospitals were partially damaged by this disaster.
Methods: A review of available literature was conducted using the Medline database. Articles were selected if they contained information pertaining data on hospital evacuation. Selected articles were read and analyzed.
Results: Hospitals are vulnerable to disaster and there is a need for structured and detailed reporting of hospital responses to disaster. Common problems include power failures, water shortage, contamination, physical damage, hazardous material exposure, resource allocation shortage and unorganized evacuations. In Great Tohoku Earthquake, among 10 hospitals that were flooded and ruined due to tsunami, one hospital lost all patients and all the medical staff except one. In another hospital, 12 patients out of 51 who could not reach the roof of the four-story hospital building lost their lives. No one was expecting such a big tsunami and not many hospitals were prepared for evacuation.
Conclusion: Hospital evacuation is a multi-faceted process that involves more than simply moving patients from point A to point B. A successful hospital evacuation plan must be build upon lessens learned from the past disastrous events from the past.

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ID 380: Developing Legacy: Health Planning in the Host City of Porto Alegre for the 2014 Football World Cup

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Study/Objective: To describe the process adopted to identify, classify and evaluate legacy of healthcare planning in the host city of Porto Alegre for the Football World Cup 2014.

Background: There is an emerging interest in the need to demonstrate a sustainable health legacy from mass gatherings investments. Leaving a public health legacy for future host cities and countries are now an important part of planning for these events and have been documented successfully in Beijing and London Olympic Games.
Methods: A co-ordinating team was identified to progress a common structure to develop a synchronized approach to legacy development. Through direct communication with recognised experts and information gathered from the literature, two formulas were developed to collect data from health and surveillance services perspectives and from here, associated legacies developed. Each aspect of the legacies was evaluated following previous established concepts. Identified legacies were discussed among the health group, the project team and presented to the State Board representing the Health Sector within government officials in preparing for the World Cup to be validated. Legacies were classified in dimensions and typology.
Results: Sixteen legacies were identified, 5 concerning health surveillance, such as information systems, and certification of food services, and 11 health services legacies. For example, a state incident management system, development of a local plan for emergency responses and a contingency plan for emergency situations.
Conclusion: The project allowed the identification, classification and evaluation of developed health legacy in risk analysis, surveillance, mitigation measures, and provision of emergency medical care.
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ID 382: Are Dutch Hospitals Prepared for Chemical, Biological or Radionuclear Incidents?

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Study/Objective: To evaluate hospital preparedness for CBRN incidents in the Netherlands.
Background: Being one of Europe's densest populated countries with multiple nuclear installations, a heavy petrochemical industry and also at risk for terrorist attacks, The Netherlands bear some risks for CBRN incidents. Our hypothesis is that local hospitals are not prepared to deal with these incidents.
Methods: All 93 Dutch hospitals with an ED were sent an online survey on different aspects of preparedness. Apart from specific hospital data, information on: hospital disaster planning; risk perception; availability of decontamination units, personal protective equipment, antidotes, radiation detection, infectiologists, isolation measures and staff training were obtained.
Results: Response rate was 65%. Data of this responder group are presented. Although 59% of them estimated to be at risk for CBRN incidents this is only included in disaster plans in 41%. Only 35% has decontamination facilities and 28% has appropriate personal protective equipment available for triage and decontaminating team. Atropine is available in high doses in all centers but specific antidotes such as hydroxycobolamine, thiosulphate, prussian blue, DTPA or pralidoxime are less available (70, 56, 8, 14 and 34% respectively). 6% have radiodetection equipment with alarm function and 25% has 24/7 availability of a nuclear specialist in case of disasters. Infectiologists are continuously available in 61%. Individual isolation facilities are found in 12%.
Conclusion: There are serious gaps in hospital preparation for CBRN incidents in The Netherlands. Financial aspects are the major drawback.
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ID 383: Data for Mass Gathering Health: What is on Your Shopping List?

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Study/Objective: To obtain a list of data elements to be considered for inclusion in a Minimum Data Set (MDS) for Mass Gathering Health (MGH) through an interactive poster.
Background: Mass gatherings are events where crowds gather in sufficient numbers to strain a host community's resources. A group from Australia, Canada and England are working to establish consensus on a recommended MGH-MDS, as part of an ongoing international Delphi project that forms part of the work plan of the Flinders University WHO Collaborating Centre on Mass Gatherings. Agreement on and standardization of MGH terminology and data items will lay the groundwork for a robust MGH evidence-base for governments, researchers, clinicians and event planners, which is lacking at this time.
Methods: The poster will briefly outline the background to the development of an internationally agreed on MGH-MDS. The poster will mainly comprise a MGH Data Matrix. The matrix's columns will reflect three phases to consider when organising an event, i.e., "Before", "During" and "After". The rows will consist of five layers, i.e., "international", "nation state", "host community", "event" and "presenting patient". WCDEM attendees can propose data items to be considered for inclusion

in the MGH-MDS by writing items on post-it notes and sticking these onto the poster. Contributors will have the option to leave their business cards for additional information about the Delphi project.
Results: The post-it notes will be collated into a 'shopping list' of data items to consider. The list will inform at least two online Delphi surveys to decide the essential data elements for inclusion in the proposed MGH-MDS.
Conclusion: This poster provides the opportunity for an international multidisciplinary audience to learn more about the international Delphi project and to propose data elements they consider relevant for inclusion in a MGH-MDS. Their input will be valuable in informing further work on the project.
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ID 386: Mortality at Mass Gathering Music Festivals

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Study/Objective: To begin to document the mortality burden associated with mass gathering music festivals.
Background: Music festivals are increasingly common. Media reports have highlighted numerous high-profile fatalities associated with music festival attendance. However, the mortality burden associated with such events is not well documented and consequently formulating and testing effective harm reduction and prevention strategies, in the context of music festivals, is challenging.
Methods: Drawing on gray literature, we analyzed and documented deaths associated with music festival attendance from 1999-2014. Data were collected retrospectively; multiple search engines were employed for case finding. During 2014, data was collected prospectively, employing an iteratively refined series of Google alerts.
Results: In the context of music festivals there have been 612 deaths documented in popular media in the last 15 years. Ages of the deceased ranged between 14-67 years (mean 22.5 years). Attributed causes were divided into traumatic (510/612; 83%) and non-traumatic (102/612; 17%) causes. Trauma-related deaths included three mass casualty incidents. Media reports included fatalities arising from trampling (n = 447), acts of terror (n = 26), drowning (n = 6), structural collapse (n = 5), motor vehicle related (n = 20), assaults (n = 2), hanging (n = 2), fall (n = 1), and thermal injury (n = 1). Non-traumatic deaths included overdoses (n = 80/612; 13%), environmental (n = 5/612; 1%), natural causes (n = 8/612; 1%), and unknown/not reported (n = 9/612; 2%).
Conclusion: Two main points of interest arose in relation to the results. First, the majority of deaths associated with music festivals were the result of traumatic injuries sustained by attendees. Second, for deaths not associated with trauma, the majority (78%) were related to overdose or poisoning, highlighting opportunities for harm reduction research moving forward. Despite multiple limitations, the methodology presented in this manuscript represents a starting point in the surveillance and documentation of the mortality burden associated with music festivals, and may be a useful method to engage in active surveillance for other event categories.
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ID 387: Reducing the Impact of Cyclone, Flood and Storm Related Disasters on Non-communicable Diseases Through Public Health Infrastructure Resilience

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Study/Objective: To explore how the impact of cyclone, storm and flood related disasters on non-communicable diseases can be reduced through public health infrastructure resilience.
Background: Worldwide there has been a 'disease transition' to non-communicable diseases (NCDs), creating a range of challenges for governments, health care and service providers. Prominent among the NCDs are cardiovascular diseases, cancers, diabetes, asthma, arthritis and kidney diseases. NCDs are reliant on public health infrastructure (PHI) such as medications, equipment, services, housing, water, food, waste and sanitation. Damage to this infrastructure places the vulnerable population with NCDs at a greater risk of death and mortality due to disasters. This research aims to address this risk by exploring how the impact of cyclone, storm and flood related disasters on NCDs can be reduced through PHI resilience.
Methods: Focus groups and interviews were completed with people who have NCDs, disaster responders, health specialists and government officials across Queensland, Australia. The impact of flood, storm and cyclone related disasters on NCDs, resilience concepts and implementation strategies were explored. The data was analysed following qualitative principles. This included data collection and organization, description, classification and interpretation.
Results: The research found disasters impact on the management of NCDs. This included 30 descriptions of how disasters can impact on NCDs; 123 descriptions of PHI, which were categorised into 16 themes; and identified 24 resilience concepts. The analysis also found PHI has an integral role in reducing the impact of disasters on NCDs. The findings have informed the development of a conceptual framework for mitigating the impact of disasters on people NCDs through PHI resilience.
Conclusion: Disasters create a challenge for managing NCDs. To minimise the impact there is a need to have resilient

PHI. This means disaster preparedness needs to focus on strengthening PHI, which will also help address modern disease priorities such as NCDs.

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ID 388: A Systematic Review of the Literature on Burn Injuries in Low- and Middle-income Countries

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Study/Objective: A systematic review of the literature on thermal, chemical, and electrical burns in low- and middle-income countries (LMICs).

Background: According to the WHO, burns result in more than 250,000 deaths and almost 18 million DALYs annually, approximately 90% of which are in LMICs. Burn injuries are particularly devastating in LMICs due to the limited infrastructure and the lack of rehabilitation services.

Methods: The authors performed a systematic review of the literature indexed in PubMed, EMBASE, Scopus, Web of Science, Global Health, and the Cochrane library databases in June 2013. Abstracts were limited to human studies in English. The initial search returned 10,753 abstracts. Screening by at least two reviewers using criteria determined *a priori* identified approximately 700 manuscripts for further analysis in the areas of epidemiology, prevention, treatment, and outcomes.

Results: Regarding epidemiology, more than 300 manuscripts met criteria for further analysis. The majority were burn unit-based studies in Asia (48%), followed by Africa (11%), South America (4%), Europe (1%), and North America (<1%). Admission criteria and terminology across units are highly variable. For prevention, 12 articles were identified. Preliminary analysis of manuscripts describing treatments and outcome yielded more than 50 randomized controlled trials (RCTs) or observational studies and nearly 350 articles describing outcomes. The literature by region mirrors the incidence of burn injuries worldwide.

Conclusion: Research on the epidemiology and treatment of burns in LMICs is lacking. Hospital-based studies make up the majority of what is known, however these data are only a limited representation of the overall epidemiology. Burn injury terminology as well as burn unit admission criteria are inconsistent. Finally, outcomes assessments to more fully characterize the burden of disease as well as more RCTs must be conducted in LMICs in order to continue to advance the care of burn injuries worldwide.

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ID 389: Risks and Patient Presentations at a 2-day Electronic Dance Music Event

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Study/Objective: To measure the impact of an onsite medical team during a 2-Day Electronic Dance Music Event (EDME).

Background: EDMEs are increasingly common in Canada and internationally. Part of a 4.5 billion dollar industry annually, the target audience is youth and young adults aged 15-25 years. Little is known about the impact of these events on ambulance services and local emergency departments (EDs).

Methods: Drawing on prospective data over a 2-day EDME, we employed mixed methods to describe the case mix and prospectively compared patient presentation rate (PPR), and ambulance transfer rate (ATR) between a first aid (FA) only, and a higher level of care (HLC) model.

Results: There were 20,301 ticketed attendees. Seventy patient encounters were recorded over two days. The overall PPR was 4.09 per 1000 attendees. Roughly 69% of patients were female (n = 48/70). The average patient age was 19.1 years. Forty-six percent of those seen in main medical were under the age of 19 (n = 32/70). The average length of stay in the main medical area was 70.8 minutes. The ATR with FA only would have been 1.98 per 1000 attendees. The ATR with HLC model was reduced to 0.52 per 1000 attendees. The presence of an on-site HLC team had a significant positive effect on avoiding ambulance transfers (Odds ratio 6.7478; $p < 0.0001$).

Conclusion: Twenty-nine ambulance transfers and ED visits were avoided by the presence of an on-site, HLC medical team. Reduction of impact on the public health care system was substantial. EDMEs have predictable risks and patient presentations, and appropriate on-site health care resources may significantly reduce the impact on the prehospital and emergency health resources in the host community.

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ID 390: Chain of Survival at Music Festivals: A Structure to Organize Evidence-based Recommendations to Improve Health Outcomes

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Study/Objective: To create a structure to organize and evaluate recommendations that may reduce fatalities and improve health outcomes at music festivals.
Background: Between January and November 2014, at least 49 people died while attending music festivals; many more individuals were treated onsite or admitted to hospital. More than 600 deaths at music festivals have been reported from 1999-2014. It has been reported that alcohol and/or drug use may be a contributing factor in nearly 80% of the non-traumatic fatalities. There are no consistent, evidence-based guidelines aimed at prevention, risk mitigation and emergency response at music festivals.
Methods: The Canadian Centre on Substance Abuse and the UBC Mass Gathering Medicine Interest Group have assembled a consensus conference (January 2015) to collate and analyze best-practices and develop recommendations for preventing, reducing, and responding to alcohol- and drug-related harms at music festivals. Stakeholder representation includes police, security, public health, emergency management, health professionals, event promoters and producers.
Results: Similar to the familiar 'Chain of Survival' for emergency cardiac care, recommendations will be organized under domains represented as 'links' in a proposed Chain of Survival for Music Festivals: (i) Security and Policing, (ii) Health Promotion, (iii) Injury/Illness Prevention, (iv) Harm Reduction, (v) On-Site Emergency Response, and (vi) Transport & Emergency Department Care. Recommendations will be collated, evaluated, rated and ranked based on levels of evidence.
Conclusion: This project will produce a set of recommendations and considerations for preventing, reducing, and responding to alcohol- and drug-related harms at music festivals. The Chain of Survival for Music Festivals will create a matrix of recommendations, that may be implementable in the 2015 event season, and may form a structure for prospective research agendas under each link in the chain. Recommendations may also form the foundation for a knowledge sharing strategy built on evidence-based practices known to date.

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ID 391: Use of Disaster Bus in Mass Casualty Incident (MCI) Experience of UAE- Abu Dhabi Police Ambulance

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Study/Objective: Mass casualty incidents can occur in variety of ways that include man made and nature disaster, major fires, and transportation accident. One of the problems in Mass Casualty Management is the limited material transport resources. The purpose of this study is to evaluate the effectiveness of the Disaster Ambulance Bus in case of MCI.
Background: Many MCI caused by Road Traffic Accident (RTA) was reported in Abu Dhabi with a big number of injured and killed people. The decision to add a big ambulance that can transport 20 patients (with advanced medical equipment and appropriate medical staff) was taken and Abu Dhabi Police Ambulance (ADPA) started using this Disaster Bus (DB) also named mobile field hospital since 2007. In this DB there are 16 stretchers and 4 patient's seats, all patients can be monitored and can receive oxygen at the same time.
Methods: Retrospective analysis of MCI in which the DB of ADPA was activated.
Results: Three times the DB was used following 3 major RTA caused by poor visibility due to the thick fog and lack of attention by motorists: March 2008: Around 200 cars were involved in the crash which happened on the highway AD-Dubai. 25 vehicles caught fire, 6 people were killed, and 350 injured. 2 DB transported more than 100 green and yellow patients. January 2014: Major pile-up of over 20 vehicles on the AD-Dubai highway, one dead and 27 injured. One DB transported 20 patients. January 2014: Another accident involving 57 vehicles on the AD-Al Ain highway injured 14 people. One DB transported 12 patients.
Conclusion: The Disaster Bus is very useful in MCI. One DB can replace 10 ambulances. This type of vehicle is highly recommended for ambulance sections in pre-hospital setting.

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ID 392: Effect of Typhoons on the National EMS System

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Study/Objective: The purpose of this study is to evaluate the influence of typhoon on Emergency Medical Service (EMS) patients and its performance.
Background: Typhoons' effect on emergency medicine has been evaluated before. However, little has been studied about its effect on EMS systems.
Methods: Study period was from 2010 January to 2012 December. Meteorological data regarding typhoons was provided from the Korean Meteorological Administration (KMA). EMS data was retrieved from national EMS database of the national emergency management agency (NEMA). The database is composed of ambulance run sheets, which contain clinical and operational data. EMS calls on the day (24 hours) of typhoon warning were considered as cases, and calls one week prior to the typhoon warning (24 hours) as controls.
Results: During the study period, 11 typhoons affected Korea. 5 (45%) passed through, while others passed nearby. Regarding strength, the typhoons were categorized into 4 groups by the

KMA: 2 typhoons were categorized as level 1 (>44 m/s), 3 as level 2 (33 m/s-43 m/s), 2 as level 3 (25-32 m/s) and 4 as level 4 (17.2-24 m/s). 16 days were selected as cases. 137,204 cases were analyzed. Total EMS calls per day has increased from 4,223 calls to 4,352 (difference: 130, p = 0.07) without statistical significance. The average age was 51.9 years (SD:25.1). 77,506 (56.5%) patients were male, and 69,419 (50.6%) patients had injuries. The age, gender, and injury did not show significant difference between groups. Response interval increased from 8.09 min to 8.16 min (difference: 0.07, p = 0.01), and total transport interval increased from 28.0 min to 28.2 min (difference: 0.2, p = 0.001). However transport distance did not show significant difference 10.2 km (SD:26.6) for cases vs 10.2 km (SD:27.3) for controls, p = 0.31) between groups.

Conclusion: Typhoons' effect on EMS patients was not significant. The influences on EMS systems were partially significant with small effect size.

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ID 395: Standardized Educational Course on Disaster Medicine in Intensive Care in Japan

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Study/Objective: Evaluate the educational effectiveness of standardized course on disaster medicine in intensive care in Japan.

Background: It is essential to establish a seamless collaboration between emergency and intensive care especially during a large-scaled disaster. However, there was no standardized educational course for critical care providers in Japan. Therefore, we introduced the Fundamental Disaster Management (FDM) course by the Society of Critical Care Medicine. The educational effectiveness was analyzed through surveillance questionnaires after five courses.

Methods: Five courses have been held since November 2011 to May 2014. Evaluation was conducted through surveillance questionnaires to 188 participants. The questionnaires were; A. understanding the concept, B. satisfaction level of the whole course and C. satisfaction level of each lecture.

Results: All participants answered the questionnaires. The numbers of participants who scored more than four points out of five points were as follows; A. was 141 (75.0%) and B. was 141 (75.0%). According to C., highly acclaimed lectures were Chemical and Radiation Exposures, Triage and Allocation and Personal Protective Equipment and Procedures. In general, an evaluation from the participants has been getting higher with repetition. There are some conceivable reasons for this, one of which is the course has been sophisticated and others are that the importance of standardized education is newly recognized and the appropriate agenda meets demand is provided. The next steps to be done are promoting understanding the importance of the FDM course and ensuring the integrity with preexisting courses on emergency medical field. It is indispensable to establish the standardized educational courses cover all phases from prehospital to rehabilitation. The FDM course will carry a vital role among those.

Conclusion: The FDM course is being recognized as a standardized educational course in intensive care during a large-scaled disaster. This significant course has to be provided periodically in the future.

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ID 396: Nusantara Health Collaborative (NHC): Enhancing Inter-professional Practice in Managing Disaster in Indonesia

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Study/Objective: The aim was to develop a novel approach for disaster medicine training. It is hoped that this approach can serve as a method to enhance both skills and knowledge in disaster management through inter-professional practice.

Background: Indonesia is known as a market for disaster. An effort to minimize victims is imperative. The current approach to disaster medicine education is insufficient to improve the outcome of health services during disaster. A novel approach, called inter-professional collaboration must be integrated into formal and informal disaster medicine education. Nusantara Health Collaborative (NHC) on Disaster Management was an event hosted by a collaboration of (Indonesian) health-care students from various disciplines combining a variety of learning methods.

Methods: The participants were health-care professionals and health-care students from various disciplines. Expert lectures on disaster management, video training and case-based group discussions were conducted on day one. On day two, participants took part in field simulation training. A pretest and posttest were used to evaluate the program.

Results: More than 90% of participants perceived the advantages of the program. Participants felt satisfied and hoped the same program could be conducted every year with some improvements. A model for inter-professional practice in disaster management was also the product of this program.

Conclusion: NHC was a helpful learning model for a disaster education program. By using an inter-professional

approach, the outcome of health services during disaster can be improved greatly. The products of this collaborative program should be followed up and developed further to gain even better results. Thus, further support for program development is required.

Prehosp Disaster Med 2015;30(Suppl. 1):s71–s72
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ID 397: Rescue Helicopter Missions for Suicide Victims: A Five-Year Analysis of a German Rescue Helicopter Base

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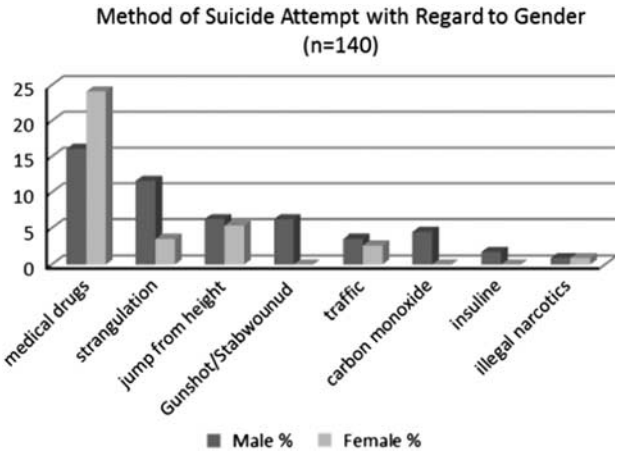
Study/Objective: Goal was an analysis of emergency cases associated with suicide.
Background: In Germany, emergency physicians ensure primary care in the prehospital setting. Typical reasons for alerting the rescue helicopter are heart diseases or injuries during accidents. There is also a high number of patients with attempted or completed suicides.
Methods: Data of all rescue missions performed with the rescue helicopter (German Air Rescue) based in Dresden between 1/2008 and 12/2012 were recorded on a standardized protocol and were analyzed with special regard to suicides.
Results: There were a total of 7619 helicopter missions during the study period. 140 cases (1.84%) were related to suicide. Helicopter was on scene within 10.9 minutes [4-22]. Mean NACA Score 4.9. Mean age 53.7 [14-95]. Male: 56.3%. In 14.9% of cases, patient himself called for help; in 37.12%, caregivers contacted authorities. Reason for attempted suicide was unknown in 64.4%, relation to partnership 12.4%, health problems 17.4%. 14 suicide notes were found. Main method of attempt: Use of medical pills (41.4%). Female victims more often use pills. Other frequent methods: Strangulation (14.28%), stab wounds, gunshots (10.71%), jump from height (9.3%), or unknown (13.57%). Methods containing violence were used frequently more often by male victims. Comparing methods with outcome jump from height and strangulation was associated with high lethality. 23 patients were announced dead at the time of helicopter arrival. 17 patients received cardiopulmonary resuscitation, within 7 reached a return of spontaneous circulation (ROSC). Especially in patients with strangulation ROSC was high. 6 patients received CPR, 4 reached ROSC. The overall lethality was 23.57%. 107 Patients were admitted to hospital.
Conclusion: Suicide attempts are associated with high lethality. This study demonstrates the need for better prevention as well as an improvement of education for emergency teams. We should also improve the awareness of this common medical and major social problem.



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ID 400: Climate-related Disasters in Japan

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Study/Objective: To contribute to strengthening the societal capacity to cope with the climate-related disasters, the occurrence trend of abnormal meteorological phenomena and resultant disasters were studied.
Background: In recent years, a localized torrential rainfall of 80mm/hr and above caused landslides and floods and killed dozens of people several times, as was the case of major landslide disaster in Hiroshima in August 2014. Such an extremely heavy rainfall over a short period of time was not observed so often in the past. In addition, underground malls and railway systems have been developed in major cities around the country as well as new towns being built at the base of mountains. However, most of the existing sewage systems in Japan are incapable of handling a heavy rainfall of over 60 mm/hr. This means there are heightened risks of flood and landslide disasters due to torrential rainfalls.
Methods: Reviewing the annual reports of the Japan Meteorological Agency, the incidence of torrential rain disasters that claimed human lives was tallied for every 5 year period since 1946. Number of casualties of climate-related disasters and respective health care responses were also looked into.
Results: Prior to 1960's, while the incidence of torrential rainfall was low, number of deaths by climate-related disasters in each 5 year period exceeded 5,000. Typhoons were mainly responsible for those casualties, and the society was still vulnerable to natural disasters back then. In contrast, casualties of meteorological disasters in recent 20 years have decreased significantly thanks to the improvement of river systems and social infrastructure. On the other hand, however, the incidence of heavy localized rainfalls of unprecedented scale is on the rise.

Conclusion: Due to the global warming, occurrence of torrential rainfall is increasing, and the people in Japan should enhance their capacity to cope with this kind of disasters.

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ID 402: Enhancing Villagers' Health Risk Literacy on Non-communicable Diseases (NCDs) as a Means for Disaster Risk Management: A Pilot Study in Rural China

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Study/Objective: To equip the villagers living with NCDs (NCD villagers) with adequate health risk literacy for managing their diseases in times of disasters in rural China.
Background: NCDs are prevalent in China, including rural villages. These villagers may not have adequate health risk literacy for managing their NCDs when disaster comes. As such, packing an easy-to-make emergency rescue bag, inclusive of adequate medication for disasters, can be an important means for disaster risk management. Particular focus on addressing disease management when the supply of medication is interrupted during disasters is highlighted. As it is known that knowledge transfer is not effective, a health education programme targeting the basic literacy on knowledge of NCDs, communicative literacy by training the villagers' capability of packing an emergency rescue bag, and the critical literacy for empowering effective community communication and dissemination will be provided.
Methods: Preliminary health needs assessment and rapid situational market analysis will be conducted in a rural village in Guizhou, China for villagers aged 15-69 to ascertain the NCDs that are common and the behavioural outcome of packing an emergency rescue bag. Pilot qualitative studies including participant observation, gender-specific focus group discussions will be held to capture the contextual factors for facilitating future interventions. A controlled health education intervention study will then be conducted for comparing the differences between intervention and control groups (only with standard health care services) in two villages that have similar demographics and disease patterns.
Results: It is expected that the villagers in the intervention group will have higher health risk literacy and also greater self-efficacy in packing an emergency rescue bags than that of the control groups.
Conclusion: Equipping villagers with the adequate health risk literacy for disease and emergency management is an important strategy for disaster risk management for NCD patients.

Prehosp Disaster Med 2015;30(Suppl. 1):s73
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ID 405: A Systematic Review of Health Effects of Earthquakes and Tsunamis – Different Disasters, Different Needs, Different Response

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Study/Objective: The aim of this study was to increase the understanding of the health effects of earthquakes and tsunamis. This could then contribute to improved disaster response in the future.
Background: Despite the countless number of disasters that has occurred in the last three decades, surprisingly little is known on their actual health effects. Even less of this knowledge is based on robust scientific studies. While acknowledging that high quality research is difficult to perform in disaster settings, the importance of methodologically robust research cannot be emphasized enough. By systematically collecting information on existing research on health effects of disasters in various types of settings and at different time points, we contribute to the creation of a much-needed knowledge base.
Methods: We systematically searched all relevant databases (PubMed, CINAHL, EMBASE, Web of Science) for publications including terms "earthquake" OR "tsunami" AND "health". We included studies published between 1980 and 2013, that were written in English and contain information relevant to the study. Data was then extracted from relevant studies and sorted into various categories.
Results: Over 200 studies were included in the review, the majority investigating health effects of earthquakes. By sorting studies depending on various parameters such as type of disaster, context in which it occurred, at what phase after the event as well as the type of study, we were able to systematically map the health effects after earthquakes and tsunamis. Based on this data, we created a comprehensive framework with the capacity to greatly improve the medical response to future disasters.
Conclusion: A disaster will have a very different impact depending on the context in which it occurred and it is therefore not possible to uncritically transfer knowledge from one setting onto another. Systematic reviews have the potential to greatly contribute to our understanding of knowledge gaps within disaster medicine.

Prehosp Disaster Med 2015;30(Suppl. 1):s73
doi:10.1017/S1049023X15002137

ID 410: Documenting and Analyzing the Quality of Coordination and Response of Emergency Medical Services in Areas Acutely Affected by Typhoon Haiyan

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Study/Objective: This study aims to document the existing Philippine EMS system in action according to what transpired during the acute phase of Typhoon Haiyan/Yolanda.
Background: With the high frequency of typhoon-related disasters hitting the Philippines, the level of preparedness and capacity to respond should be high and appropriate. Typhoon Haiyan/Yolanda was the record breaking typhoon of 2013 in the Asia Pacific with a death toll of 6,300 and 1,500 went

missing. There were 16M people affected, damaged 1.1M homes, 4.1M people displaced and damaged 571 health facilities approximately worth US$16M. This report focuses on the aspects involving Pre-Hospital Medical and Trauma care such as triage and treatment and the census of cases seen by the EMS groups.
Methods: The Utstein Style Template for Uniform Data Reporting of Acute Medical Response in Disasters was used as the data collection tool and was sent to EMS first responders during the immediate aftermath of the typhoon. There were 52 e-mail respondents, 45 of which participated in the workshop conducted on March 25-27, 2014 in Manila, Philippines.
Results: Majority of the respondents were from private agencies.The EMS response was disorganized and had various levels of coordination. The triaging process was also not standardized and no documentation was done by most field teams. Most common health problems encountered were soft tissue injuries, symptoms of depression, and infectious and pulmonary problems. The least encountered problems were childbirth, fever and allergies. Only 41% of the injuries presented with problems that were directly related to the typhoon.
Conclusion: There is a need for a national EMS registry and a standard /protocol/guidelines for the EMS in the country, as well as, the need to improve the coordination and communication process for government and non-government organizations EMS responders. It is of utmost importance to promote the value of a standardized EMS training.
Prehosp Disaster Med 2015;30(Suppl. 1):s73–s74
doi:10.1017/S1049023X15002162

ID 411: Hospital Nurses' Competencies in Disaster Situations: A Qualitattive Study in the South of Brazil

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Study/Objective: Identify hospital nurses' competences in disaster situations.
Background: Hospital nurses play a key role in the occurrence of disasters and need specific competencies to work in these situations. From a global perspective, few models exist that focus on disaster nursing.
Methods: A qualitative study was developed, using focus groups as a method of data collection. Three meetings were from held June to September 2012 with nurses who worked at a Hospital used as reference for disaster situations in the South of Brazil. Thematic analysis of collected data generated the competencies. For statement standardization, a format consistent with a verb, a noun and a complement was adopted.
Results: The group validated 17 competencies, which were organized according to the phases of emergency management described by the World Health Organization and classified in domain areas of management, health care, communication and education.
Conclusion: Although reflecting Brazilian reality, they could be compared to those developed in other countries, reinforcing the International Council of Nurses premise that competencies should be broad enough to be applied all over the world. They can serve as a guide or resource for curriculum development and review, continuing education and training programmes of nurses.
Prehosp Disaster Med 2015;30(Suppl. 1):s74
doi:10.1017/S1049023X15002174

ID 412: Humanitarian Nursing in a Viral Haemorrhagic Fever Outbreak: Before, During and After Deployment

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Study/Objective: To investigate how returnee nursing staff experienced deployment before, during and after working for Red Cross (RC) in West Africa during the Ebola virus disease (EVD) outbreak. The study will supply knowledge on how to better prepare staff for future viral haemorrhagic fever (VHF) outbreaks.
Background: RC staff and volunteers play an active role in responding to humanitarian crisis, including the EVD outbreak in West Africa 2014. RC is engaged in ensuring safe and dignified burials, contact tracing, and control/surveillance of deadly viruses at clinical and community level.
Methods: A pilot questionnaire with ten open-ended questions was sent via e-mail to ten nurses having returned after working with EVD patients in West Africa. It covered aspects of pre-deployment training, leadership styles, stress management, socio-cultural exposure, and personal health issues. Data was analysed using content analysis. The study is ongoing.
Results: Mean age of participants was 55.5 years, and eight had received ERU-training. All had previous experience from humanitarian work. Country of origin was northern/southern Europe or Oceania. They reported adequate health preparation and follow-up by RC, emphasizing the importance of previous related experience as well as trust and pride in RC. All were experienced leaders by profession, but none had worked as a leader during this deployment. Being focused on their duties during deployment and only allowing emotional reactions afterwards, they stressed the importance of social contact and support between colleagues. Future suggestions: workload reduction and improvement of work conditions potentially related to risk of security mistakes, and more in-depth information about VHF outbreaks given to family and colleagues back home.
Conclusion: Participants were generally positive to their deployment in an acute VHF outbreak, however the necessity of ERU-training was emphasized. Support from colleagues was stressed as important. Information given to family and colleagues was relevant but not sufficient.
Prehosp Disaster Med 2015;30(Suppl. 1):s74
doi:10.1017/S1049023X15002186

ID 413: Increasing Capacity in Emergencies and Disasters Through Community-based Response Programs and Increasing Local Volunteer Capacity in West Africa

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Study/Objective: To increase capacity in dealing with emergencies at the community level through community targeted training programs.

Background: In Sub-Saharan Africa, poverty, hunger and childhood and communicable diseases have been the primary concerns. However, with the advent of recent developments within our borders such as wars and internal conflicts; terrorism; natural and man-made disasters; increasing rates of road and air crashes; and most recently, outbreaks of life-threatening diseases, the focus is shifting. These mandate us to look inwards and develop our capacity to respond timely and appropriately to these emerging emergency needs. Meeting these needs require multi-faceted and multi-organizational efforts. However, this paper seeks to propose an approach from a community and individual level.

Methods: In emergencies or disasters, usually the first to arrive at the scene are not the formal emergency team responders. In organized settings, it might take several minutes for a response/rescue team to get to the site and much longer in less organized systems. Volunteers are equipped using a community-based approach. Modules are designed to educate, train and provide simple, codified, stepwise and community understood algorithms to respond to different emergency needs, whilst activating the State/Region's emergency response system, will significantly impact overall outcome. These trainings can be organized by EMT/EMS teams, Red Cross and other certified and recognized teams.

Results: This approach will prepare communities to anticipate emergency situations and to deal with them timely, appropriately and synergistically with the Nations' emergency/response strategies.

Conclusion: In the long haul, these communities will show increased resilience to recurring disasters, recover quickly from a disaster situation and help mitigate against future occurrences than an uninvolved community.

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ID 415: Using Event Based Surveillance for Mass Gathering Event Monitoring: Description and Analysis of an Epidemic Intelligence Surveillance System to Detect Any Potential Outbreaks During the 2014 FIFA World Cup

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Study/Objective: The purpose of this study is to describe how preliminary risk assessment for a mass gathering event can improve epidemic intelligence detection through event-based surveillance monitoring.

Background: Mass gatherings pose an unique public health challenge as they can be an ideal setting for outbreaks of disease. Event-based surveillance offers a valuable source for disease activity information not only directly regarding the event but also for surrounding countries in order to find potential importation of communicable diseases. During the 2014 FIFA World Cup in Brazil, with over three million visitors, ECDC carried out enhanced surveillance for communicable diseases from 9 June to 18 July 2014 using real-time event monitoring system called MedISys.

Methods: Risk of infection was assessed both for EU visitors travelling to and from Brazil, and the risk of importation to Brazil from the EU, based on the epidemiological profile for infectious diseases of the country and the profile of the visiting populations. Over 40 infectious diseases were identified and were included in a web-based screening system. During the monitoring period, events of interest indicated in the risk assessment were documented in a real-time event database and then compared with reports collected through routine monitoring by the ECDC epidemic intelligence team.

Results: During the monitoring period 34 797 news items came through MedISys related to the diseaselist, these were assessed by the mass gathering analyst in charge. For monitoring events inside Brazil 47 items were identified of these 30 % (n = 14) did not fit the diseases identified in the RA. For monitoring global events 137 items were reported by ECDC of these 67% (n = 94) did not fit the criteria. (table 1).

Conclusion: The risk assessment carried out ahead of the FIFA proved useful in helping to identify communicable disease activity in Brazil compared to the routine epidemic intelligence monitoring during this period.

Disease Group	Diseases identified in the ECDC RA for enhanced focus	Number of events detected in Brazil	Number of events detected globally excluding Brazil	Cumulative number of events detected by ECDC	Volume of articles in MediSys related to FIFA	Volume of articles in MediSys related to disease cumulative number
Antimicrobial resistance and healthcare-associated infections						
	Resistant *Pseudomonas aeruginosa*[*]				4	128
	Carbapenem-resistant *Klebsiella pneumoniae*[*]				3	92
Food and water borne diseases						
	Salmonellosis[f]		10	10	10	695
	Campylobacter infections[f]				3	169
	Hepatitis A	1	2	3	5	165
	Norovirus[f]				2	106
	VTEC/STEC/*E.coli*[f]		3	3	21	1072
	Food poisoning, unspecified	2		2	29	1401
	Yersiniosis[f]				0	13
	Dysentery/bloody diarrhoea				17	1065
	Shigellosis				5	97
	Botulism[*]		2	2	2	307
	Legionnaires' disease[*]				0	106
Zoonoses						
	Rabies				10	380
	Leptospirosis	2		2	5	126
	Trichinosis				1	109
	Avian influenza (A(H7N9), A(H5N1), others)		1	1	16	936
Vector-borne diseases						
	Malaria	1		1	117	1631
	Dengue	6	3	9	921	3402
	Yellow Fever				67	176
	Chagas				23	73
	Leishmaniasis				8	45
	Lymphatic filariasis				3	41
	Chikungunya	8	12	20	719	3543
Sexually transmitted diseases						
	HIV	1		1	401	7859
	Syphilis				8	283
	Gonorrhoea				3	224
	Chlamydia				2	132
	Hepatitis B				22	308
	Hepatitis C				42	886
Vaccine Preventable Diseases						
	Polio	1	6	7	163	1567
	Rubella		1	1	7	210
	Measles	1	1	2	31	1656
	Mumps				0	184
	Pertussis	3		3	9	273
	Invasive meningococcal disease (IMD)				13	420
	Typhoid fever				3	339
Respiratory Diseases						
	Upper Respiratory Tract infections				39	2164
	Influenza-like illness (ILI)	7	2	9	72	964
	Tuberculosis				59	1196
	Leprosy				52	254
Cumulative number		**33**	**43**	**76**	**2917**	**34797**

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ID 418: Le Médecin....impliqué

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Study/Objective: Le médecin, premier intervenant sur les lieux d'une catastrophe, qu'elle soit à effet limité ou majeure, se doit de respecter, malgré un certain degré d'improvisation, des règles de base non enseignées aujourd'hui pendant les études médicales. Evoluer des principes d'une médecine individuelle vers ceux d'une médecine collective oblige le praticien à oublier pendant un certain temps son rôle de soignant et à prendre une fonction de manager de crise, premier maillon de la chaîne des secours et premier directeur des secours médicaux. La plus value de son engagement, tant au niveau tactique que dans l'organisation logistique, se traduira par une augmentation des chances de survie de nombreuses victimes. Dans cette phase de désorganisation totale de la vie publique qui dure de quelques heures à quelques jours, le professionnel de santé reste une référence pour une chaîne du secours qui n'existe pas encore. Ses connaissances peuvent apporter une plus value non négligeable dans cet état de pénurie de ressources sanitaires. En qualité de témoin, d'impliqué, il est reconnu comme « sachant » par la population qui voit en lui un leader. Son pouvoir limite les mouvements de panique et ses décisions organisationnelles sont acceptées et exécutées. Il devient le passage obligatoire dans cette gestion provisoire de la crise sanitaire en attente de la venue des moyens publics et des organisations de secours. Son implication quotidienne au sein de la population et sa connaissance du milieu et du site, en font un partenaire incontournable. Son acceptation d'occulter le rapport singulier médecin-malade pour se consacrer, au travers de règles basiques, à une gestion collective des victimes fait de ce médecin premier intervenant le pivot central de la réponse locale à un évènement catastrophique.
Study/Objective: Créer un algorythme reflexe.
Background: Utiliser les retours d'expérience.
Methods: Fil conducteur basique.
Results: Le médecin, premier intervenant sur les lieux d'une catastrophe, qu'elle soit à effet limité ou majeure, se doit de respecter, malgré un certain degré d'improvisation, des règles de base non enseignées aujourd'hui pendant les études médicales. Evoluer des principes d'une médecine individuelle vers ceux d'une médecine collective oblige le praticien à oublier pendant un certain temps son rôle de soignant et à prendre une fonction de manager de crise, premier maillon de la chaîne des secours et premier directeur des secours médicaux. La plus value de son engagement, tant au niveau tactique que dans l'organisation logistique, se traduira par une augmentation des chances de survie de nombreuses victimes. Dans cette phase de désorganisation totale de la vie publique qui dure de quelques heures à quelques jours, le professionnel de santé reste une référence pour une chaîne du secours qui n'existe pas encore. Ses connaissances peuvent apporter une plus value non négligeable dans cet état de pénurie de ressources sanitaires. En qualité de témoin, d'impliqué, il est reconnu comme « sachant » par la population qui voit en lui un leader. Son pouvoir limite les mouvements de panique et ses décisions organisationnelles sont acceptées et exécutées. Il devient le passage obligatoire dans cette gestion provisoire de la crise sanitaire en attente de la venue des moyens publics et des organisations de secours. Son implication quotidienne au sein de la population et sa connaissance du milieu et du site, en font un partenaire incontournable. Son acceptation d'occulter le rapport singulier médecin-malade pour se consacrer, au travers de règles basiques, à une gestion collective des victimes fait de ce médecin premier intervenant le pivot central de la réponse locale à un évènement catastrophique.
Conclusion: Le médecin.....premier impliqué dans la réponse sanitaire.

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ID 419: Cost Analysis of a Disaster Facility at an Apex Tertiary Care Trauma Center of India

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Study/Objective: The objective of this study was to calculate the cost of disaster facility at Jai Prakash Narayan Apex Trauma Centre, AIIMS, New Delhi.
Background: The Facility included a 20 bedded fully equipped ward, 8 ICU Beds with ventilator capacity, one VVIP observation area, one peri-operative management cubicle and one fully modular & integrated operating room.
Methods: The study was carried out in the disaster facility of Jai Prakash Narayan Apex Trauma Centre (JPNATC), AIIMS, New Delhi from April 2012 to March 2013. This study was observational and descriptive in nature. The method used was traditional costing methodology.
Results: Of the total cost towards the provisioning of services by disaster facility 26 % is capital cost and 74% is operating cost It is evident from this study that human resource caters to maximum chunk of the expenditures (47 %). Capital cost of the disaster facility amounts to (23%), capital cost of support services takes (1%) of the total cost. Consumables (19%) share of the cost.Engineering maintenance cost averages to (7%) and operating cost for support averages to (3%).The results of this costing study will help in the future planning of resource allocation within the financial constraints (US$ 1 = INR 62).
Conclusion: The study at Jai Prakash Narayan Apex Trauma Centre was conducted to have an idea regarding the amount of resources being devoted towards the provisioning of services for disaster facility at the apex tertiary care trauma centre in the country. This study expresses the amount of resources provided by our government to run such a facility and also brings cost consciousness among the service providers and other stake holders. The results of the study provides rough estimates for planning a similar disaster facility in near future by any other trauma centre in our country as well as in other countries prone to disasters.

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ID 420: Vers la Fin de l'uniformisation Des Pratiques

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Study/Objective: Cette analyse repose sur un constat d'échec ressenti par certains praticiens devant des situations en constante evolution
Background: L'étude est le fruit de contacts avec différents scientifiques.
Methods: L'objectif est une évolution des pensées.
Results: La pratique quotidienne de la médecine en situation de crise impose aux professionnels des secours d'évoluer dans leurs réflexions sans remettre en question certains dogmes de l'exercice de ce métier. Si l'axiome initial de coordonner dans la diversité demeure avec le souci de respecter des normes et des règlements, les contraintes extérieures ne cessent d'alourdir le fonctionnement de nos structures avec une préoccupation permanente d'éviter la judiciarisation des interventions. Ce positionnement de recherche d'uniformité peut être facteur de non progrès et oblige à évoluer vers le TOP DOWN (du sachant vers la base) au niveau des formations qui, très vite, montrent leurs limites. Les besoins augmentent, les risques évoluent et le temps s'accélère, limitant la rédaction de réponses adaptées. Très vite s'installe une désynchronisation avec des boîtes à outils désuètes. Aujourd'hui, une solution peut être trouvée avec le BUTTON UP (du bas vers le haut) qui permet d'utiliser l'expérience de l'homme de terrain dans sa capacité de s'adapter aux nouveaux risques, dans sa connaissance du milieu et dans son pouvoir de créativité. Cette approche nécessite de créer des structures de cohésion et de contrôle pour gérer et animer ce principe d'innovation participative. Les situations de crise deviennent de plus en plus fréquentes, la recherche de solutions impératives, en tenant compte de la diversité des populations et des cultures et de la diversité de l'interprétation des consignes règlementaires.
Conclusion: Existe-t-il une solution idéale pour régler de nombreuses contradictions? Le médecin, excellent mécano avec une boîte à outils qui lui paraît adaptée, doit cependant s'ouvrir à d'autres sciences comme la psychologie cognitive sans remettre en question le passé.

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ID 421: Evaluating Risk Factors and Areas for Improvement in Managing Disaster Responder Fatigue

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Study/Objective: The objective is to identify and address risk factors that affect fatigue levels of disaster workers. It is imperative that leaders in the disaster response industry make improvements on fatigue management to ensure that their workers are capable and prepared for field work.
Background: With an estimate of $125 billion USD in damages and over 20,000 lives lost worldwide in 2013, the need for talented disaster response workers continues to grow. These workers are faced with high-stress, physically exhausting jobs in difficult environments. Various organizations have published related studies including the Australian Commonwealth Emergency Management Institute (2011), the Qinghai Province of China (2009), and the US National Response Team chaired by the US Environmental Protection Agency (2009).
Methods: Research involved evaluating those who have worked on multiple full scale disaster operations including primary and secondary responders, military, medical, mental health and nursing responders. The study was comprised of 152 participants who have no underlying conditions such as PTSD, insomnia or rest difficulty in their regular daily lives. The evaluation consisted of 16 quantitative and two qualitative questions. Ten risk factors were included as focus points.
Results: Among the resulting data, 55 percent indicated they experience slight difficulty resting during their time on a disaster operation, while 34 percent experience major difficulty and 11 percent experience above average difficulty. 72 percent indicated that they know ten or more fellow responders who experience high difficulty resting on a response. Seven of the 10 risk factors were selected by over half of participants who indicated they have experienced them personally. 65 percent of participants believe that supervisors need to improve their skills in managing worker fatigue.
Conclusion: These results illustrate the need for improvement in managing and assessing disaster worker fatigue. The author will present three strategic approaches to address the study's risk factor areas needing improvement.

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ID 423: "I Don't Think it Was Particularly Helpful": Post-disaster Researchers' Experience of the Research Ethics System

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Study/Objective: To better understand the lived experience of researchers working in low-resource settings after a natural disaster, with a specific emphasis on their encounter with and perceptions of the research ethics system.
Background: The current emphasis on the importance of post-disaster research has spurred discussions regarding its ethical implications, particularly when it is conducted in low- and middle-income countries (LMICs). In spite of the growing discourse on post-disaster research, little attention has been paid to the experience and perspective of an important group of stakeholders: researchers.
Methods: Face-to-face and phone interviews were conducted with human health researchers who worked in post-disaster settings within 24 months of a large-scale natural disaster in a LMIC. Participants occupied a range of junior and senior positions at academic institutions and non-governmental organisations, and they hailed from geographically diverse locations.
Results: Many participants reported having bypassed the research ethics system. Participants justified this by

emphasizing the lack of time, the unplanned nature of their data collection, and the lack of awareness of existing structures or expectations. Furthermore, researchers discussed having made limited use of existing resources to work through the moral uncertainty they faced. They tended to be adamant that rigid guidelines would not have helped them cope with the ethical dilemmas they encountered, including those that evoked deep unease in most of them, such as participant compensation.

Conclusion: There appears to be a disjuncture between the expectations discussed in the disaster research ethics literature and the practices of many post-disaster researchers. This study helps promote dialogue by shedding important light on the kind of ethics training that researchers interested in post-disaster settings would value, as well as on areas where reinforced education could be beneficial.

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ID 426: Efforts Related to Migrating Disaster Medical Education Technique to a Country with Undeveloped Disaster Medicine

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Study/Objective: For the purpose of further medical exchanges, we held disaster medical seminars four times to date.

Background: Infrastructure is not keeping up with increases in road traffic due to economic development in Laos. This has led to an increasing number of traffic accidents, and there are concerns that a mass casualty incident may occur in some circumstances. Based on the topographical features of the land, there is a risk of natural disasters such as landslides in the northern area, and floods in the southern area. There remain many issues with medical care in Laos. Pre-hospital medical care is one of them. We have been doing a student exchange with a medical university in Laos for a long time.

Methods: The content somewhat differs between seminars, but mainly involves an outline of disaster medicine lectures, desktop simulations, lectures and triage practice.

Results: A total of 266 people participated, with a wide variety of participants, such as doctors, nurses and students. There are few opportunities for disaster medical education, and these seminars seem to have been favorably accepted based on post-seminar questionnaires. Based on questionnaire responses, the practice of START was generally understood, but secondary triage seemed to be difficult to perform in practice. Although the main issue is improvement of primary health care, the construction of a pre-hospital medical system and improvement of trauma care are also required.

Conclusion: We think that fragile health care systems require thought on prioritization, such as in relation to triage and ordinary medical care, and therefore, this kind of education is necessary. Challenges for the future of the seminar are to improve the content, increase the number of participants, and to provide training for local staff to become instructors.

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ID 428: Evaluation of the Cost Incurred in Rendering Emergency Care in an Apex Trauma Centre in New Delhi, India

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Study/Objective: The objective of this study was to estimate the total average cost incurred on emergency care per bed per day as it will enable to understand the financial outlay required in the case of planning for future facilities of similar nature.

Background: Emergency services being provided free in government hospitals, have no separate budgetary allocations. The cost is met by diverting the resources from the total hospital budget. Evidence based allocation of resources and policy decisions of such kind require scientifically garnered data on costing.

Methods: We undertook an observational study for a week to gain an insight into the physical facilities, policies and procedures being followed in the Emergency Department (ED). Consumption pattern of various hospital stores was studied for six months. Total cost incurred in running of the ED was worked out by integrating all the inputs required for delivery of emergency services like salaries of the providers of medical care, cost of consumables, cost of fixed assets and their depreciation cost, equipment cost, equipment depreciation and maintenance cost, overheads like building depreciation and maintenance cost, cost of electricity consumption, cost of laundry, blood bank services and cost of CSSD.

Results: The total average costs in rendering emergency care per bed per day came out to be about US $ 252.

Conclusion: In a populous country like India, the demand always exceeds the supply. The costing study has its rightful place in planning future set ups as well as balancing the clinical needs against the financial resources.

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ID 431: Fixed versus Variable Costs of Emergency Care of an Apex Trauma Centre in New Delhi, India

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Study/Objective: The objective of this study was to evaluate the fixed and variable costs involved in rendering emergency care per bed per day which will help in understanding the resource consumption pattern by the various cost centres and pave the way for a proper and scientific rationale for allocation of budgets.
Background: The trauma centre is the only level 1 trauma centre in the country and also acts as a referral hospital, where patients sent by zonal public hospitals and satellite trauma centres are observed and treated. Being the apex facility of this type in the country, it is highly imperative that the costing of the centre is done as it will facilitate better value of the services as well as be benchmark for replicating developmental activities in the future elsewhere.
Methods: Costs of emergency care were estimated according to traditional and time driven activity based costing methods approach. Costing heads considered were material, machine, manpower and money. Fixed and variable costs were enlisted. Cost per unit was calculated for different facilities and services of the emergency facility. Data on consumption of resources was collected through record inspection and review and quantitative information provided by the "key informants".
Results: The total fixed costs came out to be 180 US $ while the total variable costs were calculated as 72 US $ per bed per day respectively. Amongst the total fixed costs, contribution of manpower and equipment costs were US $ 155 and US $ 15 respectively.
Conclusion: Due to the high portion of fixed costs, the overall costs strongly depend on the capacity utilization and less on hospital stay. That is why it may be necessary in the future to create centres for trauma care to maintain economic efficiency for treatment of these patients.
Prehosp Disaster Med 2015;30(Suppl. 1):s78–s79
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ID 432: Lesson Learned from the Experiences of UAE USAR Team After the Earthquake in Padang 2009

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Study/Objective: On September 30th, a magnitude 7.6 earthquake struck just offshore of the town of Padang in Sumatra, Indonesia. UAE USAR team, which was preparing the IEC classification, had provided SAR support for 7 days. The purpose of this study was to determine whether the UAE USAR team response was organized and implemented as planned during the IEC preparation.
Background: There have been reports that hotels in Padang were destroyed, and communications to the city were disrupted, at least two hospitals and several schools have collapsed, around 135,000 houses were severely damaged, 1,115 dead and 1,214 severely injured.24 international SAR teams have been deployed to Indonesia. UAE USAR team has been deployed to Padang with 56 members and 4 dogs.
Methods: Management, logistics, search, rescue and medical records were examined retrospectively and analyzed by the UAE USAR group team leaders with the collaboration of UAE USAR IEC mentors.
Results: The Team Leader must stay focused on the strategic issues and not get caught up in operational decision making. A dedicated Safety Officer should ensure the use of team member tracking systems (Display boards) so that it is immediately known who is where at any point in time. The logistics officer must keep an accurate record of what equipment has left the Base of Operations and gone to the worksite. Good communication between the search technicians and the rescue technicians regarding victim location is essential. The USAR team Doctor must develop a medical evacuation plan for the route being travelled to the affected country.
Conclusion: During Padang earthquake, UAE USAR team response was organized. The team followed the INSARAG guidelines. It was a good preparation for the Emirate's IEC.
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ID 433: Role of Emergency Physicians Stationed in Mass-gathering Area

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Study/Objective: To examine usefulness of stationing emergency physicians in mass-gathering area.
Background: Our hospital is located near a large amusement park and emergency physicians from our department has been stationed at a first aid in the park during open hours, and offering primary care service to visitors. The first aid room has the original ambulance transportation system. In case that severe illness or injury occur in the park, the stationed physician would immediately run to the incident site, and perform primary survey, triage, and initial treatment. If necessary, the physician would directly contact our hospital and ride in an ambulance with the patient during transportation to our ER.
Methods: In this study, we retrospectively examined severe patients that stationed emergency physicians had accompanied from the park to our ER.
Results: Between April 2008 and March 2013, 4,315 patients were referred from the park to our ER. Among 1,103 patients transported by ambulance, the original ambulance system was used in 843 (76%) patients. Sixty-six (6%) patients were admitted to our ICU (Table 1). Severity of emergency patients was immediately determined by a stationed physician, and a majority of severe patients were transported to our ER using the original ambulance. Stationing an emergency physician enabled prompt intervention and transportation, and smooth cooperation with neighboring medical facilities.

Conclusion: Stationing an emergency physician in mass-gathering may contribute in pre-hospital emergency medical service.

Age 40year-old(0-86)	Used transportation system
Sex (male: female): 26:40	Public ambulance 32
	Original ambulance 34
Final diagnosis : Number of case	
Cerebrovascular disease : 14	Acute coronary syndromes : 2
Seizures : 12	Acute drug intoxication : 2
Cardiopulmonary arrest : 9	Upper gastrointestinal hemorrhage : 2
Head trauma : 5	Spinal cord injury : 2
Pneumonia : 4	Heat stroke : 2
Anaphylactic shock : 2	Other : 10

Table 1 Summary of the patients

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ID 434: Where are U: An Italian Pilot Project of Public Safety Answering Point During Emergency

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Study/Objective: AREU the Regional Emergency Service Company for Lombardy district, promoted a new pilot project of Public Safety Answering Point During Emergency, applying a new emergency number "112" with new IT technologies format.
Background: Now the emergency telephone number for emergency medical services in Italy is 118. The startup of trials on the European Emergency Number "112" was announced on 2010 in Italy, following an European Directive on this matter.
Methods: The trials were carried out at the 118 Command and Control Room in Varese, involving AREU - in a coordinating role, with the technical partnership of Telecom Italia (an Italian Public Company deputy to mobile communications and IT) and Beta 80 group.The 112 European Emergency Number is a cutting-edge service, meeting the EU standards required for creating a Public Safety Answering Point (PASP), in order to guarantee fast access to emergencies services, with a simplified model of access in making call, and security in the response. Calls are managed centrally by a single call center which sorts them and sends them towards Police, Carabinieri, Firefighting Service or Emergency Medical Service. Incoming calls from all the emergency numbers (112 - a police corps of the Ministry of Defense, 113- a police corps of Ministry of Interior, 115-the fire brigade corps, 118-the healthcare operators) are received and handled by an first-level PSAP "laico", which filters calls and dispatch them to the proper emergency corps. All citizens can download the app "Where are U" from their smartphone that allows to be localized with satellite technology.
Results: This innovative tool allows to all citizens in Lombardy to be fastly connected with the local emergency service, particularly designed also for people with disabilities and also to use during disasters or emergencies.
Conclusion: This project should promote the evolution of the emergency and urgent care territorial system in Italy.

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ID 441: Expecting the Unexpected: Chlorine

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Study/Objective: The greatest threat posed by terrorists is the use of unconventional weapons in mean of mass destruction. The current trend in modern chemical terrorism is using chlorine gas which is among the simplest of chemical weapons.
Background: The last chemical attack which was the third and the largest recorded "sarin disaster" since 1994 in Matsumoto, and 1995 in Tokyo occurred on 21 August 2013 in the Ghouta area of Damascus, Syria and there were numerous casualties, particularly among civilians and including many children. United Nations Secretary General Ban Ki-moon declared that the UN report detailed the most significant confirmed use of chemical weapons against civilians since Iraq used them in Halabja in 1988. However recent events in Syria and Iraq demonstrated that chlorine gas was used by an international terrorist organization which is outside the conventional codes of warfare.
Methods: A total of 854 people were injured (a large fraction from chlorine exposure) and 113 people were killed (mostly from the explosions) in Iraq between 2006 and 2007 because of terrorist attacks which chlorine tanks were used in car or truck bombs. The intentional use of chlorine gas which targets civilians as an unconventional weapon is now occurring in Syria.
Results: Although the probability of a chemical warfare attack is not regarded as an immediate threat in the developed world, the impact of such an incident, however, would be extraordinary and the use of crude explosive devices featuring chlorine should be taken seriously.
Conclusion: Emergency departments should be aware of possible chlorine attacks and hospital disaster preparedness programs should develop medical management of chlorine-related mass casualty strategies.

Prehosp Disaster Med 2015;30(Suppl. 1):s80
doi:10.1017/S1049023X15002368

ID 445: Involvement of the Polish Armed Forces in Rescue Operations in the Event of Catastrophes and Natural Disasters.

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2. Military Institute of Medicine (Warsaw/Poland)

Study/Objective: The aim of the work is to assess the potential of the armed forces response in mass casualty and disaster events in Poland, the options of using their resources, response time and indicating areas of improvement, if any.
Background: All levels of the Polish system of response to catastrophes and mass casualty events is based on civil administration where the Polish National Emergency and Fire Response System and the Polish EMS play an important role. However, the armed forces represent a significant potential to provide support in the performance of duties related with protecting the population. Polish legal regulations facilitate flexible and fast use of military units in catastrophes and natural disasters.
Methods: A retrospective analysis of the Polish Armed Forces response to civilian threats in Poland and abroad was made. Procedures of activating and distribution of the armed forces were analysed as well as the forces and means used. Areas of improvement were reviewed.
Results: The military health care units, including specifically the 8 military hospitals, are most frequently used in emergencies. There was some use of the air force and specifically the MEDEVAC helicopters and strategic airplanes. Technical and engineering units were involved in rescue operations related with natural disasters.
Conclusion: The potential of the Polish Armed Forces provides significant support in responding to catastrophes and natural disasters. It may also support any operations related to CBRN threats. There is room for improvement in terms of planning more extensive participation, activation time and greater cooperation through cyclical training.

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ID 446: Roles and Boundaries of Paramedicine

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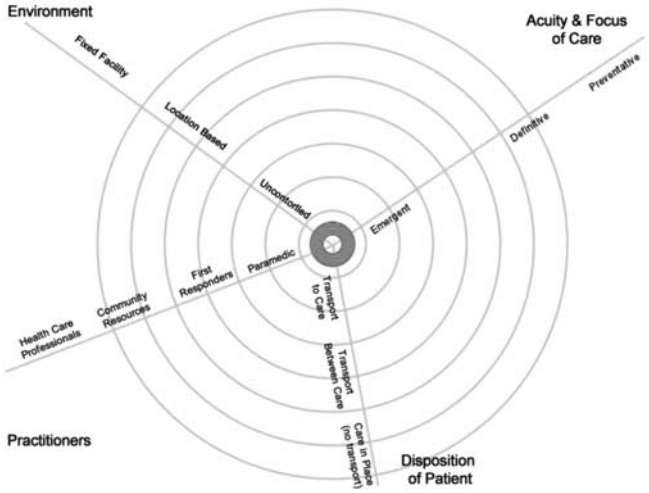
Study/Objective: This paper reports selected findings from an applied research study by the Justice Institute of British Columbia that explored current conceptions of the terms, roles, boundaries, and future directions of Canadian EMS, and identified key issues and problems facing stakeholders in Canadian EMS education.
Background: Modern EMS emerged from two trends: the development out-of-hospital cardiac arrest management and trauma management based on the experience of military medics. Isolated ambulance services have evolved into complex Emergency Medical Systems that are increasingly integrated into the overall health care system. Paramedics now practice in a wide and growing variety of roles and settings. Early paramedic training focused on skills training; today, comprehensive educational programs provide graduates with diploma and undergraduate-level credentials. Moves towards an increasingly academic and evidence-informed foundation have led to calls for a research base to support and define, describe, and inform paramedic practice.
Methods: The study consisted of a literature review and semi-structured interviews with selected stakeholders in Canadian EMS. Thematic analysis explored participants' descriptions of paramedic practice, the current and future roles of paramedicine, and its perceived boundaries.
Results: EMS is a young and evolving discipline, with wide disagreement even on what terms to use to describe the field. This lack of agreement in terminology reflects the role confusion expressed by many participants. Participants recognized that emerging roles and the changing scope of paramedic practice required different ways of describing the field, although there remains a strong attachment to the concept of an advanced care paramedic in an ambulance responding to the patient's side, intervening to manage a medical or trauma-related crisis, and then transporting the patient to hospital.
Conclusion: The authors present a model with four dimensions that explore the contested visions of what constitutes the field of paramedicine: type of provider, environment of care, acuity/focus of care, and patient disposition.



Prehosp Disaster Med 2015;30(Suppl. 1):s81
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ID 448: Operation of a "Two-tier" System in Mixed City-country Terrain - Conclusions

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Study/Objective: The study aimed at reviewing the operating methods of two types of EMS teams, with a physician or a paramedic, covering a population of 575,000 in urban areas and in the country. The authors reviewed the flexibility of despatching teams with a physician or a paramedic depending on circumstances and assessed the extent of abuse of the emergency system.
Background: The development of emergency system in Poland has been in progress since 2000. Permitting independent operation of paramedics with 3-year university

education and extensive authorisation was the turning point. Current discussions concern the role of physicians in the EMS, optimising despatch centres and reducing system abuse.

Methods: 47,597 interventions of 17 EMS teams (5 with a physician) from 13 locations managed by a single dispatch centre were subject to statistical analysis of GPS records and medical data presenting procedures performed by the EMS teams.

Results: Median response time for code 1 tasks was 6.5 minutes in cities and 10.5 minutes in the country. 52% of interventions did not relate to life threatening conditions and almost 23% did not result in transport to hospital. Rendezvous interventions where paramedics requested support of a physician or a HEMS team amounted to less than 1%. The most frequent procedures included IV access (41.7%) and various forms of IV pharmacotherapy (33.5%). Advanced procedures allowed to physicians only amounted to 1.5% of cases.

Conclusion: The Polish EMS is highly abused by unfounded requests. The two-tier model of physician/paramedic teams does not permit flexible use of resources by dispatch centres, specifically in the most critical interventions. The system must be optimised in terms of the function of emergency physicians.

Prehosp Disaster Med 2015;30(Suppl. 1):s81–s82
doi:10.1017/S1049023X15002393

ID 450: Using the Experience of Battlefield Medicine in Everyday Practice of Treating Civilian Trauma Patients

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Study/Objective: The authors' aim was to determine to what extent the experience gained in battlefield conditions impacted the practice and standard equipment as well as trauma care training in Poland.

Background: The operations of medical teams of the Polish Armed Forces during the conflicts in Iraq and Afghanistan provided new experience in treating severe multi-trauma patients. That applies to pre-hospital care, medical evacuation and the work of trauma teams.

Methods: A retrospective overview of the standards of treating trauma patients in Poland in the period from 2003 to 2013, also in terms of assessment of changes in tactical medicine and battlefield trauma surgery procedures. The degree and scope of implementing battlefield experience to civilian medicine were evaluated.

Results: The greatest change in the standards of civilian medicine practice occurred after 2010 due to establishment of Trauma Centres network and nationwide standardisation of trauma procedures. Simultaneously, MEDEVAC and FST professionals shared their experience and provided training on a large scale. The major changes related to pre-hospital treatment of severe haemorrhage and shock (combat application tourniquets, haemostatic gauze, intraosseus devices became standard equipment of EMS and HEMS teams) and trauma teams applying FST procedures in terms of fluid resuscitation, blood transfusions, the use of rapid infusers, and the changed diagnostic and therapeutic algorithm.

Conclusion: The experience recently gained from medical battlefield procedures had important impact on the development of practice and standard equipment of the EMS, HEMS and hospital trauma teams. The most pronounced impact was observed in treating acute severe post trauma haemorrhages.

Prehosp Disaster Med 2015;30(Suppl. 1):s82
doi:10.1017/S1049023X1500240X

ID 451: Mental Health and Psychosocial Support in Emergency Settings: A Training Implementation and Evaluation

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Study/Objective: Psychological First Aid (PFA) aims to provide mental health and psychosocial support for people experienced a crisis such as disaster or conflict. This presentation evaluates the effectiveness of PFA training sessions held between 2011 and 2014.

Background: Although importance of psychosocial support in emergency settings has been acknowledged since 1995 when the Hanshin-Awaji earthquake and Tokyo subway sarin attack happened in Japan, Any structured training or education has not been implemented. PFA was re-introduced and the Tokyo English Life Line an international NGO, trained health professionals to be PFA trainers following the Great East Japan earthquake disaster. The primary investigator has led the MHPSS team of the Japan Primary Care Association's disaster relief team and involved as the main trainer for approximately 30 times.

Methods: Approximately 300 people participated in the training and completed pre/post test and the course evaluation form. The pre/post test results were analyzed by student t-test. Data addressing subjective attitude towards mental health and psychosocial support were analyzed by qualitative approach. Meanings were formulated from the significant statements and phrases, then formulated meanings are clustered into themes.

Results: The preliminary results indicated significant improvement in knowledge. Further analysis will explore which content of PFA training contributed to knowledge acquisition. Participant built attitude and confidence that they can apply PFA not only to emergency but also regular work places. The theme emerged from qualitative analysis included 1) do no harm, 2) importance of self-care, and 3) the intervention pyramid.

Conclusion: Both qualitative and qualitative analysis suggest that this three year PFA implementation project produced competent responders.

Prehosp Disaster Med 2015;30(Suppl. 1):s82–s83
doi:10.1017/S1049023X15002411

ID 452: A Study of Malnutrition in Children in Internally Displaced Persons (IDP) Camps During the BTAD Conflict 2012, India

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Study/Objective: As the major cause of morbidity and mortality in children in displaced populations is malnutrition, this paper aims to estimate the prevalence of malnutrition among the children in displaced populations living in relief camps due to conflict. It uses anthropometric measurements of children to assess the nutritional status of the children under 5 in the camps.
Background: In 2012, ethnic clashes between the Bodo tribal group and Bengali settlers in the Bodoloand Territorial Area District (BTAD) of the state of Assam in the remote north-east of India, left nearly 400,000 people displaced. This was one of the largest displacements of people due to conflict in post-Partition India.
Methods: A cross-sectional study undertaken was among all the children living in 21 relief camps under the age of 5 (N = 2564). The anthropometric measurements were analyzed using z-scores of height-for-age (H/A) and weight-for-height (W/H) indices. The data was analysed using SPSS 16.0 version and WHO Anthro for PC software.
Results: The prevalence of global stunting was found to be 19.5% and global acute malnutrition was 32.5%. Males showed greater prevalence of stunting (95% CI; p value <0.001), wasting (95% CI; p value <0.001) and underweight (95% CI; p value <0.001) and the children between the age group 0-24 months were at a much greater risk of acute malnutrition (95% CI; p value <0.001).
Conclusion: Given the high prevalence of malnutrition among the children in the camps especially under 24 months and males, stakeholders including local government and relief organizations should intensify efforts to improve the nutritional status of IDPs especially children in the camp settings in India. The quantity of and access to household food supplies, dietary supplements as well as health education on infant and child feeding and management of diseases in camps should be strengthened in the future to improve the nutrition status of children.

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ID 455: Effective Communication During Disasters: What Effects Community Decision Making and Action?

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Study/Objective: This paper describes a program of research examining emergency messaging during the response and early recovery phases of natural disasters. The objective of this suite of studies is to develop message construction frameworks and channels that maximise community compliance with instructional messaging. The research has adopted a multi-hazard approach and considers the impact of formal emergency messages, as well as informal messages (e.g., social media posts), on community compliance.
Background: In recent years, media reports have consistently demonstrated highly variable community compliance to instructional messaging during natural disasters. Footage of individuals watching a tsunami approaching from the beach or being over-run by floodwaters are disturbing and indicate the need for a clearer understanding of decision making under stress. This project's multi-hazard approach considers the time lag between knowledge of the event and desired action, as well as how factors such as message fatigue, message ambiguity, and the interplay of messaging from multiple media sources are likely to play a role in an individual's compliance with an emergency instruction.
Methods: To examine effective messaging strategy, we conduct a critical analysis of the literature to develop a framework for community consultation and design experiments to test thepotential for compliance improvement.
Results: Preliminary results indicate that there is, as yet, little published evidence on which to base decisions about emergency instructional messages to threatened communities.
Conclusion: The research described here will contribute improvements in emergency instructional message compliance by generating an evidence-based framework that takes into account behavioural compliance theory, the psychology of decision making under stress, and multiple channels of communication including social media.

Prehosp Disaster Med 2015;30(Suppl. 1):s83
doi:10.1017/S1049023X15002435

ID 456: Building Health Literate Village in Rural China: An Exploration of Capacity Building in Disaster Preparedness

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Study/Objective: To explore the capacity building strategy for disaster preparedness through building health-literate village in rural China.
Background: Health risk literacy is an important asset for capacity building and a key attribute of the development

of a healthy village, a similar project as the Healthy City programme initiated by the World Health Organization (WHO) in 1989. However, not much research has been conducted since then for developing health literate villages in rural settings in China. As such, a rural Chinese village is selected to explore the development of a health literate village as a capacity building strategy through enhancing the villager's functional health literacy on fire safety by a COMBI (communication for behavioural impact) approach.
Methods: Through a site visit in rural Guizhou, China with preliminary health needs assessment.
Results: Specific behavioural objectives and outcomes were preliminarily observed in Nanjiang Village, rural Guizhou province targeting the fire hazards caused by close proximity of wood-made households. Appropriate channels for integrated communication action areas were also spotted after a rapid situational marketing analysis.Based on the preliminary analysis, it is anticipated that multimodal interventions (including community-based health education on fire safety, community mobilization and delivery of plain language promotion material) may be effective in achieving the desired behavioural outcomes.
Conclusion: Quality research data for the development of health literate villages in rural China is urgently required. This exploratory disaster risk-specific study provides a preliminary analysis for the testing of the capacity building strategy for disaster preparedness in field settings, which is an important preparatory step for future pilot intervention studies.
Prehosp Disaster Med 2015;30(Suppl. 1):s83–s84
doi:10.1017/S1049023X15002447

ID 459: Epidemiologic Characteristics of Mass Casualty Incident by Motor Vehicle Collision in Metropolitan, Korea: A Community-based Observational Study

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Study/Objective: We aimed to evaluate the epidemiologic characteristics of mass casualty incident(MCI) by motor vehicle collision(MVC) for past 4 years(2006-2009) in metropolitan.
Background: Globally the number of MCI, damage loss and number of victims were reported increased.Emergency call taking of initial stage and response strategy are critical issue in MCI.
Methods: This study was a community-based observational research based on fire administrative data from 2006 to 2009. Single fire-based EMS serves for MCIs occurring in the whole country including 17 provinces with total 1,330 advanced ambulances and 7,883 EMS providers. An incident with more than 6 casualties alive or dead was defined as a MCI. We described demographics of MCI and victims and calculated population-based incidence rate and mortality. Additional, we analyzed the estimation of injury mechanism, cause, frequent incidence place, epidemiologic characteristics of casualties.
Results: The total number of included MCI in metropolitan was 161 incident. Of these 114 (70.8%) caused by MVC. Frequent incidence place was in Seo-cho gu that administrative district community include Kyung-bu highway, casualties more higher in women, most higher incidence in winter season, most higher incidence during 12-15 hour, cross road was main incidence place exclude highway rear end was higher in collision type. Crude injury incidence rate of MCI was 82.8 per 1,000 and mortality rate was 1.18 per 1,000. Age-sex standardized incidence rates by direct method for casualties was 214.4 per 1,000, most higher MCI incidence rate of region was 423.1 per 1,000 and 14.1 times higher than most lower incidence rate region.The total casualties were 1,281 person. Of these 1,261 was transfer to hospital and other were first aid (5), unknown (15).
Conclusion: We analyzed a community-based MCI DB for past 4 years. We can use this data for making the optimal response plan of emergency medical service (EMS) and community intervention of injury prevention.
Prehosp Disaster Med 2015;30(Suppl. 1):s84
doi:10.1017/S1049023X15002459

ID 460: Effective Emergency Messaging During Natural Disasters: An Application of Message Compliance Theories

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Study/Objective: This research examines the types of emergency messages used in Australia during the response and early recovery phases of a natural disaster. The aim of the research is to develop theory-driven emergency messages that increase individual behavioural compliance during a disaster.
Background: There is growing evidence of non-compliant behaviour in Australia, such as refusing to evacuate and travelling through hazardous areas. This can result in personal injury, loss of life, and damage to (or loss of) property. Moreover, non-compliance can place emergency services personnel in life-threatening situations when trying to save non-compliant individuals. Drawing on message compliance research in psychology and sociology, a taxonomy of message types was developed to ascertain how emergency messaging can be improved to produce compliant behaviour.
Methods: A review of message compliance literature was conducted to develop the taxonomy of message types previously found to achieve compliance. Seven categories were identified: direct-rational, manipulation, negative phrasing, positive phrasing, exchange appeals, normative appeals, and appeals to self. A content analysis was then conducted to assess the emergency messages evident in the Australian emergency management context. The existing messages were aligned with the literature to identify opportunities to improve emergency messaging.

Results: The results suggest there is an opportunity to improve the effectiveness of emergency messaging to increase compliance during the response and early recovery phases of a natural disaster.
Conclusion: While some message types cannot legally or ethically be used in emergency communication (e.g. manipulative messaging), there is an opportunity to create more persuasive messages (e.g. appeals to self) that personalise the individual's perception of risk, triggering them to comply with the message.
Prehosp Disaster Med 2015;30(Suppl. 1):s84–s85
doi:10.1017/S1049023X15002460

ID 462: Developing Community Readiness for Companion Animal Emergency Response for Mass Care Events in Yolo County, California

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Study/Objective: The objective of this study was to provide animal emergency response (AER) planning guidelines and outline a method for communities to understand local level animal population sizes, personnel needs and resources for a mass care event.
Background: Pets are required to be included in US emergency plans because public health and animal welfare challenges result from people refusing to evacuate without their pets or abandoning their pets.
Methods: This descriptive study estimated evacuation needs, analyzed survey responses and formulated recommendations for emergency operations in one county. Pet population estimates were made with American Veterinary Medical Association pet ownership formulas using three combinations of national and local data. Estimates of pets that could appear at shelters were made using maximum (20%) and minimum (2.6%) evacuation rates. National Animal Care and Control Association guidelines were used to estimate animal care personnel needed in evacuation shelters. Survey responses were collected from emergency responders, veterinarians, and animal care staff to assess interest and knowledge regarding AER.
Results: A minimum 2.6% evacuation rate for a county with a human population of 200,000 could result in over 2,000 pets appearing at shelters and would require over 100 animal care staff per day. The survey responses (204) indicated while a substantial number of respondents were interested in AER training (126), a majority had not participated in training (153), and did not understand evacuation protocols (174).
Conclusion: The target community studied is not prepared to handle an AER. There are inadequate numbers of trained personnel to staff evacuation shelters, and pet owners are needed to care for their own animals. Recommendations to emergency managers are to provide training for first responders and animal care supervisors; establish a local level county animal response team; establish co-location human/animal sheltering; educate pet owners of their AER duties; and register citizens as Disaster Service Workers.
Prehosp Disaster Med 2015;30(Suppl. 1):s85
doi:10.1017/S1049023X15002472

ID 465: Active Information Use Strategy for Public Health in Emergencies

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Study/Objective: During emergencies such as disaster and prolonged conflict or war, public health would often be at great risk. Assembling and analyzing data is a critical for successful disaster response and relief work. This presentation aims to report strategic development of an information utilization system for the public health center.
Background: The disaster medical response system of Japan was established based upon the Hanshin-Awaji earthquake disaster in 1995 which primarily focuses on severe injury such as crush syndrome. However, another critical earthquake disaster in 2011 revealed insufficient response system for public health for people faced to prolonged stay in the emergency shelter.
Methods: A survey with participants from the municipal level department of health and hygiene reported that the public health center paid great attentions and responded heavily on medical first aid in the acute phase and mental health support and environmental hygiene promotion in the chronic and recovery phase. However, management of the emergency shelter seemed excluded from the realm of the public health center.
Results: The Ministry of Health, Labor, and Welfare (MHLW) developed a training tool designed for public health center personnel. The training tool enables to collect public health information with hand held devices and assembled data are stored in a cloud system. The National Institute of Public Health (NIPH) has provided trainings for public health personnel on this system and devices for three years. The future agenda emerged from the program evaluation included: 1) efficiency of the information gathering system training, 2), need to improve user friendliness of the device, and 3) challenges in who gathers information at the time of disaster.
Conclusion: To respond, the NIPH continues further refinement of the device and data storage system. Also, the customer relationship management were incooporated into the system so that other disaster response teams.
Prehosp Disaster Med 2015;30(Suppl. 1):s85
doi:10.1017/S1049023X15002484

ID 466: An Analysis of Hospital Preparedness for an Earthquake and Tsunami in Padang City

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Study/Objective: The objectives of this study were to determine the disaster preparedness status of Siti Rahmah Islamic Hospital and to formulate recommendations to the Hospital Disaster Plan.
Background: Padang City, Indonesia is at high risk for an earthquake and tsunami. Scientists have predicted an 8.8 SR earthquake followed by a large tsunami in this area. As the local government appointed Siti Rahmah Islamic Hospital as a local referral hospital

for such events, it was important to assess the hospital's preparedness level.
Methods: The Pan American Health Organization (PAHO) Hospital Safety Index (HSI) and the Hospital Disaster Plan developed by Center for Health Policy and Management, Faculty of Medicine, Universitas Gadjah Mada (CHPM FoM UGM), were used to assess the hospital's disaster preparedness level. The PAHO HSI measures three preparedness elements: structural, non-structural, and functional. The CHPM FoM UGM Hospital Disaster Plan measures four elements: disaster policy and organization, procedures for disaster, facility and human resources, and monitoring evaluation. Althought weighting the elements differently, both tools classify and scale the HSI scores similarly: A = 0-0.35, low level; B = 0.36-0.65, medium level; and C = 0.66-1.0, high level of preparedness.
Results: The hospital's overall PAHO HSI was 0.558 (medium level preparedness). Its structural element received high score (0.85), non-structural element received medium score (0.37), while its functional element received low score (0.19). The overall CHPM FoM UGM HSI was 0.16 (low Level of preparedness). Low on policy and organization (0.3),procedures (0.00), and monitoring evaluation(0.00). Facility and human resources received medium level preparedness score (0.5).
Conclusion: The Current disaster preparedness status of Siti Rahmah Islamic Hospital is low in multiple elements of disaster preparedness. Urgent interventions are recommended to improve several elements of hospital preparedness to protect patient and hospital staff during a disaster.
Prehosp Disaster Med 2015;30(Suppl. 1):s85–s86
doi:10.1017/S1049023X15002496

ID 471: Functional, Quality of Life and Psychological Outcomes Following Trauma Related Amputation: The Perspective from Developing Country

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Study/Objective: The present study aims to assess functionality during daily activities, quality of life and psychological adjustments like distress, acceptance and coping strategies after traumatic amputation.
Background: Amputation following trauma is sudden and devastating, resulting significant disruptions in many important areas of existence i.e. disability, quality of life and psychological adjustments etc.
Methods: The consecutive trauma amputees were assessed on socio-demographic and clinical details, disability and quality of life with semi-structured questionnaires and other scales.
Results: The results of this study indicate that majority of patients were males and belonged to younger age group of 15-35years. Motor vehicle accident was the commonest mode of injury followed by railway track accidents, industrial, domestic injuries. Most participants experienced problem in daily function, psychological adjustment and a change in the quality of life.
Conclusion: Traumatic amputation tends to cause increased disability, change in quality of life and poor psychological adjustments. Clinician and mental health professionals should address these issues and ensure holistic reintegration and participation, to enable the amputees regain or maintain quality of life.
Prehosp Disaster Med 2015;30(Suppl. 1):s86
doi:10.1017/S1049023X15002514

ID 474: An Investigation of Emergency Healthcare Seeking Behaviours and Practices of the Community of Du' Noon, Cape Town

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Study/Objective: The aim of this research is too descried the emergency healthcare seeking behaviours of the community of Du' Noon, both on the level of the community and the individual. The objectives will be to gain an understanding of the 'events' that follow after a medical emergency, document these events and describe them.
Background: Within the area of Du' Noon, there is limited o access to emergency health care (Carlisle, 2014). Access revolves around a primary health care during day light hours with the closest emergency centre at New Somerset Hospital (Carlisle, 2014). The distance to the emergency centre is approximately 22km, making access to a healthcare facility impossible, without private vehicle transport or the use of an ambulance service (Anon., 2014). Access has been identified as one of the largest barriers to healthcare seeking behaviours and practices (Harris, *et al.*, 2011). In spite of this the community of Du' Noon thrives and there seems to be an informal community based system in place that is yet to be undocumented.
Methods: The research method proposed is a qualitative study that is descriptive in nature based on the method of a phenomenology. This will enable the researcher to descried the "lived experience" and documentation thereof, and gain an understanding of the healthcare seeking behaviors and practices of the community of Du' Noon in response to a medical emergency.
Results: The study results are not yet availible as data collection will commence in February 2015.
Conclusion: This research allows for an analysis of the inner workings of the emergency system in this community through the perspectives of community members. This will allow for the documentation and description of the communities reaction to a medical emergency, and therefore give an insight in to the healthcare seeking behaviours, practices and possibly highlight deficiency in emergency service delivery and preparedness.
Prehosp Disaster Med 2015;30(Suppl. 1):s86
doi:10.1017/S1049023X15002526

ID 484: A Case Study of the High-speed Train Crash Outside Santiago de Compostela, Spain

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Study/Objective: The aim is to investigate the fatal and non-fatal injuries of a high velocity train crash in Angrois, outside Santiago de Compostela, Spain in 2013.
Background: Railway traffic is increasing and today's train sets accommodate a substantial number of travelers. The gradually heavier and denser traffic affect the condition of the railway tracks, and are alarmingly substandard in many places in the world. The use of high- speed trains' simultaneously increase. Concurrently, the number of train disasters has been amplified globally. High-velocity crashes increase the risk for injuries and mortality, meanwhile, the lightweight structures of today's high-speed train sets decrease the carriages robustness. What does this imply in terms of physical consequences of high-velocity train crashes?.
Methods: Hospital records (n = 156) of the injured who was admitted to the hospitals University Hospital of Santiago de Compostela (CHUS), Policlinic Hospital La Rosaleda of Santiago, University Hospital of La Coruña, University Hospital of Pontevedra, Policlinic Hospital Miguel Dominguez of Pontevedra and Salnes Hospital of Villagarcía was reviewed and compiled by descriptive statistics. Number of instant fatalities (n = 63) was collected on site.
Results: Of the 222 people (218 passengers and 4 crew), 99% (n = 219) were fatally or non-fatally injured in the crash. Thirty- three percent (n = 72) suffered fatal injuries, of which 88% (n = 63) died at the crash site and 13% (n = 9) at the hospital. There were 29% (n = 63) who were triaged as dead (black), 21% (n = 46) immediate (red), 16% (n = 34) urgent (yellow) and 39% (n = 85) delayed (green). As many as 21% (n = 32) of those admitted to hospital suffered non-minor multiple injuries.
Conclusion: A high-speed train crash releases a great extent of energy; as a result a mass casualty incident is probable. This presents pre-hospital challenges, which can be reduced by pre-event planning and training.

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ID 487: Computerized Information System for the Management of Mass Casualty Situations at a Level I Trauma Center

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Study/Objective: We present our innovative solution for an information system uniquely designed for managing all kind of mass casualty events, such as conventional war, radiological threat, natural disasters and epidemics.
Background: A Mass Casualty Situation (MCS) constitutes the ultimate test of the medical system in general and of hospitals in particular. When such an event occurs, the situation requires a switch from routine activities to working under great uncertainty where the hospital faces challenges such as the need to absorb a large number of casualties within short time. The situation requires diverting activities to meet the challenges of the event.
Methods: These challenges led Rambam Health Care Campus (RHCC) to search for a better way of managing MCS. We assumed that a computerized tool will enable us to obtain a more comprehensive perception of the situation. The Information Technology Division with our MCS team looked for an optimal solution.
Results: The IT had developed a web based system to be activated whenever a MCS is declared. It displays relevant operating procedures, protocols, checklist ("To-do") & log book. The system initiates automatically or semi automatically phone calls and public address announcements. It collects real-time data from other information systems in the hospital and presents it to the managing team in a clear graphic display. The system generates periodic reports and summaries of available or shortage resources, which are sent to predefined recipients. The system was tested in drills at RHCC. It was first activated in real emergency situation by the Ministry of Health, Division for Emergency Management, during "Operation Protective Edge" in Gaza, in the summer 2014.
Conclusion: This information system proved to be an effective tool facilitating comprehensive perception of situation management throughout the hospital in such demanding and overwhelming situations such as MCS.

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ID 489: Effectiveness of Attacks on Evolving Networks

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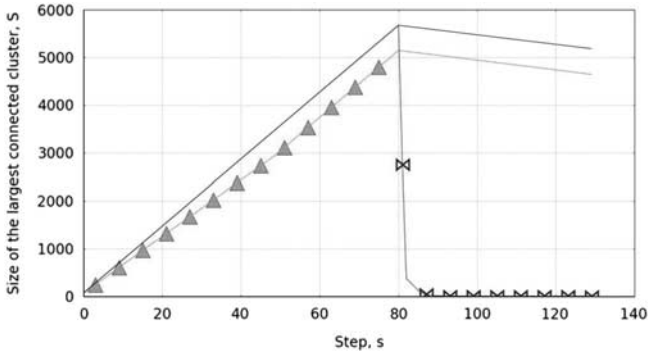
Study/Objective: Recently, authors investigated ways to simulate diverse aspects of professional and social responses to epidemic spreading including network epidemic modeling. The pertinent multi-actor systems such as infected communities are described with complex networks successfully with special focus to evolving networks.
Background: It is known that an infection is characterized by a steep growth of number of cases, which reach a peak, followed by a decrease until it's undetectable. However it has never been proposed a proper network models with growing and declining natural processes both.

Methods: In the novel work we combined formation and degradation stages as two serial states of evolving process in complex networks. We use a size of largest connected cluster (LCC), ***S*** as a principal metrics for assessing vulnerability of a network. Also taking into account that ***S*** changes at each step along network evolution it is of sense to introduce an integral parameter of the network - effective size, ***ES*** of LCC.
Results: A series of evolving networks were put to intentional attacks. Network vulnerability in terms of LCC size as a function of network evolution time has been studied for different time attacking strategies. We found that attacks on networks during formation stage are not as effective as those for degradation period. Simulations demonstrated importance of the beginning of attack period and its duration. It was also shown that values of ***ES*** might be approximately equal for attacks on different stages.
Conclusion: Putting evolving networks into intentional attacks we observed a huge varieties of landscapes for damages which depend on formation and degradation parameters and on attack strategies. The results of the study give a basement for future analysis of infected network resilience, a topological map to attack real network systems optimally, and ways to perform network management effectively and efficiently.



Prehosp Disaster Med 2015;30(Suppl. 1):s87–s88
doi:10.1017/S1049023X15002575

ID 490: Development of DIsaster Medical Skill COmpetency Training (DISCO) Course – A Pilot Study

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Study/Objective: The aim of this study was to develop and implement a competency-based and skill specific training program focusing on prehospital disaster response situation and to evaluate the effectiveness of the program through self-confidence and knowledge of clinical skills.
Background: Skills competency is an important aspect of a healthcare provider responding to a disaster situation. However, there are no program which focuses on skill competency training. Therefore, we developed a core competency-based, standardized skill training program.
Methods: The developed the training courses included airway management, wound management, ultrasound application and simulation session. Training for medical procedures in extreme environment were included in each session. To identify the difference in knowledge and self-confidence before and after training, all participants responded to the survey with a Likert scale. A descriptive analysis was performed to determine the general characteristics of subjects and the level of awareness of the importance of clinical skill in disaster response. Wilcoxon signed rank test was used to compare the knowledge and self-confidence level on pre- and post-training.
Results: A total of 62 participants attended 4 courses with each course participants comprising from 13 to 18. The mean score of awareness of importance of skill in disaster response was 3.63 to 4.0 out of 5. The score differences in pre- and post-training scores of confidence for skill was 1.57 to 2.98 and differences in knowledge was 1.74 to 2.7. The simulation course showed the biggest difference.
Conclusion: The level of awareness of importance of medical skill in disaster response was moderate. The trainees assessed the DISCO course as effective and this study showed the feasibility of educating medical skills performed in extreme environment.

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ID 492: Upscaling Mental Health and Psychosocial Support

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3. Mental Health, Bureau of Mental Health Service System Administration (Bangkok/Thailand)
4. Psychology, University of the Philippines Diliman (Diliman/Philippines)

Study/Objective: To summarize the consensus on mental health psychosocial support proposed by three Asian countries; Thailand, Philippine, and Japan.
Background: Health and wellness include both physical and mental health. However, mental health and psychosocial wellbeing has been overlooked in the population experienced crisis. The current version Hyogo Framework for Action by the United Nations Office for Disaster Risk Reduction only mention effort to mitigate psychological damage in children. With public health perspective, it is imperative to stretch beneficiaries of mental health and psychosocial support (MHPSS) for steady recovery and building back better community.

Methods: Four psychiatry and psychology specialists (one from Thailand, one from Philippine, and two from Japan) shared the state of the art in MHPSS in own countries.
Results: Despite wide variety of crisis (e.g. insurgency, nuclear accident, typhoon, earthquake, and tsunami), common themes were emerged. 1) implementation and practical use of Psychological First Aid, 2) community resilience valued approach, and 3) continuous monitoring and evaluation with research framework. Contextual differences were identified however, sharing these differences led to better practice proposal.
Conclusion: It is the time when assembling knowledge built in each country and regions in order to upscale MHPSS education, training, and evaluation.

Prehosp Disaster Med 2015;30(Suppl. 1):s88–s89
doi:10.1017/S1049023X15002599

ID 495: A Systematic Review of the Literature on the Epidemiology of Drowning Injuries in Low- and Middle-income Countries

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Study/Objective: To systematically review literature on the epidemiology of drowning-related injuries in low- and middle-income countries (LMIC) and highlight preventive strategies.
Background: According to the WHO, drowning is the 3rd leading cause of unintentional injury-related deaths worldwide, accounting for 370,000 annual deaths and 7% of all injury-related deaths. Low- and middle-income countries are most affected, accounting for 91% of unintentional drowning deaths.
Methods: The authors performed a systematic review of literature indexed in EMBASE, PubMed, Web of Science, Cochrane Library, and Traumatology journals formerly indexed in PubMed in January 2014. Abstracts were limited to human studies in English, conducted in low- and middle-income countries, containing quantitative data on drowning epidemiology.
Results: 4372 articles were retrieved; 71 met criteria for further analysis. The majority were conducted in Asia (61%) and Africa (19%). The remaining were from Europe (8%), South America (4%), and North America (1%). Risk factors for drowning included young males, rural environment (77% vs. 23% urban), in small bodies of water such as ponds, ditches, and wells (54% vs. 26% in large bodies of water such as the ocean, lakes, rivers), lack of supervision by an adult (78% vs. 17% supervised), and no swimming ability (86% vs. 10% with swimming ability).
Conclusion: Drowning is a significant cause of injury-related deaths, especially in LMIC. The incidence of drowning is likely underreported and data provided in this systematic review does not cover near-drowning cases. Understanding drowning risk factors aids in implementation of effective preventive strategies: young children should receive swimming instruction, wear personal floatation devices, and communities should implement daycares to ensure adult supervision, especially in the daytime. Swimming pools should be encircled with fences and cisterns/wells covered by grates to prevent falls. More research on the epidemiology of drowning injuries and funding for implementation of preventative strategies in LMIC is needed.

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ID 498: Medical Assistance for Sinking of the Motor Vessel Sewol in Korea

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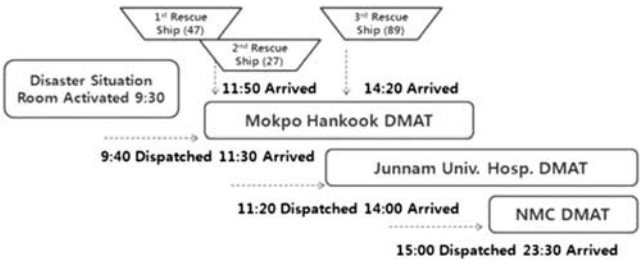
Study/Objective: The aim of this study is to see what medical assistance was performed and to think about the role of a medical personnel in case of disaster medical assistance.
Background: The sinking of South Korean ferry occurred on April 16, 2014. Among the 476 people 174 survived, 286 had died and 11 were missing at the end of June. This tragic incident brings attention to lack of government enforcement of international maritime laws and the negligence of regulations and standards by the captain, crew, and shipping company.
Methods: The medical data of on site care by officially registered medical team from 16th, April to 18th, July, 2014 were analyzed. The on-the-spot survey of related personnels and patients, the expert interview were done.
Results: The initial medical response was as follows in Figure. Figure. Timeline of initial disaster medical response in sinking of the motor vessel Sewol Table. Basic characteristics of patients sinking of the motor vessel Sewol.
Conclusion: In case of sinking of a ferry ship, initial response by crew and passengers as well as rescuers is most important. For adequate response of sinking of a ferry ship, special DMAT system at sea can be necessary.



		Number	%
	Total treated patients (2014. 4.16~7.18)	3288	100
Age	0~19	28	0.9
	20~39	790	24.0
	40~59	1904	57.9
	Over 60	338	10.3
	Unknown	228	6.9
Sex			
	Male	2229	67.8
	Female	939	28.6
	Unknown	120	3.6
Type of Patients	Rescuer	29	0.9
	Family of missing	931	28.3
	Volunteer	890	27.1
	Public official	482	14.7
	Mass media	96	2.9
	Diver	42	1.3
	Others	586	17.8
	Unknown	232	7.1
Chief Complaints	Musculoskeletal	1055	32.1
	Respiratory	540	16.4
	Digestive	291	8.9
	Cardiology	281	8.5
	Neurology	220	6.7
	Dermatology	364	11.1
	Others	537	16.3

Basic characteristics of patients sinking of the motor vessel Sewol

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ID 499: Factors Contributing to Domestic Violence in Rukungiri Municipality-Uganda

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Study/Objective: This study assesses the factors contributing to domestic violence in Rwakabengo parish in Rukungiri municipality

Background: Domestic violence against both women and men in families including rape, sexual assault, verbal abuse, sexual humiliation, sexual enslavement, forced incest and forced rape have been reported across Uganda. People experience domestic violence are likely to need emergency care.

Methods: A descriptive survey research design was used. Married men and women were interviewed directly and policemen were asked to fill in a questionnaire with both open and closed ended questions. Purposive sampling was used to select policemen, while simple random sampling was used to select married men and women. The study included 54 respondents. Descriptive statistics were used to analyze data.

Results: Verbal abuse, denial of sex and love, deprivation of food and shelter, forced labour and physical beatings were the common forms of domestic violence in Rwakabengo parish. The causes of domestic violence were poverty, late coming home by men and women, infidelity, psychological disorders and alcohol abuse and social platforms and technology like phone calls, facebook, emails and whatsapp. Domestic violence ultimately resulted in physical disabilities, divorce, poverty and homelessness.

Conclusion: Domestic violence is common in families in Rwakabengo parish and brings about instabilities in homesteads. Government needs to sensitize the public to identify and stop domestic violence and provide resources to address the root causes. Health workers, especially those who staff emergency centers, must empower women and men who are victims of gender-based violence by screening for domestic violence, offering advice to victims and referring them to appropriate services.

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ID 501: Survey of Nuclear Emergency Medical Response System in Korea

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Study/Objective: This research aims to analyze the capacity of each radiation emergency medical institute and to plan the long-term strategy for establishment of the regional preparedness system about each nuclear power plant site.

Background: There are 23 nuclear reactors in operation at four sites and 9 are under construction in Korea. To respond to radiation disasters, Korea government has designated National Radiation Emergency Medical Center (NREMC), consisting of 9 primary and 12 secondary institutes as a national response system.

Methods: NREMC developed a survey, an evaluation index of infrastructure, a prediction program for medical demand according to radiation disaster scenarios, and development plans. Evaluation indicators were composed of the seven domains: on-site response, ER, psychiatric support, radiation burn, bone marrow transplantation, internal contamination and acute radiation syndrome. Each domain was measured by six grade levels.

Results: There were still negative opinions about cooperation with related organizations. Cooperation between designated hospitals is the highest score. In facilities resources, shielding room and decontamination rooms are inferior compared to other facilities. Distinguishing the primary and the secondary hospitals, there are differences in competencies. Based on the maximum demand, 333 ICU beds, 365 general wards, 24 general shielding rooms, 9 shielding ICUs, 216 doctors and 419 nurses will be needed at the least. If 1000 patients occur in the situation of combined disasters, according to the simulation analysis, the medical demand exceeds the capacity of the national radiation emergency medical response system.
Conclusion: For the last ten years NREMC has the established national radiation emergency medical response system. The current level can be evaluated by comprehensive indicators and it is possible to plan the further development.

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ID 502: Type of Mass Gathering Event Determines/Influences the Duration of Stay in – and Therefore the Size Needed of a First Aid Post

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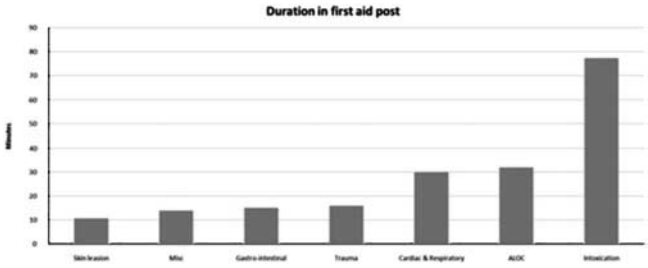
Study/Objective: To determine the average length of stay of patients in a first aid post depending on the type of injury in order to calculate the optimal size of the first aid posts.
Background: The Belgian Red Cross staffs first aid posts at more than 50 events with an attendance of more than 10.000 people yearly. A computer system 'MedTRIS' is used since 2006 to register the treatment of every patient. A first triage is done at entry in the first aid post. A secondary in depth assessment in the treatment zone categorizes the injury in 32 categories. At each of these 3 moments, a timestamp is registered by the software.
Methods: The data of 142.896 patients collected between 2006 and 2014 at 291 mass gatherings was used. For all these patients the length of stay was calculated and then the average duration was calculated per category. The 32 categories were grouped in eight major categories.
Results: Patients who were intoxicated (drugs or alcohol) stayed on average 77 minutes in the first aid posts. Most of this time was dedicated to careful observation of these patients during rest. Patients with cardiac or respiratory injuries and patients with an altered level of consciousness (ALOC) tended to stay on average about half an hour before they were dismissed by the caregiver. The other categories left the first aid post on average within a quarter of an hour.
Conclusion: For estimating the size needed for the first aid post, not only the total amount of expected patients is relevant but also the type of expected injury. First aid posts at rave parties that tend to have substantial drug and alcohol intoxicated attendants will need to be larger since more patients who tend to stay longer in the first aid will be present.



Prehosp Disaster Med 2015;30(Suppl. 1):s91
doi:10.1017/S1049023X15002654

ID 503: Emergency Response Planning for Terrorism: A Case of Practical Drift?

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Study/Objective: To explore how different emergency management services perceive the threat of terrorism, and analyze whether their perceptions differ from a national policy level.
Background: Terrorism poses emergency management challenges, practically and analytically. The commitment and capacity to respond to terrorism is outlined in national strategies. On a policy level, the priority of the issue is clear. When a terrorist attack strikes, staff on the actual frontline are assumed to work effectively but specific response challenges, such as secondary attacks and terrorism specific injuries, has been underlined in the research field "terror medicine." Here, an empirical gap exists, with little research conducted on the perspective of the operational personnel. It raises a question whether counterterrorism policies differ from how emergency responders perceive terrorism and if enough priority is given to preparedness within their organizations.
Methods: This study builds on data retrieved from a questionnaire distributed to 1421 randomly selected people (1090 men/331 women) on external duty within the ambulance medical services, police and rescue services in Sweden, of which 805 (56,8%) replied.
Results: The data reveals how first responder perceive the probability of an terrorist attack taking place, its potential consequences, and what perpetrator they perceive as likely to carry out an attack. Moreover, it explores collaborative training with terrorism specific scenarios and knowledge about terrorism specific injuries. Comparisons of documents on counterterrorism and emergency management with results from the questionnaire demonstrates a discrepancy between the threat perception at the national policy level and the local operational level, which indicates a case of "practical drift".
Conclusion: In the case of Sweden, the operational emergency services and the national policy level hold different threat perceptions about terrorism, which creates a risk that the national level overestimates the local level's ability to respond to terrorism.

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doi:10.1017/S1049023X15002666

ID 504: Main Reasons for Transfer of Patients to a Hospital During Mass Gatherings.

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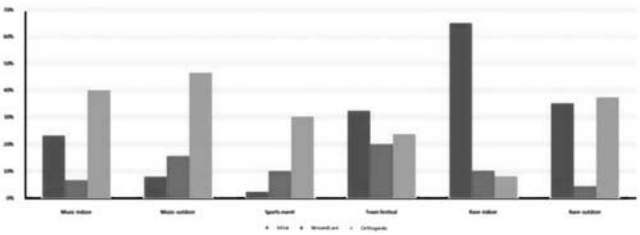
Belgian Red Cross (Mechelen/Belgium)

Study/Objective: To determine why patients who present themselves at a first aid post during a mass gathering are taken to a hospital, distinguishing the ambulance rides for further diagnosis from rides needed for observation and treatment.
Background: The Belgian Red Cross staffs first aid posts at more than 50 events with an attendance of more than 10.000 people yearly. A computer system 'MedTRIS', was developed and used since 2006 to register the treatment of every patient. During treatment in the first aid post the caregiver registers the patient in the software according to one of 32 types of injuries and can write down more specific information about treatment and reason of transfer. On exit, destination and means of transport are recorded.
Methods: For this study 26 annual events were selected that took place at least 5 times between 2009 and 2014. This yielded 2.145 transfers to the hospital out of 115.948 treated patients. These 2.145 cases were listed according to the type of injury together with the detailed written comments.
Results: 693 patients (32%) were triaged in the categories strain/fracture. 526 patients (25%) were intoxicated (drugs or alcohol) and taken to hospital for further treatment. 328 (15%) patients were taken to hospital for further treatment of wounds.
Conclusion: Depending on the type of event there is a clear difference in the main reason for transfer to a hospital. Most of the time transfer to a hospital was for further diagnosis to rule out a fracture. Only for indoor Rave parties the main reason was for long-term observation in cases of alcohol or drugs intoxication. Additional research is needed to determine the reasons for these differences according to the type of event.



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ID 511: Preliminary Evaluation Results of DigEmergo: A Digital Simulator Prototype for Disaster and Emergency Management Training

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2. Department Of Clinical And Experimental Medicine, Linköping University (liu), Centre for Teaching & Research in Disaster Medicine and Traumatology (Linköping/Sweden)

Study/Objective: This abstract presents early findings on a user evaluation of DigEmergo - a digital training simulator prototype for disaster and emergency management. The overall goal of this research project was to design a flexible tool for training and evaluation of emergency response. Therefore we developed DigEmergo; a digital simulator based on Emergo Train System® (ETS; a globally used tabletop simulator) using electronic whiteboards.
Background: Disaster and emergency response requires competent and coordinated teams. However, training such teams efficiently is complicated. Full-scale high-fidelity simulations are both expensive to perform and difficult to evaluate. Thus, there is a need for scalable environments, such as digital simulations, to train medical decision-making and team coordination.
Methods: The DigEmergo prototype ran on an 87-inch multitouch digital whiteboard and was evaluated using a training scenario and methodology adapted from ETS. Nine participants with prior ETS experience participated in the evaluation, which was led by two instructors. After completed scenarios first impressions were discussed and questionnaires including open-ended questions were completed.
Results: Preliminary results of the qualitative analysis show that the participants were positive towards DigEmergo. Several participants commented on instructor benefits, e.g. ease of setting up exercises and automatic statistics for after action reviews. Common concerns were potential technical issues, that multiple digital whiteboards are needed to avoid clutter, and loss of flexibility as digital whiteboards are less common than regular whiteboards.
Conclusion: Experienced users of ETS identified both advantages and disadvantages with a digital version of ETS. Identified benefits concerned the instructors' tasks, increased control, and automatic data collection. Perceived disadvantages mainly related to concerns regarding the size of the digital whiteboard and potential technical issues. The participants also identified development potential, e.g. a small-scale tablet version of ETS for frequent training. Future work include analysis of collected evaluation data and additional prototype development.

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ID 514: Ebola Effects on Healthcare Functioning in Sierra Leone: Obstetrics and Reproductive Health and Health Services

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3. Ministry of Health and Sanitation (Freetown/Sierra Leone)

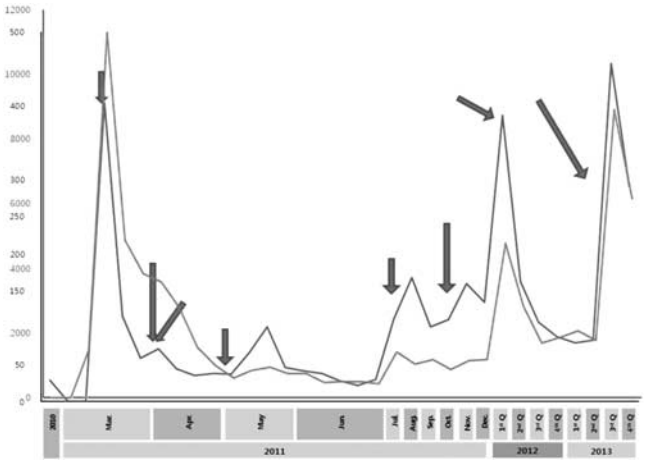
Study/Objective: The aim of this study is to estimate the effects of the current Ebola epidemic on emergency obstetric care, measured as changes in number of caesarian sections.

Background: The direct health effects of the Ebola epidemic in Sierra Leone have been relatively well documented. Less is known regarding the indirect health effects of the epidemic, caused by decreased access to and functioning of health services. To date, the scale of these effects remains unclear.
Methods: Done in collaboration with the Ministry of Health and Sanitation in Sierra Leone, this study is part of a surveillance initiative monitoring the effects of the Ebola epidemic on health services. At total of 55 governmental, private non- and for-profit healthcare facilities that offer in-patient care and major surgery were included in this study. For all of 2014, weekly data from admission and surgical theatre register books were retrieved compiled by 21 trained Community Health Officers. In addition, data from a nationwide survey on surgery done in Sierra Leone in 2012 was used.
Results: This project is ongoing. Results will be presented at the conference in April.
Conclusion: To fully understand the effects of an epidemic, also indirect effects on the health service should be included. It is especially important to quantify the indirect effects in order to sufficiently prioritize response and monitoring the recovery of health services. Caesarian section rate is a sensitive indicator of to what extent life saving surgery is available as well as of the functioning of maternal health care. It is a promising proxy-indicator that may be used to estimate the overall effects on secondary health care service.
Prehosp Disaster Med 2015;30(Suppl. 1):s92–s93
doi:10.1017/S1049023X15002708

ID 515: Experiences of Public Consultation Calls and Mass Media Analysis After Nuclear Power Plant Accident in Fukushima

Soon-Joo Wang
Department Of Emergency Medicine, Hallym University Dongtan Sacred Heart Hospital (Hwaseong/Korea)

Study/Objective: The aim of this study is to analyze the public consultation calls after nuclear disaster in adjacent country and to share the experience.
Background: Since 2010, for the promptl response to the radiation accident, representative telephone number was started as a receiving number of accident in the national radiological emergency medical center and after nuclear power plant accident in Fukushima in 2011, more than 4,000 consultation were performed.
Methods: The consultation calls on radiation effect for 3 years (2011 ~ 2013) were analyzed. The target were public and radiation workers. Four dedicated nurse and five consulting doctors underwent counseling based on the standard counseling manual. At the same time, search terms analysis in mass media was performed.
Results: The number of consultation performed were 3,655. The frequency of search terms-Fukushima is 73,117 and that of radiation is 61,025. Figure. Comparison of frequency of consultation performed and search terms-Fukushima
Conclusion: The frequencies of public consultation calls for radiation effects after nuclear accident are almost identical with the interest rate for the radiation of the newspaper and the public. Therefore, it is recommended that the operation of the public consultation calls hotline should be controlled with reference to the frequency and nature of the newspaper.



Prehosp Disaster Med 2015;30(Suppl. 1):s93
doi:10.1017/S1049023X1500271X

ID 516: Unidentified Yellow Powder Cases in Istanbul

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Study/Objective: Suspicious letters containing an unidentified yellow powder were sent to five western consulates in Istanbul on October 24, 2014.
Background: One week after the September 11 attacks on the World Trade Center and the Pentagon, letters containing powdered anthrax spores were sent to several addresses including news media offices and two U.S. senators. Twenty-two people were infected by the anthrax and five of them died. On October 24, 2014, "suspicious" letters containing powder were sent to Consulates of the United States, Canada, France, Germany, Belgium, and Hungary in Istanbul.
Methods: National Medical Rescue Teams and National Disaster and Emergency Management Authority (AFAD) CBRN Teams as well as police and firefighters were dispatched to the addresses. Twenty-five people including two postal workers who exposed to powder directly or indirectly were isolated as a precaution. They took off their affected clothes, washed their hands, took their clothes into plastic bags, and wore disposable protective clothing and surgical masks. All victims were transferred to a designated clinic in Bakırkoy Dr. Sadi Konuk Education and Training Hospital for further diagnosis and treatment. Samples from unidentified yellow powders were sent to Public Health Agency Laboratories. After the transfers, all offices were decontaminated.
Results: Turkey Ministry of Health declared that according to initial tests there was no sign of anthrax, plaque, tularemia, ricin or botulinum toxin or any other biological warfare substance on

the suspicious powder. However advanced biological and chemical tests were being carried out. People who were being monitored were discharged from the hospital.
Conclusion: Suspicious letters containing powder of spores and toxins could be a serious disaster potential that could affect both victims and first responders especially health workers. Medical management of suspicious letters should be performed in every incident in case of suspicious letters contain a biohazard.

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ID 517: Students' Experiences of Arriving First on Site: The Influence of Mass Casualty Incident Training

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Study/Objective: The objective is to explore mass casualty incident trained ambulance and police students' experiences of arriving first on site after a fatal traffic crash.
Background: In order to strengthen local level emergency preparedness it is of importance to increase capacity, for example through training, among first responders as well as members of the public. However, various barriers, such as lack of first aid training and fear of causing harm to the victims, prevent civilians from assisting at incident sites. Civilians most likely to respond in an appropriate way are individuals with previous prehospital training and experience, but aspects regarding this group are relatively unexplored.
Methods: The study has a grounded theory approach. Data consist of 12 interviews with ambulance and police students who arrived first on site after a fatal traffic crash in Sweden. The students had recently completed a theoretical and practical training on management of mass casualty incidents.
Results: The recent training, in combination with personality traits, enabled the students to mentally prepare themselves before entering the crash site. Being on site was characterized by shared feelings of preparedness, professionalism and helpfulness. The students were able to foster calmness and feelings of safety and empathically helped the victims. The mass casualty training had generated a greater understanding of interaction at incident sites, which facilitated the students' communication with other bystanders and the arriving emergency personnel. Overall, the students acted professionally and were strengthened by the experience.
Conclusion: Practical and theoretical training increase civilians' self-confidence and their willingness to act as bystander responders at mass casualty incidents.

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ID 518: Characteristics of Foreign Medical Teams Deployed to the Philippines After the Typhoon Haiyan

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Study/Objective: In order to bridge the knowledge gap on function of FMTs, the aim of this study is to assess the timing, capacities and activities of FMTs deployed to the Philippines during the first month after typhoon Haiyan.
Background: In the last decade, there has been an increase in FMTs going to disaster areas. Despite the potential benefit FMTs might have in substituting the collapsed health care after large-scale disasters, several studies have demonstrated the difficulties in determining the quality of the response, mainly due to lack of reliable data.
Methods: This is a retrospective, descriptive study. Data on characteristics of FMTs present in the Philippines after typhoon Haiyan was provided by WHO and compiled into a single database. Additional data was collected through a web survey and email correspondence.
Results: A total of 108 FMTs were identified as present in the Philippines during the first month following typhoon Haiyan. None of these were operational in the affected areas within the first 72 h and the average time between arrivals and being on-site operational was 3.6 days. Of the 108 FMTs, 70% were FMT type 1, 11% were FMT type 2 and 3% were FMT type 3. 16% of FMTs had unknown status. The total number of staff within these FMTs were 2121, of which 210 were medical doctors, 250 nurses and 6 midwifes. Compared to previous sudden onset disasters, this study found no improvement in data sharing.
Conclusion: Although FMTs presumably played an important role in the response to typhoon Haiyan, several gaps can be identified through our study. To improve the understanding of the difficulties FMTs are facing in disaster settings, we need to improve the availability of information. This can then help in improving disaster response in the future.

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ID 519: Are Belgian Military Students in Medical Sciences Better Educated in Disaster Medicine than Their Civilian Colleagues?

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Study/Objective: To evaluate the impact of military training on disaster education in medical science students.
Background: Medical students have been deployed in several disasters throughout history, but are they educated to do so? A previous evaluation amongst Belgian senior medical students was worrisome. We tried to evaluate the impact of military training on disaster education in medical science students.
Methods: Military students in medical sciences got an online survey on disaster medicine, training and knowledge. Reported knowledge was tested by a set of 10 theoretical and practical questions. The results were compared with a similar study amongst their senior civilian colleagues.

Results: Response rate was 70%; mean age was 23 with 65% males.57% studied in bachelor level and 29% as senior master students. 93% has had some CBRN training. 47% of the participants found it absolutely necessary to incorporate disaster management in the regular curriculum. Estimated knowledge ranged from 3.21/10 on biological incidents to 4.39/10 on influenza pandemics. Intention to respond in case of an incident ranged from 5.25/10 in Ebola outbreak to 7/10 in chemical incidents. 20% triaged potentially contaminated victims to the waiting room and 25% believed that iodium tablets protect against external radiation. 95% stated that shielding with maximum distance and minimal exposure protects the most against radiation damage. If we compare these figures with the data from a survey amongst civilian senior master students we find that the military have higher scores on knowledge and capability, except for similar figures in case of influenza pandemic. Data on willingness to work are comparable in both groups. Results of the question/case set are clearly better in the military group.
Conclusion: In conclusion we can state that the military background of these students makes them better educated for disaster situations than their civilian colleagues.

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ID 521: Resuscitation Organizations in Disaster

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Study/Objective: It is aimed to discuss resuscitation implementations in disaster settings in the light of recent literature.
Background: Resuscitation in disaster is different from ordinary resuscitation applications in terms of optimal timing and advance organization requirement.
Methods: Resuscitations are divided into three categories and according to these categories the implementations are evaluated.
Results: Resuscitation in disaster has three items: Basic Life Support (BLS) or Life-Saving First Aid (LSFA), Advanced Life Support (ALS), Prolonged Life Support. LSFA (golden 6 hours) must be provided at the scene within minutes of injury by eyewitnesses or first responders being older than 12 years of age. LSFA can be applied to save life anywhere with poor instruments. LSFA consists of activating the emergency service, extrication of the victim, positioning for shock, supplying airway, temperature control, external hemorrhage control, cardiopulmonary resuscitation (CPR). LSFA is the weakest link of the life support chain. ALS (golden 12 hours) is performed by trained emergency medical personnel. Although ALS usually is delivered within 1 hour of event (the golden hour) during everyday emergency care, it retards for hours and is redesigned for disaster area during medical response. Hence ALS is applied as "stay and play or resuscitate while transporting" in disasters. Moreover, prolonged life support (golden 24 hours) is performed by medical specialists. In addition to application of standard resuscitation rules, special applications may be required for extraordinary situations. For instance, ventilation should be combined with chest compressions, as compression-only CPR is inappropriate for avalanche burial. Classical CPR may not be suitable for the unconscious victims of a disaster. Most of these victims are unconscious because of traumatic brain injury or profound hypotension, and not because of primary cardiac problems.
Conclusion: However, different approaches to organizing resuscitation in disasters are available, each one should focus on medical responding in correct time by utilizing well-balanced own items.

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ID 522: If We Have Hospital Care at Home: A Retrospective Analysis

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Study/Objective: In this study, it was aimed that to evaluate geriatric trauma patients who admitted to hospital wards in a one year period, retrospectively.
Background: In parallel with the increasing elderly population, health care burden is increasing. Geriatric patients in hospitals are more likely to occupy the beds in time. Hospital care at home for geriatric patients not only to decrease hospital loading but also to protect the patients from disadvantages of staying in hospital like hospital infections.
Methods: Emergency department records, hospital data system and the files in the hospitalized clinic of the 65 ≥ year old patients who were hospitalized from emergency department to the other clinics between 13.12.2011 - 27.12.2012 were studied retrospectively in this descriptive study. The criteria at Salazar et all is used as house care criteria (Table 1).
Results: During study period, 1000 65 ≥ year old patients were hospitalized from the ED. 886 patients were evaluated that they were not suitable for house care (281 cases (28,1 %) – trauma, 203 cases (20,3%) – instability on admission, 273 cases (27,3%) – social problems, need of isolation, need of surgical procedures after diagnoses, 80 cases (%8) long duration of hospital stay, 49 cases (4,9%) exitus during hospital stay). 114 cases (11,4%) fulfilled house care criteria.
Conclusion: It is thought that there is considerable amount of geriatric patients who needs house care and these house care implementations will reduce load of emergency services. It is also thought that these will protect patients from nosocomial infections.

Stability in admission or gaining stability after first response at ED
Absence of surgical status
Absence of social problem
Absence of isolation need
Short duration of hospital stay

Criteria for hospital care at home

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ID 523: On-scene Management of Mass-casualty Attacks

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Study/Objective: To investigate on-scene responses to mass-casualty attacks and challenges for incident management, with special attention given to attacks on public transportation and associated terminals.
Background: The scene of an antagonistically induced mass-casualty attack (MCA) entails a crime scene, a hazardous space and a great number of people with varying needs for medical assistance. Public transportation has been the target of such attacks and involve high probability of creating mass casualties which require a complex rescue effort.
Methods: The literature study included articles found through PubMed and Scopus, 'relevant articles' as defined by the databases and a manual search of references. Inclusion criteria were that the article referred to attack(s) and/or a public transportation related incident; and issues of concern for formal on-scene response as defined in the Major Incident Medical Management and Support (MIMMS) framework.
Results: One hundred and five articles were included in the review. Challenges for command and coordination on scene included establishing control, inter-agency collaboration, multiple incident sites, logistics and volunteer influx. Safety issues entailed risk awareness and expectations, dynamic risk assessment, cordons and safety zones, defensive versus offensive management, inter-agency dependence as well as knowledge and use of personal protective equipment (PPE). Communication concerns were equipment shortfalls, deficient information exchange and delivering messages to survivors, relatives and the public. Assessment could be problematic due to incident scene layout and use of setting indicators to estimate mortality, number and type of injuries. Triage and treatment difficulties included uncommon injuries, use of aid stations, difficult working conditions, level-of-care on-scene and providing pediatric and psychological care. Transportation hardships included scene access, distance to hospitals and distribution of patients.
Conclusion: Many challenges in response to MCAs can be anticipated and reduced through inter-organizational, pre-event planning and training combined with critical evaluation and learning from previous events.

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ID 529: The Evaluation on Disaster Preparedness Intervention in Post-flooding Yi Minority Community in Sichuan Province, China

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Study/Objective: The project aims to explore community disaster risk perception and to evaluate the impact of disaster preparedness health intervention in Yi-minority community in China.
Background: LiangShan Yi Autonomous Prefecture is one of the disaster-prone area in Sichuan province, China. Majority of people belongs to Yi-minority and live in rural mountainous area with highly susceptible to multiple natural disasters. A major flood occurred on August 31st 2012 at Hongyan Village, LiangShan Prefecture and had affected 218,000 local residents with 13,300 households collapsed. A post-flooding assessment showed most of villagers did not have any preparation before the flooding.
Methods: The health education sessions were held in March 2014, the key message included the importance of disaster kit and what kind of tangible items should be inside. All participants were interviewed by using a structured pre- and post-questionnaires before and after a disaster preparedness intervention.
Results: A total 102 household representatives (around half of the village) participated the disaster preparedness intervention and successfully interviewed by the structured questionnaires. 90% of the participants were illiterate. Important barriers for not preparing the disaster kits included such as lack of resources (44.9%), never thought of that (34.7%) and did not consider its importance (14%). After health intervention, over 70% of participants showed the improvement of knowledge and demonstrated positive attitude on preparing disaster kit.
Conclusion: This project showed an overall positive results in awareness/ knowledge of preparation of diaster kit and oral rehydration solution. Despite sustainable impact will require time to demonstrate, results support benefits of health education campaign in disaster preparedness in community with high illiterate rate.

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ID 530: Disaster Education for Health Care Providers in Japan

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Study/Objective: We define the characteristics of disaster education programs for health care providers in Japan.
Background: The number of disaster training courses has been increasing since the Great East Japan Earthquake in 2011. It means all health care providers need knowledge about disaster medicine. To reduce disaster risk and to prevent and protect against disasters in medical fields, effective education for health care providers is necessary and very important.
Methods: We collated training programs about disaster medicine in Japan, and classify them by contents and effects.
Results: We have over 15 kinds of disaster courses: DMAT training course, disaster management training course for disaster medical coordinators, mass casualty life support course, logistics course, Japan disaster relief team training course, etc. Each course has each characteristic. Attendants and course management organizations are different depending on a course. Some courses are arranged by occupation: doctors, nurses, dentists and pharmacists. There are no online courses, and all courses consist of lectures, workshop and practice.

Conclusion: The knowledge to have is different by occupation and their position in society and a hospital. In Japan, we have many kinds of courses according to purposes and needs for health care providers. But we do not have enough programs for students in medical fields, and now we have to discuss how to educate students.

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ID 533: Level of Local Preparedness on Disaster Health Management in Small Islands: Case Study in Ende District, Indonesia

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Study/Objective: Measure the local preparedness facing disaster, particularly in health sector. The level of disaster preparedness will provide direction to advocacy and policy for local governments.

Background: Small islands and remote area are the most prone to be effected by disaster, addition due to the climate change impact. Small island usually also have limited human resources, facilities, and networks. Good planning is an early success for the district to cope disasters. This preparedness should be built independently by the local government so the chaos of disaster can be diminished before relief came from outside.

Methods: This study used a qualitative method, followed by observation of documents and facilities. Interviews were conducted to local governments, Local Disaster Management Authority (LDMA), hospitals, health district office, primary health care, and community. Indicator of disaster health preparedness refers to: policy, organization, procedures, human resources and facilities, monitoring and evaluation, and coordination.

Results: Disaster preparedness in health sector remains low. Hospitals and health district office have document of disaster planning but never tested and not operational. Four issues were caused the low status of preparedness in health sector are human resource capacity, awareness, low leadership, and weak coordination.

Conclusion: Disaster preparedness in the health sector should be given serious attention. It is very necessary to diminished disaster chaos when providing health services appropriately and quickly. Weak coordination function and leadership are problems in compiling local disaster preparedness.

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ID 534: Importance of Information and the Enabling Technology to Assist with an Effective Disaster Management Effort

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Study/Objective: The objective of this case study is to firstly demonstrate the important role information plays during the management of a disaster, secondly to identify the importance of technology to improve the management of information.

Background: An enabler to managing disaster is to have all the necessary information readily available. This includes the plans developed for managing disasters as well as the near real time information during the disaster.

Methods: An investigation was undertaken to ascertain the current if the access to information and utilizing technology provide any benefits to the management of disaster and the coordination of a response. The case study of a rural district municipality was chosen that had a proven track record of managing information and using technology to produce superior results compared with other neighboring districts. Although rural, this district won an award for the best disaster management system and provides lessons learned to other municipalities in South Africa and Africa.

Results: The study found that there are benefits to have all information collected and plans developed accessible from a web based system. There are also benefits in doing planning utilising a web based GIS platform to produce more comprehensive and user friendly plans. Another major benefit was the use of mobile device. Implementing mobile applications for field team provide more up to the minute information from the field. Also utilising a disaster management information system to calculate the cost to provide immediate relief, the most appropriate routes to deliver relief all based on the field teams assessments. This all helps to fast track the process to provide relief to all those in need.

Conclusion: The key research contribution of this article includes an analysis on the accessibility of information and utilisation of technology, especially mobile devices to support preparation and assessment in Disasters, applicable to South Africa and Africa.

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ID 535: Hyperbaric Oxygen (HBO) Therapy in Penile Trauma

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Study/Objective: In this case report, we wanted to present a 7 year old trauma patient who was cured successfully with HBO treatment.

Background: Blunt trauma are frequent in childhood. Trauma affected region and organs may vary due to being small of body surface areas. Penis is affected in blunt traumas more than penetrating traumas because of the location. Severity of the injury direct the treatment modalities in penile traumas.

Methods: It is a case report.
Results: Case report: A 7 year old male admitted to ED with the complaint of penile pain and color change. In his history, he came off a bicycle 2 days ago, his complaints, penile pain and color change were continuing from that time. In physical examination ≈25% ecchymotic region in the glans penis was observed (Figure 1, 2). The other system examinations were in normal ranges. He was hospitalized to the urology department for HBO therapy. 2-3 ATA session were performed for 8 days. He was discharged with full recovery.
Conclusion: Testicle and scrotum injuries mostly accompany penile injuries that are seen especially after blunt traumas. The lesions vary from simple skin lacerations to severe corpus cavernous ruptures. Emergency physicians should be aware that HBO treatment is a successful and effective treatment option in selected patients who did not need surgical treatment.
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ID 536: A Review of Medical Care in Disaster-victim Children

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Study/Objective: Discussion of pediatric patients in disasters according to literatures was aimed.
Background: Main objectives of providing health services in disasters are reducing death, care of injured victims and triage, prevention of secondary disease and death, and reaching the quality of ordinary health services as soon as possible.
Methods: Taking required precautions for vulnerable populations in disaster conditions needs special preparations. There are only limited studies related to these special population.
Results: Providing children health service differs from adults due to anatomic structures of children, developmental differences, weakness of immune system, weakness of communication skills, needing adults for basic needs, being open to sexual abuse, hazards. Also in disaster-victim children, risks of hypovolemia due to vomiting, diarrhea, and bleeding, risks of hypothermia due to thin skin and subcutaneous tissue, risks of blunt traumas due to thin subcutaneous adipose tissue, width of body surface areas and easiness of absorption of sarin, chlorine etc. gases, sensitive to the inhalants due to heart rates and respiratory rates are different from the adults. Due to these reasons, we should consider the parameters described below in health services for disaster-victim children: 1. Developing new strategies to minimize the distinction between parents and children and developing new methods to gathering the separated children, 2. Developing new strategies to increase the number of pediatricians in disaster response teams and emergency services during and after disasters, 3. Taking precautions to increase the pediatric capacity in hospital disaster plans, 4. Planning pediatric mass casualty scenarios for the disaster drills and training the personnel.
Conclusion: It is observed that there is a lack of literature about disaster-victim children and most of them are related about post-disaster surgical needs and organizations of pediatric surgery. It is determined that a lot more studies are needed in this special group.
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ID 538: Disaster Drill of Gulhane Military Medical Academy

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Study/Objective: The aim of the study to rewiev of hospital disaster exercises and share experiences.
Background: Studies about preparing for disaster began from 2005 at all hospitals in Turkey. Turkey Works for getting ready to disasters that might be happen anytime with doing disaster drills for personnel education and to assess the eligibility of those disaster plans.
Methods: It is evaluated that scenario, preparation, execution of the drill that executed in 7 June 2013 and achieving the goals those stated before. Disaster drill is a comprehensive operation that contains cooperation between institutions.
Results: 243 personnel participated to drill. 40 disaster victims with make-up and moulage, 21 personnel from search and rescue team, 44 personnel from CBRN team, 24 personnel working for emergency support hospital and triage, 16 personnel working for mobile field hospital, 9 personnel with make-up and moulage, 12 personnel on Ambulance, 1 Cougar rotary wing, 3 flight team and 3 wounded personnel, 9 personnel working for Hospital Command Center, 4 cameramen and 4 Administrative personnel from Communication Information System. The drill, events of hospital disaster plan and event fields were showed to audience at the lecture room with cameras. Command Center was presented in front of the audience. It is observed that damage determination might be able to take more time and it is a necessity to define for each service ward how and where the evacuation will be implemented. Also it is observed that establishing and performing of portable treatment units were effective, but there might occur some problems about maintenance of those units.
Conclusion: The importance and necessity of modifications and updates on hospital disaster plans based on drills, personnel education, cooperation between institutions. It is seen that hospitals action in a situation of disaster is very difficult and risky.
Prehosp Disaster Med 2015;30(Suppl. 1):s98
doi:10.1017/S1049023X1500285X

ID 540: Are Belgian, Military Trained Medical Officers Better Prepared for CBRN Incidents than Civilian Emergency Physicians?

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Study/Objective: To explore the effect of military training on medical officer's CBRN preparedness.
Background: Belgium is a densely populated European country with heavy petrochemical industry, several nuclear installations and potential terrorist targets. The risk for a CBRN incident is realistic.
Methods: An online survey on disaster training; estimated risk, - knowledge and – capability and, at last,willingness to work was presented by mail to all military active officers trained in medical sciences. These results were compared with the scores of civilian emergency physicians.
Results: The response rate was 39% with a mean age of 42. 47% had some training in disaster management and 11% stated they were ever confronted with a chemical incident. Estimated risk for incidents ranged from 2.07/10 for nuclear to 2.98/10 for chemical. Personal knowledge ranged from 3.89/10 for nuclear to 4.35/10 in chemical incidents. Estimated capability to deal with these incidents ranged from 2.96/10 (nuclear) to 3.44/10 (chemical). 46% was trained to use radiodetection material and 83% for personal protective equipment. 78% felt to be sufficiently trained to decontaminate potential victims. Concerning willingness to work 50% would not report in case of a nuclear incident, 24% in a chemical incident. 13% works unconditionally in chemical incidents and 7% in a nuclear scenario. Conditions that convince those in doubt are: availability of appropriate PPEs (91%) and radiodetection equipment (86%), previous training (64%). If we compare our data with the results of the EP's we find similar demographics. Although more EP's were trained in disaster medicine their scores on knowledge and capability are much lower. The scores on decontamination, PPE and radiodetection are dramatically low. Although they have higher risk estimation the EP's are more willing to respond to work as our militaries.
Conclusion: The military background makes our population clearly better prepared than the Emergency Physicians.

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ID 543: An Underground Hospital (UGH): An Innovative Solution to Emergency and Disaster Scenarios

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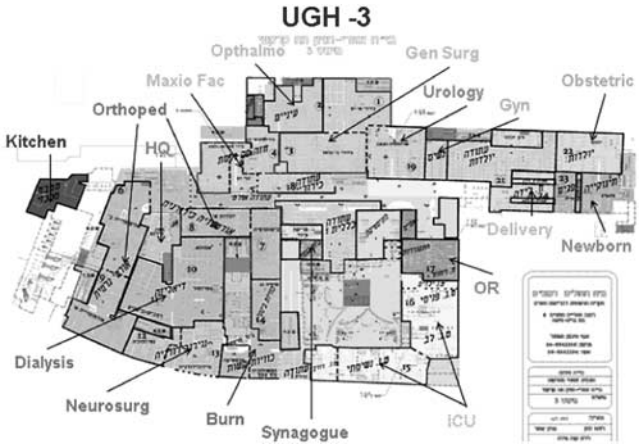
Study/Objective: To describe an innovative solution for emergency & disaster scenarios by transforming a parking-lot of a tertiary referral hospital into the largest UGH in the world. The technical & operational aspects of preparing the UGH while constructing the standard operating protocol (SOP).
Background: Following military conflicts, our concept of capacity & resilience has changed. Rambam Health Care Campus (RHCC), an academic tertiary hospital in Northern Israel, experienced continuous rocket attack. We understood that hospitals at regions of conflict & potential natural disasters may present risk to both the patients & hospital staff, while they are obliged to continue to function & treat injured patients, as well as regular patients under all scenarios.
Methods: As RHCC has limited space, it was decided to build a new dual purpose underground parking-lot that transforms within 72-hours to a 2000-beds fortified underground regional hospital. During emergencies, natural & armed conflicts, the hospital is expected to double its peacetime bed capacity, and give solutions to general patients as well as those with special needs like oncology, dialysis, ICU & obstetrics/neonates. The SOP for such emergencies was created by focus group discussions that assess possibilities, knowledge & risk assessment to choose generic SOP that will comply with all threats.
Results: We activated two channels of operation: 1. Building the actual facility looking into finding unique technical solutions; 2. Inventing SOP for each & every possible scenario. This step consider instructions for different timepoints. Last summer of 2014 we opened the UGH that functions as a parking-lot (1400 cars) on regular days which transforms to a 2000-beds fortified medical facility that should hold over 5000 people with no outside support for 3 days.
Conclusion: Medical facilities around the world are expected to give solutions to extreme scenarios & surge capacity. We present our solution and experience with UGH, the largest of its kind in the world.



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ID 544: The Appropriation of Cultural Aspects by Healthcare Preparedness in the 2014 FIFA World Cup, Brazil

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Study/Objective: To present and discuss the appropriation of cultural aspects by healthcare preparedness efforts in the 2014 FIFA World Cup, considering the knowledge of health and civil defense managers about the theme and the measures taken before the event in host municipalities.
Background: When planning for a mass event, there is much to be considered. Cultural and ethical aspects of disaster planning are frequently overlooked. Language barriers; religious aspects; cultural difference in health care systems; dissemination of useful heath-related information for travelers on how to receive services, especially those with pre-existing conditions. All are examples of measures that must be taken by healthcare providers. In Brazil private and public hospitals as well as reference hospitals were assigned for front-line response during the World Cup.
Methods: General hospitals (35) sampled from a Brazilian hospital database in all twelve host municipalities were visited in April 2014. Hospital clinical directors and municipal managers of health and civil defense cited measures taken to organize heath sector response during semi-structured interviews. The managers´ speeches were analyzed in order to identify preparedness related to cultural aspects that could have any consequence for healthcare provision.
Results: The main measured related to preparedness for cultural aspects cited in all sectors were initiatives to train health professionals in foreign languages (43%). Nearly 35% of municipalities declared having interacted with embassy and consulates in order to receive support. In hospitals, 51% of the clinical directors ignored the subject or mentioned that nothing was done to deal with cultural aspects to prepare the service for healthcare delivery to foreigners during the Cup.
Conclusion: few cultural aspects were considered in the preparedness for the 2014 FIFA World Cup. However, Brazil will host others multi-cultural mass events and a lotmuch can be learned from examining reports from previous mass events in order to develop an effective disaster plan.

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ID 545: Dynamic Pictographic Messages: From Public Transport to International Disaster Can it Facilitate Communication Between Rescuers and Victims?

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Study/Objective: In this paper, we used eye tracking techniques to examine whether in emergency situation, "pictographic language" could facilitate comprehension and decision making.
Background: Most previous research on the comprehension of graphics has concerned formal learning in scientific and technical domains (Höffler & Leutner, 2007; Scheiter et al., 2010). The present studies focus on a rather different application of graphic representation-providing emergency messages for people who cannot understand spoken information (foreigners, deaf people).
Methods: First of all, our works have investigated animated pictograms as a way to convey disruption messages in public transport (Groff &al.,2014). Within this framework, travelers have to comprehend and respond appropriately to disruption-related information under time pressure. So, a first group of 113 participants were asked to understand series of pictographic announcements delivered via four visual formats. A second group of 98 subjects were asked to explain what he would do.
Results: For the first group, results have showed better comprehension performances for the most animated and the most sequential presentation format. For the second group, more than 80% of participants made the correct decision and some of them did it before the end of the messages.
Conclusion: This means that internal scripts of disruption messages are structured in terms of a fixed temporal order of episodes corresponding to events and so that what matters really in graphic disruption messages is a coherent set of pictographs forming an episode and the sequentiality of the episodes rather than the animation of each component "per se". Decision times suggest that goal seems to be a source of urgent activation, and so "pattern-matching resources could be biased to match structures involving that goal" (Anderson, 1983). Currently, we examine the potential of pictographic messages to provide communication between victims and rescuers during international disaster. In this situation, victims from different cultures, who speak different languages, must understand instructions given by rescuers as quickly as possible (cf. figure 1).

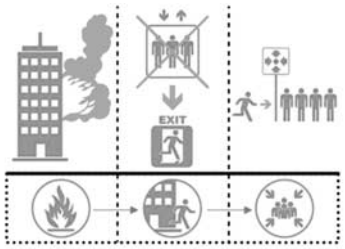

Figure 1. Example experimental graphic that corresponds to the announcement "*There is fire in the building. Please evacuate using the stairs rather than the elevator. Then go to the assembly point in the car park*".
Dotted lines do not appear on the real message. They visually depict the temporal order of episodes.

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ID 546: The Preparedness of District Hospitals in Providing Cardiopulmonary Resuscitation in Botswana

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Study/Objective: The aim of the study was to audit the availability of the resuscitation equipment in four district hospitals in Botswana.
Background: In-hospital resuscitation requires immediate availability of necessary equipment. Non-availability of drugs or

equipment can cause poor outcome on patients during resuscitation. Nurses can function efficiently only if resources for treating the cardiac emergencies are available.

Methods: A quantitative, non-interventional design was used to audit the contents of the emergency trolley.

The study was conducted in the four district hospitals because they were recently renovated with modern facilities and equipment.The emergency trolleys from the critical care units, Medical, Surgical, Maternity and Gynecology wards were audited utilizing the standardized check list from South African Emergency Medicine Society practice guideline. The availability of the drugs and the functionality of the equipment for airway, breathing circulation and frequency of checking the trolley were audited. Permission to conduct the study was obtained from Ministry of Health and Ethics and Research Committee from all the hospitals.

Results: The data were analyzed by SPSS version-21.

According to the standard check list none of the hospitals met the expected standard of provision of emergency equipment. Hospital A revealed an overall distribution of 34.4% of equipment scoring the highest among the hospitals observed. Hospital B scored better than others in providing Airway and Breathing equipment scoring 23.24%. Hospital A surpassed the others in the provision of Circulation equipment with 58.24%. In the provision of emergency drugs, Hospital B scored the highest, at 30.21%. Only three hospitals had AED in the emergency trolley. In many wards the emergency trolleys were checked infrequently.

Conclusion: The availability of emergency equipment was far below expected standard in all the hospitals indicating possible unpreparedness for CPR during emergencies.

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ID 550: Hospital Response Capacity and Hospital Treatment Capacity for the 2016 Olympic Games in Rio de Janeiro, Brazil

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Study/Objective: To present treatment capacity for hospitals in a 10km radius of competition venues in the forthcoming 2016 Rio de Janeiro Olympic Games.

Background: Organization of health services in mass gatherings is based on surge capacity. Lack of expertise and inexperience in organizing response has been observed in recent sports or religious mass gatherings across different countries and scenarios.

Methods: Source of data were Brazilian health databases and the Brazilian Olympic Committee (Rio 2016). Thirteen sports venues for the Olympic Games and surrounding hospitals in a 10km radius were located by geoprocessing (ArcGIS®) and designated a 'health area', assigned a specific color. Variable such as total attendance capacity (for venues) and type of care, number of inpatient beds, surgery rooms, respirators, cardiac monitors, trauma, x-ray, nephrology and pharmacy services (for hospitals) were collected. Resulting 'health areas' were analyzed independently for available hospital services, hospital surge capacity and treatment capacity.

Results: Five health areas showed considerably diverse profiles. Emergency care, trauma center, pharmacy and x-ray services are present in all five areas, while nephrology services are available in four. Surge is accommodated in four areas by availability of 8506 surplus inpatient beds. In respect to treatment capacity, in case of mass casualty, only 482 inpatients, out of 7340 (6.5%), would be able to receive hospital treatment. One of the areas accounts for 50-60% of beds and hospital services, but in spite of a surplus of over 5,000 beds, would only be able to treat 322 individuals.

Conclusion: Five 'health areas' in Rio de Janeiro will concentrate health services in the upcoming 2016 Olympic Games, but they present different availability as to available services, surge capacity and treatment capacity. Treatment capacity is low in comparison to available beds.

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ID 551: Trafficking and Road Traffic Crashes in Iran: Dangerous Intersections

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Study/Objective: To demonstrate the frequency, characteristics and consequences of smuggling on road traffic crashes (RTCs) in Iran.

Background: Smuggling and road traffic crashes (RTCs) cause significant problems in many border areas. Human trafficking and fuel smuggling commonly occurs along Iran's borders.

Methods: We conducted a web-based search for any scholarly articles, official reports and the media news that assessed or reported smuggling related RTCs in Iran for the period of January 2007 to July 2013. The following data were extracted by two independent investigators: date, location, cause of crashes, injury mechanism and the number of injury and death.

Results: No official reports or scholarly articles concerning smuggling RTC in Iran were identified. The media reported 17 crashes that led to 92 deaths and 82 injuries. The numbers of the crashes and related fatalities increased over the study period. In about 2/3 of the crashes a fuel smuggling vehicle was involved. Excessive speed was the most frequent cause of crashes, as determined by Traffic Police, and burns were the mechanism of >50% of the reported injuries. Over half of the crashes occurred

near Pakistan border in the southeast provinces of Sistan-va-Balouchestan and Kerman.
Conclusion: Smuggling related RTCs are not well studied and reported in Iran. We recommend public awareness programs for at-risk communities and the establishment of a registry in the Iran's health system. At the high risk locations, in addition to increasing the coverage of police surveillance and EMS, enhancement of hospitals preparedness for mass casualty management and burn care are required.

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ID 552: Prehospital Emergency Medical Services and Outcome After Road Traffic Injury in Hyderabad, India

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Study/Objective: To assess the patient characteristics and outcomes associated with private vs. ambulance transportation after road traffic injury (RTI) in Hyderabad, India.
Background: RTIs kill more people in India than in any other country in the world. Even in urban centers, many elements of a trauma system are lacking. Hyderabad has had widely available ambulance service since 2005. Ambulance service is considered an integral part of trauma care systems; evidence regarding the effectiveness of prehospital care has been mostly studied in high-income countries and has had ambiguous results.
Methods: Study staff performed interviews and abstracted data from clinical records for all consenting patients presenting to the casualty ward of a large public tertiary hospital within 24 hours of RTI from January – May, 2014. Data were collected regarding demographics, injury characteristics, risk factors, and outcomes. Bivariate analyses and multivariate Cox regression were performed.
Results: 2,642 patients were enrolled; their mean age was 32.6 years (SD 13.8). 72.0% of patients arrived by ambulance. Those arriving by ambulance had lower levels of education and formal sector employment, were more likely to present at night, and had a longer interval between injury and hospital presentation (2.0 vs. 1.0 hours, $p < 0.001$). Ambulance transported patients had a higher incidence of moderate or severe injury by Kampala Trauma Score, and higher mortality (7.1 vs. 0.4%, $p < 0.001$) (see Figure 1). After controlling for injury severity and other factors with multivariate regression, ambulance transportation was associated with a hazard ratio for mortality of 3.93 ($p = 0.02$).
Conclusion: India has a growing pre-hospital care presence, with increased number of patients receiving care in the pre-hospital setting. This study highlights successes and concerns in this maturing system. Further research needs to be completed to help identify and guide interventions to improve pre-hospital care of the injured.

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ID 554: What Influences Decisions for Humanitarian Recourse Allocations?

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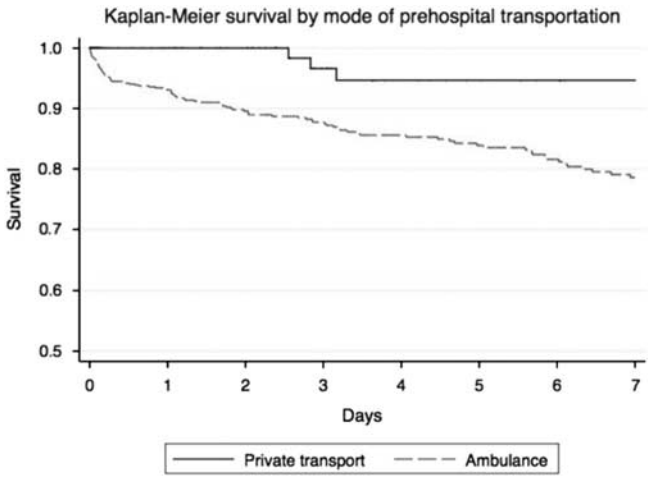
Study/Objective: To study the relevance of a severity scoring model for needs based funding and explore additional factors that influence decisions for resource allocations.
Background: A disaster is an event that overwhelms local capacity, necessitating national or international assistance. Annually, natural and man-made disasters affect on average 440 million people globally, primarily the poorest and most vulnerable. International humanitarian assistance is important for disaster-affected populations. It is recognised that humanitarian assistance should be provided 'according to need'. However, how to measure and compare needs between disaster-affected countries and allocate funds according to need is not clearly defined. We have previously proposed a severity scoring model that distinguishes levels of need between disaster-affected countries based on readily available vulnerability indicators.
Methods: We tested the model on a number of recent complex disasters with a "known" outcome in terms of excess mortality. We used data from Centre for research on the Epidemiology (CRED). A standardised mathematical formula for disaster severity building on the UTSTEIN template was modified to calculate the share of funding in relation to level of need. As a second step we conducted a literature review to identify other factors that reportedly have influenced resource allocations and categorised them accordingly. In addition key informant interviews was done to test the factors and their relative importance for resource allocations.
Results: The model was found to be relevant and provide guidance in regards to severity and level of needs in and between disaster-affected countries. Important factors for funding decisions, other than needs include the presence of implementing partners and their capacities.
Conclusion: The model can be an important tool to transparently allocate humanitarian assistance according to needs. More studies are needed to document the significance of needs in relation to other factors that also influence funding decision.



Prehosp Disaster Med 2015;30(Suppl. 1):s112
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ID 556: Potential for a Collaborative Relationship Between Disaster Management and Emergency Medical Services to Improve Technology Base and Response Effort

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Study/Objective: The purpose of the paper is to discuss the scope for better utilising funding and investment in emergency communication infrastructure and incident management systems through a collaborative relationship between Local Government Disaster Management and Provincial Government Emergency Medical Services. This paper discusses the findings from case studies of such a relationship and their approach to the management of major incidents and disasters.
Background: Emergency Medical Services operate a 24/7 call Centre for the call taking and dispatching of medical services. Disaster Management is responsible for the planning and coordination during a disaster and to provide the enabling environment in place for role players to communicate and collaborate during disasters.
Methods: An investigation was undertaken to ascertain the current principles of the relationship, the benefits to work towards a shared goal to improve communication in the, utilisation and sharing of an information system and the coordination during disasters. This case study was chosen due to the awards won and the benefits achieved in terms of progress in implementing communication infrastructure and incident management systems.
Results: The study found that by establishing a working relationship, the correct agreements in place and the communication infrastructure, implementation of incident management systems and coordination during a disaster can be drastically improved. This proved to be beneficial for both parties concerned as well as the community that they can now better serve. They achieved benefits together which they would never have been able to achieve separately.
Conclusion: The key research contribution of this article includes an analysis of the principles of establishing a working relationship to assist Local Government Disaster Management and Provincial Government Emergency Medical Services to improve the communication infrastructure and incident management system capacity. Also, this case study provides lessons learned which can be applied to other rural district municipalities in South Africa and rest of Africa.

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ID 560: Who Gets It? A Survey of Health Care Provider Attitudes Regarding Disaster Resource Allocation

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Study/Objective: This study aims to ascertain the opinions of health care providers regarding resource allocation in disasters and correlate findings with previous experience, education, and specialty.
Background: Resource allocation during disasters poses clinical, administrative, and ethical challenges. Limited research has been conducted on the baseline views of the health care professionals who allocate resources in disaster.
Methods: A brief survey was conducted at an academic, quaternary care hospital. Personal experiences with disaster planning and awareness, opinions of goals of crisis care, and understanding of possible resource allocation factors were ascertained. The anonymous survey was distributed to health care providers. Analysis for possible relationships between specialty or baseline awareness and patterns of allocation was performed. Chi-Square or Monte Carlo Fischer's Exact Test was used to ascertain relevant correlations.
Results: A total of 3,978 health care providers were surveyed, with an overall response rate of 32%. The majority of respondents (65%) had not participated in any preparedness activities and 85% did not feel prepared to deal with a disaster. Physicians and nurses had differing opinions about allocation of resources in some situations. Education in ethics or triage was not a significant predictor of allocation decisions. Most providers considered maximizing the total number of survivors to be higher priority than maximizing life years or number of young survivors.
Conclusion: The majority of health care providers at a large academic hospital feel ill-prepared to deal with disasters and have little consensus on standards for resource allocation in disasters. These data will form a solid base for further public debate and contribute to the adoption of transparent allocation standards that accurately reflect the perspectives of members of our healthcare community. This early single institution analysis provides the first reported insights into baseline provider attitudes and can be a basis for targeting institutional education initiatives and future surveys in disaster planning.

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ID 562: Adaptability and Acceptability of Disaster Risk Reduction (DRR) Training in Port-au-Prince, Haiti

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Study/Objective: Determine adaptability and acceptability of DRR training in Port-au-Prince, Haiti.
Background: Disaster risk reduction (DRR) training can improve the capacity for communities to identify, assess, and manage risks, hazards, and vulnerabilities. In 2013, University of Illinois at Chicago conducted a pilot-DRR training program in Delmas, Port-au-Prince. Preliminary results were positive. However, neighborhoods in Port-au-Prince are distinct and have varying needs. Therefore, in 2014 we replicated and compared the training program in another neighborhood, Belair to test effectiveness.
Methods: The same one-week training covering 3 content domains: defining hazards, risks, and vulnerabilities; identifying protective factors and community assets; developing community engagement strategies, was conducted in Belair. Pre-/post-test research design was used to assess knowledge acquisition; questionnaires were administered to determine acceptability of

methods. Findings were tabulated and compared to previous results from Delmas.
Results: Belair participants (N = 15) were between 17-24, high school-educated. In comparison, Delmas (N = 16) were between 18-58, high school-educated or greater. Participants exhibited 73% improvement in defining key terms (Delmas: 68%). 86% of participants identified activities to reduce risk and minimize impacts of disasters (Delmas: 81%). 90% of participants found topics to be relevant (Delmas 100%). 93% felt they developed useful skills (Delmas 100%), and 100% reported feeling comfortable sharing training activities with other community members (Delmas 81%).
Conclusion: Belair and Delmas knowledge acquisition results were similar. Both neighborhoods identified key terms and community assets. Belair participants found the DRR training slightly less relevant than Delmas, but still highly applicable. Belair felt more comfortable sharing with others. Key distinctions between the two groups include a wider age range and higher education level in Delmas that may impact willingness and ability for community engagement. Consideration for ways to engage the community and recognizing different types of risks, hazards, and vulnerabilities need to be highlighted. Overall results show that DRR training is acceptable and adaptable.

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ID 570: Direct Transport Versus Inter Hospital Transfer of Severely Injured Trauma Patients

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Study/Objective: The purpose of this study was to examine the benefits in term of mortality of direct transport to a trauma centre versus primary treatment in a non-trauma centre followed by inter hospital transfer to a trauma centre for severely injured patients without traumatic brain injury (TBI).
Background: Our trauma regions employs a system where patients are initially transported to the nearest hospital for treatment. If further treatment is required patients are transferred to a trauma centre. Only patients suspected of TBI are transported directly to a trauma centre with neurosurgical care.
Methods: We used the regional trauma registry and included all patients with an ISS >15 and an AIS <4 for head injury. Patients who died in the emergency or operating room of a non-trauma centre were included as potential transfers. A multiple logistic regression analysis was performed with potential confounders to produce adjusted odds ratios for mortality.
Results: 439 patients were included of whom 60 patients (14%) died. The median age was 48 years (interquartile range [IQR] 30-65) and the median ISS was 22 (IQR 18-29). The crude odds ratio of death for patients transferred was 2.0 (95% CI 1.1-3.7). After correcting for confounders (age, systolic blood pressure, ISS, Glascow Coma Scale and type of injury) the odds ratio was 2.7 (95% CI 1.3–5.9).
Conclusion: The results of this study provide a clear distinction in benefits in term of mortality between different pathways of transport of severely injured patients transported to a trauma centre. Most notably, this is the first study to our knowledge to investigate directness of transport of all types of severely injured patients and includes potential transfers while excluding TBI patients. Our results provide a compelling evidence for direct transport to a trauma centre for severely injured patients without TBI and this could be implemented in pre-hospital triage decisions.

Prehosp Disaster Med 2015;30(Suppl. 1):s104
doi:10.1017/S1049023X1500299X

ID 571: "I Saved the Iguana": A Mixed Methods Study Examining Responder Mental Health After Major Disasters and Humanitarian Relief Events

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Study/Objective: The purpose of this mixed methods study was twofold. The first was to use Hobfoll's (1989) Conservation of Resources theory to predict psychological stress based on responders' perceptions of resource adequacy. The second was to use qualitative interviewing to gain a more comprehensive understanding of the disaster/humanitarian responder experience.
Background: Psychological stress results in increased turnover of human resources within responder organizations. This turnover is detrimental to humanitarian systems that already lack adequate coverage and sufficiency because funding and human/material resources grow at a slower pace than the rate of need.
Methods: Participants included physicians, nurses, physician assistants, paramedics, emergency medical technicians, and mental health workers (N = 109). Eight surveys were completed using *an on-line data collection* system. These included a demographic form and scales for moral congruence, disaster self-efficacy, resilience, perceived social support, readiness to deploy, and psychological distress. Multiple regression and bivariate analysis were used to test hypotheses. The primary research question asked: Do participants who perceive adequacy of object resources, personal characteristics, conditions, and energy resources experience less psychological stress than those who do not? Participants who completed the survey were given an opportunity to participate in an interview. They were asked to share in their own words what it was about their disaster response experience that was most meaningful to them.
Results: Conservation of Resources theory was only partially supported by findings. Moral congruence, disaster self-efficacy, readiness to deploy, and educational level are significant predictors of symptoms of psychological distress. Qualitative assessment identified several response components not addressed by the theory. These items are mentorship, leadership, media influence, and the political environment's impact on disaster/humanitarian response efforts.

Conclusion: Although this study's guiding framework (COR) was only partially supported, findings of this study are rich, providing avenues for additional exploration as well as important implications for research, education, and policy.

Prehosp Disaster Med 2015;30(Suppl. 1):s104–s105
doi:10.1017/S1049023X15003003

ID 573: Good Medicine in Bad Places: Have POC Testing, Will Travel

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Study/Objective: Describe the limitations of disaster/trauma care in Haiti, especially for neonatal and pediatric populations, lack of lab testing, and how point of care testing mitigates those limitations to make life saving interventions possible.
Background: Laboratory Testing in Haiti poses many daunting and life threatening difficulties in disaster and emergency situations, especially in neonatal and pediatric populations. A short list of these difficulties and situations includes: Remote Medical Missions (high patient volume, no existing infrastructure) Life Threatening Medical Emergences(cholera, refeeding syndrome, diabetic ketoacidosis, etc) Trauma Mass Casualty: (Limited Blood Supply Informed Decision Making) Iatrogenic Anemia (low total body blood volume, especially in neonates) Small Sample Size, (often unable to obtain large sample volume) and Lack of Reagents/ Training (many time sensitive tests are unavailable).
Methods: Point of Care Testing methods to include blood gasses and metabolic panels, have been implemented and utilized in our neonatal and pediatric intensive care units, as well as emergency triage, to address several of the listed challenges at our facility in Port au Prince, Hopital Bernard Mevs (as well as several other locations in Haiti).
Results: In many cases, implementation and utilization of these testing modalities, or failure to do so has had a significant impact on morbidity and mortality.
Conclusion: Point of Care testing is vastly under utilized, relative to its capability, in disaster and emergency medicine. It is uniquely suitable in resource limited environments in that it: a) Increases access to healthcare b) Decreases turn around times c) Decreases minimum blood volumes d) Is rapidly deployable, and e) Is often comparatively robust. Our observational results are transferrable to a wide variety of emergency and disaster scenarios. We strongly believe that more formalized application and research has the potential to greatly reduce morbidity and mortality in these settings and furthermore may ultimately drive formal adoption by pan-global aid consortiums.

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ID 574: The Enhancement of Safety and Public Health Measures at Large Scale Events

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Study/Objective: Enhancement safety and public-health measures at large scale events.
Background: Public events in the Netherlands are becoming more complex, large-scale (>3000 visitors) and will further grow in number to over 800 in 2014 (IGZ, IVenJ 2012, Respond 2013). Health care contacts during these events can lead to an increase in pressure on the health care system. By law the major is entitled to impose conditions and restrictions on large-scale events in order to protect public health and safety. Specific advise from the Director of Public Health (Dutch: DPG) may be called upon, which covers public health care and safety issues including major incident medical planning and coordination. The DPG is responsible on a regional level (total of 25 regions). Currently, the national protocol to asses requests for and advice on large scale events is largely based on practical experience and only limited available scientific information (GHOR NL 2011). A single form of investigation, definition and registration at national, but preferably European or worldwide scale, is essential in order to reach sustainable measures (Christiaanse 2008, KCEV 2013). The WCDEM seems an excellent platform to share knowledge and develop a sound approach.
Methods: A workshop will be held to share current visions and approaches available. The Dutch approach will be presented as a starting point for discussion. The focus will be on testing the Dutch vision and assumptions in the national protocol against standards and experience within the international community. Issues to discuss will include: *definitions, registration*, *risk profile*, *resilience*, *operations*, *knowledge platform.*
Results: Availabilty of validated and evidence based data from evaluations will enhance insight in specific risks. The results will be used in evaluating existing approaches and may improve currently excisting protocols.
Conclusion: This will improve future advise on the approval to organise large scale events from the perspective of Public Health and Safety.

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doi:10.1017/S1049023X15003027

ID 576: Mass Casualty Incident Exercise in Kenya: Building Capacity and Coordination Amongst First Responders

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Study/Objective: To test activation and coordination amongst first responders in a multiagency Mass Casualty Incident (MCI) as stipulated in the 2014 Kenya National MCI protocol.
Background: Kenya has experienced a number of disasters, both natural and manmade, including floods, public transport crashes, structural failures, and terrorism–including the recent mall bombing in Nairobi. In response to the high burden of mortality from such disasters, an MCI protocol was developed with the goal of providing a rapid and coordinated emergency response resulting in reduced casualties.
Methods: In 2014, Johns Hopkins International Injury Research Unit, CDC-Kenya, Kenya Red Cross, NDMU (National Disaster Management Unit), NDOC (National Disaster Operations Centre) and the Ministry of Health - Kenya brought together stakeholders in MCI for a 4-day training and capstone simulation exercise. The exercise simulated a terrorist explosion attack on a shopping mall leading to mall collapse. The simulation included heavy smoke and fire with varying degrees of injuries. Notification calls were made to initiate the event. Fire, rescue and ambulance services participated in the simulation. Extensive videography was made to evaluate the response process and make recommendations.
Results: ICS (Incident Command Structure) was activated and a coordinated, structured emergency response followed. Adequate safety and security of the incident site was maintained throughout the exercise. A triage area was established to sort casualties for onward transfer to receiving health facilities. Response times by the hazardous material team were unrealistically long and delaying initiation of search and rescue.
Conclusion: Recent developments in Kenya have revealed an exponential increase in MCI's. There is the need to strengthen disaster preparedness for effective response at all levels through training, inter- sectorial collaboration and effective communication. An effective activation and coordination amongst first responders during a MCI is necessary to reduce morbidity and mortality.

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ID 577: Does Ongoing Evaluation of Emergency Preparedness Enhance Hospital Preparedness for Biological Events?

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Study/Objective: To examine the impact of ongoing evaluations on hospitals' level of emergency preparedness for biological events.
Background: In the last decade, a growing need to manage biological events such as SARS, influenza pandemics or the present Ebola outbreak, has been witnessed. Continuous evaluation of hospitals' preparedness has been recommended to develop and maintain readiness for mass casualty incidents.
Methods: The Israeli Ministry of Health evaluates every two years the emergency preparedness of all general hospitals for biological events, based on measurable objective parameters that encompass four major categories: (1) Standard operating procedures (SOPs), (2) Infrastructure and Equipment, (3) Knowledge and Skills, and (4) Training and Exercises. Performance scores of all hospitals were reviewed and compared, to determine trends in emergency preparedness for biological events.
Results: While the overall level of emergency preparedness is high for all three cycles, a decrease in average scores from the first cycle (89%) to the last (85%) was observed. In the latter, 10 hospitals were rated excellent (>91%) compared to 15 in the first cycle. The overall decline corresponds predominantly with a decrease in the "Training and exercise" scores. No variability was found concerning the category "Equipment and Infrastructure". Significant differences were found between overall average scores of periphery versus urban hospitals (80% and 90% respectively; $p = 0.011$). Significant correlations were identified between hospitals' training and exercises scores ($R2 = 0.4$, $p < 0.001$). The combined significance of all reported relevant results is $p = 0.026$ (Fisher's combined probability test).
Conclusion: Contrary to assumptions, the ongoing evaluation did not achieve continuous improvement of emergency preparedness for biological events. Possibly, the net decrease identified in this study stemmed from hospitals' complacency resulting from overconfidence triggered by previous evaluations. As hospitals' equipment and infrastructure are nationally installed by the Ministry of Health, no variance was found. The limited effect of ongoing evaluations should be further examined.

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ID 581: Triage, the Next Step

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Study/Objective: Ethical and critical care medicine articles have suggested, current triage classification systems are not accurate enough, and recommend that only an experienced provider should make the most difficult triage decisions. To investigate this further, our paper utilizes medical provider input to explore attributes and patient characteristics that impact triage decisions.
Background: Triage, is biased. The ranking of people into severity and priority treatment categories is not static; it is performed by human beings and influenced by their emotions and experiences causing over and under triage.
Methods: We distributed an electronic survey. The survey questionnaire was designed to ascertain what attributes healthcare workers value and utilize when evaluating a patient for treatment priority. The initial survey was piloted with a sample of ten healthcare workers who both work in an

emergency department and have had previous disaster response experience. Based upon feedback received, the instrument was revised and the modified questions were entered into SurveyMonkey®. The access link was distributed electronically to emergency medicine and disaster listservs, and as a hyperlink on a medical website frequented by pre-hospital emergency medical professionals. The survey was available on-line for one month, and respondents were not provided any financial or other incentives for participation. The survey study received approval by the hospital's institutional review board prior to the start of data collection.

Results: The top four triage attributes: Respiratory, ability to speak, perfusion, and gestalt. The mean rankings for five of the six variables differed by experience and were statistically significant. These support the MUCC guidelines developed by the CDC.

Conclusion: Based upon our survey, neurological/cardiovascular condition, resource availability, and gestalt are very important. The MUCC guidelines make a good starting triage frame work.

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ID 583: The Use of Information and Communication Technologies in Emergency Management of Mass Casualty Incidents and Disasters: Analysis of Early Experience

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Study/Objective: Information and Communication Technologies (ICT) and telemedicine are usedmore often in prehospital and emergency medicine. Although the use of ICT in routine emergency practice does not raise any concerns, using it in mass casualty incidents and disasters is subject to discussions. Research on development of proper strategies and implementing them in the National Emergency Medical System conducted in the years 2009-2014 lead to interesting conclusions. The development of intelligent management systems /SMART CITY project/ requires an adequately intelligent medical emergency management system. The research conducted and discussed results are an introduction to work out modern solutions.

Background: The study was conducted basing as well on decision-making games /Sand Table Drill/, as mass casualty incidents and catastrophes field simulations. The aspects measured were: the effectiveness of EMS and backup personnel management, the management and decision-making model, effectiveness o conducting triage, management and information flow to/from centre for management and control, criteria deciding on patient transport mode, adequate allocation of patients in hospitals.

Methods: The research was based on direct observation method with the use of control charts. Rescue actions were simultaneously monitored with the use of ICT. Applications for mass casualty incident management from WASKO Management Support System were used. The effectiveness of traditional and ICT supported management methods were measured.

Results: In every area of research ICT monitoring emergency medical procedures proved greater effectiveness of the ICT model rather than the traditional one. Moreover, ICT allows to take decisions that could not be taken within the traditional model due to lack of current findings from the incident analysis. ICT provides new management possibilities.

Conclusion: The use of ICT in mass casualty incidents and catastrophes contributes to more effective management. The initial research results allow new directions for intelligent EMS management systems to be developed.

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ID 584: If There was a Radiological/Nuclear Event, if Called Would you Come?

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Study/Objective: There is a paucity of knowledge and a lack of comfort that may negatively influence the turnout of those that would be called on to treat the injured in a radiological/nuclear event. Our pupose was to gather information from the medial disaster responder community to help with the justification and design of a response course for radiological/nuclear disasters.

Background: In the past 60 years there have been both radiological accidents and nuclear detonations. Most recently in Japan a nuclear power plant was severely damaged by a tsunami. Rumors and fears in the health care arena gave much false infomation and negatively affected medical and psychological care. Chernobyl, 3 mile island, and fukoshima in Japan have shown the the medical community is not prepared to deal with and respond to radiological emergencies. The radiologcal events mentioned have shown the despite an "all-hazards" disater training approach, people are still not comforable with treating patients who have been involved in radiological events.

Methods: An IRB approved anonymous paper survey was distributed at various disaster conferences and disaster courses. Surveys were written in various languages and collected 4 catagories of information: willingness to manage, knowlege of disaster systems, contamination risks, and generalized demographics.

Results: Over 400 surveys were completed and collected. Demographics showed that physicians and prehospital responders were the prevalent survey responders. The majority of responders despite disaster training, were still very uncomfortable with and unaware how to respond to a radiological/nuclear event.

Conclusion: Despite familiarity with disasters both through courses and actual events, there is a paucity of comfort and knowledge regarding nuclear and radiological events. Further education including course development in multiple languages and for multiple venues needs to occur to better educate and prepare the medical community for up coming radiological/ nuclear events.

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ID 586: Triage and Field Management in Fire Disasters with Multiple Victims

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Study/Objective: Fire-fighters are everywhere that's why they are more and more involved in first help and ambulance services in all countries. In fires with multiple victims with smoke inhalation it is necessary to have medical support and evacuation logistic.
Background: The background to manage such a situation is to have triage tools evidence medicine based. The triage is based on the European Emergency Society Algorithm added with clinical results of the RISK study (1) especially the presence of soot in the nose, neck, mouth and sputum and correlation with COHb measured non invasively in the field.
Methods: The first tool we have created is a triage form based on the START system but made in special paper able to be decontaminate and able to be used in smoke and wet environment. The second tool is a specific triage algorithm for the assessment of smoke inhalation victims with 3 outcomes: victims' needing an immediate intensive reanimation with clinical criteria's to give Hydroxocobalamine in the field and admission in intensive care station; victims needing oxygen therapy and Hydroxocobalamine but no intensive care station; victims who can be discharged without any hospital transport.
Results: These triage tools and decision algorithm are in disaster situation are now currently used by Fire Department EMS in France in disaster situation with multiple smoke inhalation and possible to avoid unnecessary transport which is particularly useful when resources are limited.
Conclusion: Fire EMS teams and ambulances should have a special algorithm for fires with multiple smoke inhalation victims and Hydrocobalamine on board. 1) Report on a study of fires with smoke gas development: G. Geldener EM Koch U. Gottwald-Hostalek F. Baud G. Burillo JP Fauville F. Levy C. Locatelli T.zilker Der Anaesthesist Band 62 Heft 8 August 2013.

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ID 588: Building Resilient Communities: Enablers and Constraints

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Study/Objective: The Building Resilient Communities workshop brought together key stakeholders in Canadian community resilience planning with the goal of sharing their experiences and developing concrete strategies to support ongoing and emerging initiatives in community and disaster resilience planning.
Background: The importance of disaster and community resilience planning in maintaining economic viability and critical infrastructure in the face of natural and human-caused disasters is well established. Multiple initiatives have been undertaken to build community resilience, including the development of a variety of community-level resources and tools. Yet, uptake of these initiatives beyond their initial development is uneven.
Methods: Thirty-four participants from multiple levels of Canadian government, senior practitioners, policy makers, academia, community members and a variety of agencies examined current practices and existing disaster resilience tools, then identified enablers and constraints on community participation in disaster resilience planning. Overarching themes from this discussion were used to identify priorities and specific action areas for fostering awareness and encouraging uptake of existing and emerging projects.
Results: Participants in the Building Resilient Communities workshop noted that there are a variety of effective tools and processes available to Canadian communities who seek to engage in disaster resilience planning. However, these tools are generally neither well-used nor well-known. Furthermore, existing projects and initiatives tend to be fragmented and overlapping, and opportunities for synergistic action are often not taken advantage of. Identified strategies included development of an integrated national strategy and finding ongoing sustainability funding; increasing community engagement through information sharing, giving context specific examples of anticipated outcomes, demonstrating return on investment; engaging and supporting local champions; and embedding disaster resilience within other processes.
Conclusion: A key message was that any engagement with disaster resilience planning increases community resilience. Communities should be encouraged to use any appropriate tool or process, rather than struggling to find the perfect fit.

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ID 590: Le Système D'information Numérisé En Cas D'évènements avec des Nombreuses Victimes

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Study/Objective: Le besoin de disposer d'un système d'identification et de suivi des victimes adapté dans une crise majeure revêt trois aspects principaux: - l'information des autorités pour une gestion de crise et une communication de qualité, - l'aide aux enquêtes de police judiciaire, - l'information du public et notamment des proches des victims.
Background: Le dispositif SINUS (Système d'Information NUmérique Standardisé) répond à ce besoin en fiabilisant la

remontée et le traitement des informations indispensables au suivi des victimes.
Methods: SINUS repose: - sur un identifiant: dès sa prise en charge chaque victime se voit dotée d'un bracelet à code à barres muni de stickers supplémentaires destinés à l'identification de documents ou d'effets liés à la victime. - une fiche médicale de l'avant décontaminable - un module de saisie sur le terrain appelé ArcSinus qui permet la saisie et le transfert des données en temps réel. - une base de données en temps reel.
Results: Ce dispositif a donné toute satisfaction après plus de 150 activations au profit de près de 2500 victimes à Paris et dans 4 départements de la couronne de Paris. Il a par ailleurs été installé à titre expérimental dans le département du Nord en juin 2012, dans le cadre des JO de Londres. Il est en cours d'installation dans la Zone de défense et de sécurité Est.
Conclusion: SINUS est un dispositif du plus grand intérêt dans la gestion des crises avec de nombreuses victimes. Il permet l'information des autorités en temps réels sans porter atteinte au secret médical.
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ID 592: Management of Emergency Medical Teams During Mass Events: The Analysis of Simulated Events

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Study/Objective: Rating rescue system performance in terms of the organization of activities This method of recovering directing emergency medical operations and team management skills has been the subject of research.
Background: The research material was collected during a simulated mass events taking place in the stands of the football stadium. The simulation was held during the fourth Open Championship Mazovia in Emergency Medical Services in Siedlce 09-12.05.2013 year. Simulated explosion in the grandstand of the stadium where 25 people suffered injuries. To this end, faking 13 victims code red, 6 yellow, 5 green and 1 black. The exercises attended by 25 medical rescue teams. Collected data directly from simulated accident site and the center console. Duration task is limited to 30 minutes.
Methods: For the study evaluated the organization and activities, separation efficiency, communications Dispatch Center, allocations injured in hospitals. In order to collect information uses specially designed scorecard. Each stage of the action was evaluated by the judges based on direct observation, and subject to the results of the key steps in the safety assessment was recorded.
Results: The study showed a lack of a systematic approach to the problems of organization and rescue operations in the event the mass. Thus, demonstrating gaps in the system of training of medical staff in this area education. Group teams work in a different way to give different efficiency. The effectiveness of the action depended largely on the leader, build the management and skillful management of subordinate people, especially in the ability delegation and control their implementation regardless of how aid organizations.
Conclusion: The study showed a lack of uniform training teams from the area human team management. Applications used to program verification education for university students as well as the development of the program postgraduate training for graduates of medical schools.
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ID 594: A World of Difference: Be the Change! Humanitarian Missions for Emergency and Critical Care Providers

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Study/Objective: The Emergency/Critical Care provider will become familiar with various example organizations, their strategic visions, and processes for volunteering for the purpose of providing humanitarian support. In addition, the Emergency/Critical Care Provider will become familiar with considerations relevant to determining personal organizational best fit when considering humanitarian support.
Background: Often potential aid workers have questions regarding choosing a mission or and organization to affiliate with. Often Organizations lack a standardized approach for screening candidates. We will explore the diversity of opportunities in emergency and critical care medicine, nursing, and prehospital medicine, humanitarian relief, disaster management, community health… and more....we will discuss many ongoing missions and organizations across the globe in a wide variety of practice settings, from day to day clinics and emergencies, to disaster relief and look at factors that promote both organizational and individual satisfaction.
Methods: In informal survey settings, both oral and written, individual and group, pre and post deployment, we examined several factors. These included: Financial: Cost of Mission. (Travel and Expenses, direct and indirect) Geopolitical: Passports /Visas. Current/Prior Security Clearances. Conflict Zones. Healthcare: Vaccines, Personal Hygiene/Sanitation, How Austere?, Personal Medical Needs, Travel Insurance/Exit Strategy Skill Set: Does your skillset match the mission/organizational profile? Culture shock: Socio-Economic. Functioning in Austere practice environment. Barriers to practice. Cultural. Linguistic.
Results: We explored many volunteer opportunities, determining factors which promoted the right fit for potential aid workers and/or organizations. Polled volunteers, as well as aid organizations demonstrated better "fit", a higher sense of satisfaction, and greater degree of mission accomplishment when a multifactorial standardized selection process was employed.

Conclusion: With prior research and planning to ensure good organizational/mission and personal compatibility, humanitarian volunteerism can be personally and professionally rewarding, as well as serving as an invaluable force multiplier with regards to building sustainability in disaster ravaged or developing healthcare systems.

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ID 596: From Cholera to Ebola...Lessons from Haiti, Learning Opportunities in Liberia

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Study/Objective: To seek out and compare commonalities between rapidly evolving pathologies such as cholera and ebola and identify opportunities for process improvement.
Background: The author has an extensive background in trauma and shock resuscitation, including numerous publications and presentations. This experience has carried forward to addressing cholera in Haiti. Upon deploying to Liberia to combat the emerging Ebola outbreak, many potential opportunities to improve patient outcomes suggested themselves.
Methods: A systematic review of literature and current clinical practice was conducted for both cholera and ebola.
Results: Many potential opportunities to improve ebola patient outcomes that are currently employed or investigational in cholera were identified. These include: Intra-Osseus access, Nasogastric or Orogastric access (NG-OG) Subcutaneous fluids, Prescription and Over the Counter PO/NG-OG electrolyte replacements (calcium, magnesium, and potassium) and Point of Care Testing (metabolic panels).
Conclusion: "Those who cannot remember the past are condemned to repeat it"...Santayana's words ring true. Dogmatic repetition of established protocols does not promote clinical evolution. We must seek commonalities amongst apparently differing pathologies and engage in a multidisciplinarian approach to promote positive improvements in morbidity and mortality.

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ID 597: The Perceptions of Essential Services for Households in Internally Displaced Persons (IDP) Camps Compared to Those Integrated in the Community 1 Year Following the Haiti Earthquake

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Study/Objective: To compare the perceived access to essential services for households in IDP camps and the community 1 year after the Haiti earthquake.
Background: On 12 January, 2010, a 7.0 magnitude earthquake struck Haiti, near Port-au-Prince. This study compares reported access to essential services in affected households living in camps and those living in the community one year after.
Methods: A cross-sectional, population-proportional, stratified cluster (60x20 household) survey focusing on reported access to water, toilets, health care, food and income before and 1 year after the event was performed in Port-au-Prince, comparing households affected by the earthquake in IDP camps and the community.
Results: Camp households reported worse access to toilets (69.0% [95% CI 66.3%, 71.7%]), health care (54.5% [95% CI 52.4%, 56.6%]), income (81.3% [95% CI 79.1%, 83.6%]) and food (76.5% [95% CI 74.8%, 78.3%]) compared to before the earthquake. However, were more likely to have same or better access to water (67.6% [95% CI 65.7%, 69.6%]). Individuals still residing in the community reported similar access to water 84.8% [95% CI 83.3%, 86.3%] and toilets (88.5% [95% CI 88.4, 88.6%]) but worse access to healthcare (45.8% [95% CI 42.9%, 48.6%]), income (67.2% [95% CI 64.3%, 70.0%]) and food (56.7% [95% CI 53.7%, 59.5%]) compared to pre-earthquake. Camp households were more likely to perceive themselves as worse than pre-earthquake status compared to community households regarding all categories.
Conclusion: Even after one year households reported worse access to essential services than prior to the earthquake, especially those living in camps. Despite the belief that camps provide easier means of dispersing aid, they reported worse access to toilets, health care, food, income compared to pre-earthquake and compared to those not in camps. These findings suggest the need for ongoing assessment of the perceived impact of aid and further the call for accountability to aid recipients.

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ID 598: The Outcomes in EMS-assessed Severe Trauma Patients by Prehospital Shock

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Study/Objective: The purpose of study is to define the effect of prehospital shock on major surgery, disability and mortality in EMS-assessed severe trauma patients.
Background: Shock index (SI) as the ratio of heart rate to systolic blood pressure is a simple triage tool. However, it is not easy to assume the outcome by SI.
Methods: This is a cross sectional study of the adult (> = 20 years old) patients with mechanical trauma (motor vehicle crash, fall, impact, pierce and cut, machine related) who were transported by EMS with an abnormal Revised Trauma Score in 6 different EMS area on 2012. Prehospital shock was defined the SI was over 0.9 in prehospital or at emergency department arrival. We excluded cases of out of hospital cardiac arrest or severe traumatic brain injury (Abbreviated Injury Score of head > = 3). Primary outcome was a hospital mortality and secondary outcomes were major surgery (including

embolization) of chest and abdomen, blood transfusion and disability at discharge by Glasgow Outcome Scale (worse than moderate disability).

Results: Of 5,292 cases of EMS-assessed severe trauma, 721 (13.6%) were in shock. Numbers of mortality were 70 (9.7%) in shock group and 103 (2.3%) in non-shock group. We adjusted sex, age, injury mechanisms, injury severity score and Charlson Comorbidity Index. Odds ratio (OR) of mortality comparing shock to non-shock was 2.9 (95% CI 2.0, 4.3). OR of disability was 2.0 (95% CI 1.6, 2.6). OR of major surgery was 1.8 (95% CI 1.2, 2.8). OR of blood transfusion was 3.1 (95% CI 2.3, 4.1).

Conclusion: Shock in prehospital time would make prognosis worse and predict to need surgery and transfusion in EMS-assessed severe trauma patients. Therefore EMS provider should pay attention to avoid shock in severe trauma patients.

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ID 599: Classification of Disaster Health Publications

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Study/Objective: The purpose is to create a process to classify the peer-reviewed disaster health literature and to identify gaps in the science.

Background: In a review of the 2004 Earthquake and Tsunami, few public health and medical care interventions could be identified. Thus, it was not possible to identify interventions provided nor their impact. The lack of studies of interventions impairs development of the science of disaster health.

Methods: All articles *in Prehospital and Disaster Medicine* (PDM) and *Disaster Medicine and Public Health Preparedness* (DMPHP) from June 2009-July 2014 were reviewed. The articles were categorized as non-disaster-related or disaster-related; the disaster-related articles were assigned into either epidemiological or interventional categories. Interventional studies were further categorized as risk reduction, relief, recovery, other, or uncategorizable. Initially, the process focused only on titles and abstracts; but these were insufficient to determine categories. Thus, full text was examined. The criteria developed and used will be presented.

Results: *based on total disaster-related studies. Half of the disaster-related studies are epidemiological and less than one fifth are interventional. Little has been published relative to relief or recovery.

Category	PDM n (%)	DMPHP n (%)	Total n (%)
Non-disaster	206 (44.8)	8 (3.3)	214 (30.3)
Epidemiological*	122 (48.0)	123 (51.0)	245 (49.7)
Interventional*	61 (24.0)	33 (13.7)	94 (19.1)
Relief*	17 (6.7)	6 (2.5)	23 (4.7)
Recovery*	1 (0.4)	1 (0.4)	2 (0.4)
Risk Reduction*	43 (16.9)	26 (10.8)	69 (14.0)
Other*	65 (25.6)	77 (32.0)	142 (28.8)
Uncategorizable*	0 (0)	6 (2.4)	6 (1.2)
TOTAL reviewed	454 (64.8)	247 (35.2)	701 (100)

Conclusion: Using the defined criteria, review of the entire article was required. Relatively few interventional studies have been published and little is known about relief or recovery interventions.

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ID 600: Interventional Studies During the Cholera Epidemic in Haiti

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Study/Objective: The purpose of this study was to examine publicly available documents relating to the 2010 cholera outbreak and subsequent responses to answer: What information is publicly available on interventional studies conducted during the epidemic, and what was the impact(s)? Can interventions be compared and what lessons can be learned from their comparison?.

Background: In October 2010, the Haitian Ministry of Public Health and Population reported a cholera epidemic caused by contamination of the Artibonite River by a UN Stabilization Mission camp.

Methods: A PubMed search was conducted using the parameters (Haiti) AND (cholera). Each study was categorized as interventional research, epidemiological research, or other.

Results: The search yielded a total of 171 papers, 59 (34%) of which were epidemiological and 12 (7%) were interventional studies. The remaining 100 papers (59%) were comprised largely of narrative, anecdotal descriptions. An expanded review of WHO, CRED, USAID Development Experience Clearinghouse and National Library of Medicine's Disaster Literature databases yielded no additional interventional studies. The unstructured formats and differing levels of detail of the reports prohibited comparisons between interventions, even between those with a similar approach. Only two (17%) interventional studies included any impact data; however, neither commented whether the intervention improved health or reduced the incidence or mortality related to cholera.

Conclusion: Without agreed upon frameworks guiding disaster responses and subsequent reporting, reports generally do not

contain sufficient detail to draw conclusions for future interventions. Interventional studies, that include descriptive methods section and systematic evaluation approach, may be more useful in facilitating comparisons and applying lessons to future outbreaks. A reporting framework is proposed to guide future interventional disaster studies, enhance accountability, and provide useful, structured information that contribute to the science of disaster health.

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ID 602: The Trend of Natural Disasters in Korea

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Study/Objective: The aim of this study is to demonstrate the trend of natural disaster in Korea.
Background: For decades, the effect of natural disasters has decreased due to advance of prevention technologies and infrastructure. However, the climate seems to be changing as a result of global warming. In order to establish an effective response plan, analyzing the trend is required.
Methods: Annual reports from governmental offices, papers from journals were collected. Study period was defined by the availability of data. Natural disaster was defined as any major adverse event resulting from natural processes of the Earth. Data was extracted from reports and reorganized systemically. We collected data of disaster categories, dates of events, location, mortalities and injuries related to the event. Duplicate data among sources were cleaned, and events from the sea were excluded. We performed a time series analysis to evaluate the trend of disaster occurrence and its effects.
Results: We collected data from 1985 to 2012. Overall, 534 events met the criteria and were included for analysis. There have been 51 (9.5%) typhoons, 219 (41%) events of heavy rain, 58 (10.9%) events of heavy snow, 161 (30.1%) events of strong winds, and 43 (8.1%) uncategorized natural events. 6,831 casualties were reported as results from natural disasters: 4,129 deaths and 2,702 injuries. The leading cause of casualties were heavy rain (3,401 (49.8%)). However, for each event, typhoons were most dangerous with an average of 51.1 (Standard Deviation (SD): 62.1) casualties per event. Trend analysis showed that the number of natural disasters decreased from 35 (1985) to 4 (2002) (P for trend < 0.001), and increased to 22 (2012) (P for trend = 0.01). Related casualties decreased from 325 (1985) to 53 (2012) (P for trend = 0.02), with a significant drop in 2004.
Conclusion: The number of natural disasters had minimized in 2002. Casualties are in significant decrease since 1985.

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ID 604: Emergency Medical Service Transportation During Mass Casualty Incident: A Nationwide Study

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Study/Objective: The aim of this study is to evaluate transportation performance of emergency medical service (EMS) during mass casualty incidence (MCI).
Background: EMS has a critical role in MCI. Prompt response to the scene and effective transportation to hospitals must be done to minimize mortality rate and morbidity rate. However, little has been studied with real data from EMS.
Methods: EMS data from 2010 to 2012 was acquired from the National Emergency Management Agency. Data is based on ambulance run-sheet, which includes time and place, categories of event, time intervals as response (call to field arrival), total transport time (call to hospital arrival) and number of casualties per each incidence. We defined an MCI as an incidence with more than 5 casualties. Then, MCI incidences were grouped into 4 categories based on the number of victims (6-10, 11-15, 16-20, over 20). Response time and total transport time intervals were compared among the MCI groups.
Results: Among all 5,058,150 EMS requests, 25,679 (0.5%) patients in 3,175 MCI events were selected for the final analysis. MCIs were more frequent in the industrialized Northwestern side of the country. MCIs took place most frequently in the summer and least in the winter. More frequently during the weekends and the day time. The mean response interval was 15.2 min (Standard Deviation (SD): 12.1). The response interval was 14.9 min (SD: 11.0), 17.8 min (SD: 13.5), 17.2 min (SD: 13.9), 23.9 min (SD: 18.2), for each group respectively (P for trend <0.001). The mean total transport interval was 40.2 min (SD: 25.7). The total transport time for each group was 38.0 min (SD: 22.9), 44.7 min (SD: 26.5), 42.1 min (SD: 22.0), and 56.3 min (SD: 39.3) (P for trend <0.001).
Conclusion: With our nationwide EMS data, MCI sizes were significantly associated with delay in EMS response and transport intervals.

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ID 616: Effective Emergency Messaging During Natural Disasters: An Application of Message Compliance Theories

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Study/Objective: This research examines the types of emergency messages used in Australia during the response and early recovery phases of a natural disaster. The aim of the research is

to develop theory-driven emergency messages that increase individual behavioural compliance during a disaster.

Background: There is growing evidence of non-compliant behaviour in Australia, such as refusing to evacuate and travelling through hazardous areas. This can result in personal injury, loss of life, and damage to (or loss of) property. Moreover, non-compliance can place emergency services personnel in life-threatening situations when trying to save non-compliant individuals. Drawing on message compliance research in psychology and sociology, a taxonomy of message types was developed to ascertain how emergency messaging can be improved to produce compliant behaviour.

Methods: A review of message compliance literature was conducted to develop the taxonomy of message types previously found to achieve compliance. Seven categories were identified: direct-rational, manipulation, negative phrasing, positive phrasing, exchange appeals, normative appeals, and appeals to self. A content analysis was then conducted to assess the emergency messages evident in the Australian emergency management context. The existing messages were aligned with the literature to identify opportunities to improve emergency messaging.

Results: The results suggest there is an opportunity to improve the effectiveness of emergency messaging to increase compliance during the response and early recovery phases of a natural disaster. While some message types cannot legally or ethically be used in emergency communication (e.g. manipulative messaging), there is an opportunity to create more persuasive messages (e.g. appeals to self) that personalise the individual's perception of risk, triggering them to comply with the message.

Conclusion: The theory-driven emergency messages developed from this research will be tested via experiments for their ability to increase individual behavioural compliance during a disaster.

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ID 617: Development of Critical Thinking of Nursing Students in Emergency Department by an Active Method of Teaching

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Study/Objective: This study investigated the effect of an active method of teaching on critical thinking of nursing students in emergency department.

Background: One of the most original and most basic goals of nursing education epecialy in critical situations and crisis is the development of critical thinking. This study investigated the effect of an active method of teaching on critical thinking of nursing students in emergency department.

Methods: this is a quasi-experimental interventional study which has done on 60 nursing students (30 in each group). California Critical Thinking test questionare and Baseline Inventory were teacher-made test to assess the knowledge was done and. case Group trained with a method based on critical thinking questions at the a period of 9 sessions. At the last session California Critical Thinking test questionare and Baseline teacher-made Inventory refiilled by the participants again

Results: In achievement test before the intervention, there was no significant difference between the two groups. And after the intervention, a significant difference was seen between the two groups. At the end of the study, both groups showed an increase in achievement test scores. But this increase was higher in the intervention group.In test of critical thinking, no significant differences were observed in the control group before and after intervention. But there was statistically significant difference in the case group.

Conclusion: The increase in student s scores on the total score of critical thinking skills and deductive reasoning skills to analyze, reflects the educational value of this active method on critical thinking of nursing studens in emergency departments.

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ID 618: The Relation Between Organizational Justice and Psychological Empowerment in Emergency Nurses Working at Hospitals Affiliated with Shahid Beheshti University of Medical Sciences

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Study/Objective: The aim of this descriptive correlational study was to identify the correlation of organizational justice and psychological empowerment of emergency nurses working at hospitals affiliated with Shahid Beheshti University of Medical Sciences.

Background: Understanding organizational justice is highly important because it has a direct effect on having a good sense, attitude and performance in staff and making them able to cope with stressful and critical situations. Studies have also shown a link between activities with justice and respect of managers and psychological empowerment of nurses.

Methods: 115 emergency nurses following random and proportional sampling from the hospitals completed 2 questionnaires. The first was Niehooff and Moorman's Organizational Justice and the other was Spreitzer's Psychological Empowerment. The subjects completed the questionnaires at the end of their shifts or bring them back on next shift. After data analysis, the amount of organizational justice and psychological empowerment and their correlation were determined.

Results: Findings showed a significant and positive correlation between organizational justice and psychological empowerment in emergency nurses. Also the results of multiple regression showed that interactional justice can explain %43 of Psychological empowerment in emergency nurses.

Conclusion: In general, it is suggested that managers of healthcare system work to improve organizational justice to empower emergency nurses psychologically.

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ID 620: Middle East Respiratory Syndrome Coronavirus and Current Situation in Turkey

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Study/Objective: We want to present the current situation in Turkey. Turkish citizens visit Saudi Arabia for the Hajj and Umrah frequently every year. Despite the high probability of experiencing MERS Cov, only one case was determined.
Background: Middle East respiratory syndrome (MERS) is a viral respiratory disease caused by a novel coronavirus (MERS-CoV) that was first identified in Saudi Arabia in 2012. Coronaviruses are a large family of viruses that can cause diseases ranging from the common cold to Severe Acute Respiratory Syndrome (SARS).
Methods: The cases and the number of people who went an pilgrimage to mecca have been investigated from web pages of official sources in Turkey.
Results: From 2012 until today, 47 samples in 2012, 178 samples in 2013 and 163 samples in 2014 were sent to laboratory. Only one was found positive. This is the first MERS-CoV case in Turkey is a 42-year-old male, Turkish citizen known to be working in Jeddah, Kingdom of Saudi Arabia (KSA). On 25 September 2014, the patient developed symptoms in Jeddah. Initially, he sought medical care in KSA; however, on 6 October 2014, as symptoms worsened, he travelled with a direct flight from Jeddah to Hatay, Turkey. Upon his arrival, he was admitted to a local hospital. On 8 October, he was transferred to the University Hospital in Hatay. Pilgrims are informed by the Department of Religious Affairs. Pilgrims and medical staff are informed by the Public Health Directorate in the period before the pilgrimage and protection measures are explained. The number of pilgrims taking education is 5.687 and the number of health personnel taking education is 8485.
Conclusion: Turkish citizens' health status returning from Hajj and Umrah visit are followed up by Family Physicians during 14 days (the incubation period). Until today; In 2013 46.632 and in 2014 7120 citizens have been followed (process continues).

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ID 623: A Collaborative Approach to Disaster Training and Education for Health Professionals

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Study/Objective: This presentation will report on a collaborative approach leading to the development of a Masters Degree in Disaster Healthcare for health care professionals in Australia and internationally.
Background: The Asia-Pacific is the most disaster prone area in the world and many Australian health professionals are involved in disaster response and preparedness at local and international levels. At present Australian healthcare staff have limited opportunity to acquire tertiary disaster qualifications, programs that are currently available in this area provide a focus on management, public health and tropical medicine rather than an operational response.
Methods: The Flinders University Torrens Resilience Institute is a leader in multidisciplinary disaster and emergency research in the region incorporating a WHO Collaborating Centre and an ICN Research and Development Centre. The National Critical Care Trauma Response Centre (NCCTRC) is a federal government funded agency responsible for the coordination and development of national disaster health response. Incorporating the expertise of both organisations a partnership was formed to develop a Masters Degree program to provide tertiary level disaster education to health care professionals, including nurses, doctors and paramedics.
Results: The Master of Disaster Health Care is designed for domestic and international students who have obtained a bachelor degree in a health profession and who wish to develop their knowledge, preparedness and personal and professional response capability for local, national and international disaster events. Students can choose either a course work or research pathway in a nested program with exit points at graduate certificate and graduate diploma levels.
Conclusion: This program is unique in that it is the first program in the region which provides health care professionals an operational focus to disaster response at a tertiary level. This presentation will report on the collaborative process and the structure of this unique program.

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ID 625: An Audit of Referral Notes Arriving at the Emergency Department (ED) of the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana

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Study/Objective: The aim of the study is to assess the appropriateness of referral notes arriving at the Emergency Department (ED) of the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana.
Background: An effective healthcare referral system ensures a close relationship between all levels of the health system and safeguards patients' care[MO1]. One important component of the referral system is the referral note. The KATH, ED receives about sixty referrals daily most with unacceptable errors on the referral notes.
Methods: The study employed a non-interventional cross-sectional quantitative study design by reviewing 354 systematic sampled referral notes. The referral notes were compared to a standard referral format and ranked from A-E based on omitted

fields on the referral forms, an overall assessment was done based on the worst rank.
Results: Four types of referrals were identified; 48.9% were printed hospital forms, 33.5% were National Health Insurance Scheme (NHIS) referral forms, 16.2% were Ghana Health Service (GHS) referral form and 1.4% of the referral forms were hand written on plain papers or prescription forms. Ranking the referral notes showed that no form ranked A[MO1] -excellent for care, 2.3% ranked B-good for care, 45.7% ranked C-average for care, 39.2% ranked D-fair for care and 12.8% ranked E-poor for care. It was found that all the NHIS referral forms and the GHS referral forms had feedback portions whiles the only 59.3% (p value <0.001) of printed hospital referral forms had feedback portions.
Conclusion: The research concluded that only 2.3% of referral notes were above average for patient care recommends that a standard form should be instituted for all health facilities and health workers educated on proper documentation of referrals.
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ID 626: How Did You Get Here? An Assessment of the Mode of Transport Used by Referred Cases Arriving at the Emergency Department (ED) of the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana

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Study/Objective: To assess the mode of transport used by referred cases arriving at the Emergency Department (ED) of the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana.
Background: Referral of patients is an important component in healthcare delivery system. Effective therapy requires early arrival of the patient to the hospital (Cunninghamet, 1997). Patients when referred use various modes of transport to reach the higher level of care, most patients in Ghana are transported by non-ambulance transport systems (Moude-Millman et. al., et al., 2013). The type or mode of transport greatly influences patient care. The use of ambulances is the ideal situation and the responsibility of the referring facility.
Methods: The study employed a non-interventional cross-sectional quantitative study design by reviewing transport options of 354 cases referred to the ED, KATH and cross referencing with their severity. The measured times traveled were then compared to the standard estimated travel time using "Google maps". The various times were then standardized using the distance traveled in kilometers.
Results: From the study 62.2% of the referrals were transported via non-ambulance transport. The modes of transport were walking/wheelchair (6%), taxi/'Trotro' (40.3%), private cars (15.9%) and hospital ambulance (4.8%) and National Ambulance Service (33.3%). The ambulance transport reached KATH ED at a rate of 0.9km/min and the non-ambulance transport reached the KATH ED at a rate of 0.5km/min with a p-value of 0.003. The cases that were triaged Orange and Red at the ED were more likely to be transported by ambulance transport (p-value <0.001).
Conclusion: The study concluded that 62.2% of the referrals were transported via non-ambulance transport and recommends that referring clinicians use appropriate transport for their patients and the government encourage private partnership in the ambulance system.
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ID 627: Relationship of Mean Platelet Volume with Ischemic Stroke and its Outcome

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Study/Objective: To assess the relationship of MPV in patients with Cerebrovascular Ischemic Stroke.2. To co-relate MPV level with the severity and the outcome of acute ischemic stroke.
Background: Platelets play a key role in the development of atherothrombosis, a major contributor of cardiovascular evevts. The contributor of platelets to cardiovascular events has been noted for decades. Mean paltelets volume [MPV] is a marker of platelets size that is easily determined on routine automated haemograms and routinely available at low cost. Subjects with higher MPV have larger platelets that are metabolically and enzamatically more active and have greater prothombotic potential than smaller platelets. In fact several studies have demonstrated a significant association between higher MPV and an increased incidence of cardiovascular events and all-cause mortality.
Methods: It is a case observational study 2.The study will be conducted in the department of General Medicine at AVBRH, Sawangi (Wardha) Selection of patient. 4. The modified rankin scale score will be calculated within 24 hours of admission. 5. Finding the mean platelets volume. 6. After 1 month follup modified ranking score / mortality.
Results: We have enrolled 50 patients till date and results and obseravation suggest that 10 out of 50 patients have increased mean platelets volume (MPV).
Conclusion: This study shows that there is a correlation of increased mpv associated with increased incidence of ischemic stroke in population.
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ID 629: Hospital Major Disaster Plan: How to Write the Manual

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Study/Objective: Hospital Major Disaster Plan How to write the Manual 1- Major Disaster Plan is essential to every hospital. It is one of the required written plans, in order to face the unexpected events, also it is one of JCI quality needs for accreditation 2-The Major Disaster Manual should include both the external and internal disaster plans 3-To start writing the disaster manual you need to formulate a committee from all

medical departments, non- medical and support services 4-The committee should review the hospital organization and the resources and also to identify the needed extra equipment s in case of disaster 5- The internal disaster plan should be framed to realize different scenarios 6-Drills are very important in order to assess the teams performance and identify the deficiencies and difficulties.

Background: **Hospital Major Disaster Plan** is an important document that needs the effort of all departments it should include both different scenarios of external and internal disasters.

Methods: this experience of disaster planning was built in one of the military hospital in Kingdom of Saudi Arabia it took 2 years to finalize the manual for the regional 4 hospital in the concern area.

Results: collaboration of all hospital departments and drills were the key for success.

Conclusion: Major Disaster Plan in any hospital is a must and drills is the core of plan.

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ID 630: Return within 72 Hours to the Emergency Department

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Study/Objective: It aims to investigate the factors that contribute to the Emergency Department (ED) returns within 72 hours at the Singapore General Hospital (SGH).

Background: Revisits within 72 hours of the patient's discharge from ED may contribute to unnecessary increase in patient load and may also suggest inadequate patient assessment, treatment or even discharge care instructions.

Methods: Data was extracted from SGH ED Electronic Health Record System between the period of 1st January 2013 and 31st December 2013. Patient information were collected and we made comparisons between patients who returned within 72 hours and patients who did not. Analysis were conducted using Two-way table (measures of association) and Multi-variate Analysis was conducted using Generalized Linear Model (RR).

Results: 94,350 patients were included in the study. There were 3,065 (2.9%) patients who returned to the ED within 72 hours. Of the patients who returned within 72 hours, 55.24% were females, 18.96% were aged 51 years old to 60 years old, 65.29% were Chinese, 40.82% were patients triaged with Patient Acuity Category scale (PACS) of 3, 50.65% were admitted on first ED presentation and 19.94% were diagnosed with diseases of the heart. Female patients were less likely to return within 72 hours (RR = 0.88, $P < 0.001$) than males. Patients triaged with PACS 2 were more likely to return within 72 hours than patients triaged as PACS 3 and PACS 4 (RR = 2.69, $P < 0.001$).

Conclusion: There is a significant difference between these 2 study groups in relation to their Demographics, PACS, Disposition Status and Diagnoses. Male patients, triaged as PACS 1 or 2, older in age and diagnosed with cardiovascular problems are more likely to return within 72 hours. A new study can be conducted to evaluate the efficacy of the care plan and if the 72 hours ED return rate of patients with cardiovascular problems have decreased as a result.

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ID 632: Development of a Disaster Nurse Well-being Instrument

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Study/Objective: To promote the maintenance of disaster nurse health, safety and performance during deployments in austere environments, this project sought to develop, and field test a digital tool for monitoring disaster nurse well-being.

Background: Medical response to sudden onset disasters generally encompasses long work shifts in austere conditions, inclusive of physically demanding work to establish medical facilities and habitat. Nurses responding to disasters in tropical regions anecdotally report the impact of hot conditions, hydration and sleep deprivation. Such responses may not be visible to team leaders and to our knowledge, there are currently no instruments to anonymously provide subjective responses during deployment.

Methods: A review of monitoring tools utilised in occupational settings was undertaken prior to development of an instrument specific to nursing. The well-being instrument was comprised of 24 questions with four or five addressing work rate, fatigue, heat stress, and hydration, incorporating the Athens Insomnia Scale (AIS-5). A prototype was trialed by Australian Medical Assistance Team (AusMAT) nurses deployed as part of the medical team for the 2014 Tour de Timor (TdT), a five day bike race in remote settings of Timor Leste. A total of 14 responses were completed during the deployment via an iPad and/or notebook computer. Access to the internet was established via a Broadband Global Area Network (BGAN) terminal.

Results: Nurses reported the instrument was relevant, time efficient to complete, and all were willing to complete post each shift during a deployment. Initial analysis of data indicated the instrument was sensitive to variance in symptoms.

Conclusion: The disaster nurse well-being instrument is an easy to use, effective tool for monitoring well-being that will be implemented on future AusMAT deployments. Modifications in progress include use in the absence of an internet connection, and additional instruments specific to other deployees.

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ID 636: Africa Helping Africa

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Study/Objective: In this presentation, I will focus on all the responses made by South African team to disasters within Africa. I will demonstrate: - the impact that South African teams have had within Africa - the challenges faced when responding to disasters specific to Africa - the potential for developing collaboration and cohesiveness between African nations - the need for establishing a Pan- African disaster response team - the need for improving disaster readiness in all the African countries And most importantly, demonstrate that Africa has the capability to respond to and adequately manage disaster responses within the continent, limiting the need for external help.
Background: The author has personally joined a South African NGO on 3 disaster response missions within Africa (Somalia, Congo, Mozambique) and has also been on disaster response missions internationally (Syria, Phillipines). This affords the opportunity to provide a comparison between the different types of missions and to show the challenges specific to Africa.
Methods: The presenter will present the challenges encountered, the lessons learnt and the achievements made by South African teams when responding to disasters within Africa. All responses by any South African medical team to disasters within Africa in the last 15 years have been included. Interviews have been conducted with the team leaders of the respective disaster response missions.
Results: The team leaders for each of the missions within Africa report their challenges and lesson learnt. They also report their achievements on each of the missions.
Conclusion: African has the potential to respond to disasters within Africa without the need for external help. This potential needs to be harnessed and improved upon to make Africa self sufficient. This will hence empower African nations and reduce their reliance on non-African teams.

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ID 638: Disaster Management Training in Hospitals in South Africa

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Study/Objective: The author will assess the disaster readiness of the hospitals in South Africa. The author aims to achieve this by answering the following questions: Does the hospital have a disaster management committee? Who are the members of this committee? Have the committee members attended any disaster management training? If yes, what training have they underwent?
Background: The author serves as the Deputy Head of a tertiary hospital's disater management committee. Many institutions appear not to have any structured committee, nor have they underwent sufficient training. The author aims to formally assess the status quo.
Methods: The investigator will conduct a telephonic interview with the clinical managers of all of the secondary and tertiary hospitals in South Africa. The quesions asked will be the following: Does the hospital have a disaster management committee? Who are the members of this committee? Have the committee members attended any disaster management training? If yes, what training have they underwent?
Results: The results will be presented at the 19th WCDEM.
Conclusion: The conclusions will be presented at the 19th WCDEM.

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ID 644: Analysis of Critical Errors During Simulation Cardiopulmonary Resuscitation in Adults Based on the Algorithm of the Advanced Life Support (ALS) According to the European Resuscitation Council 2010

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Study/Objective: Sudden cardiac arrest is a major medical problem. Treatment involves cardiac arrest as soon as possible to recognize and take CPR and ALS for medical services. The main cause of mortality after cardiac arrest is brain damage. A study conducted at the time of ALS certified training, documentation and analysis of the training, was to determine the most common medical errors that reduce the chance of survival until recovery of spontaneous circulation.
Background: For material tests were used to assess the card, filled in during the exams at the end of the two-day, intensive, certified training in ALS based on the guidelines of the ERC at the turn of the year 2005-2014. For the analysis used data from two training centers: IPL Resuscitation Courses - Poznan, Diakonia Wang - Karpacz.
Methods: The study focuses on the material collected over the 2005-2014 year. Group involving 1,000 people surveyed were divided into three groups due to the occupation: doctor (50%), nurses (15%), paramedic (40%).
Results: Preliminary analysis showed that the most frequent errors that are not allowed include the final exam, and thus decreasing real chance of patient survival were: lack of proper treatment before the onset of cardiac arrest, the lack of time to minimize the chest compressions, incorrect diagnosis and treatment of cardiac arrest rhythms associated, lack of adrenaline in the PEA.
Conclusion: In order to improve the treatment of patients at risk of cardiac arrest and those who have a cardiac arrest has occurred, it is recommended that periodic practical exercises on this issue. In a real situation, it seems sensible creation of "officer resuscitation", extra person involved in the arrest, controlling the course of the whole action and the location of a large emphasis on prevention of cardiac arrest, by enforcing the proper treatment of patients before any deterioration.

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ID 649: An Analysis of Health Facility Preparedness for Major Incidents in Kampala, Uganda

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Study/Objective: We undertook a cross sectionla study to assess hazard vulnerability and major incident preparedness of 4 health facilitie sin Kampala, Uganda.
Background: Major incidents occur commonly in Uganda, but little is known about either local hazards which risk causing major incidents, or health system preparedness for such events. Understanding risk and current preparedness is the first step in improving response.
Methods: We undertook a cross-sectional study across 4 teaching hospitals in Kampala (Mulago National Referral Hospital, Mengo Hospital, St. Francis Hospital Nsambya and Uganda Martyrs Hospital Lubaga). A local geographic area Hazard Vulnerability Analysis (HVA) for each site was combined with Key Informant interviews and standardized facility checklist within the hospitals. Data collected included status of major incident committees, operational major incident plans and facility major incident operation centers, bed capacity, equipment and supplies and staffing. The HVA assessed the human impact, property impact and business impact of the hazards as well as measures for mitigation (preparedness, internal response and external response) in place at the hospitals.
Results: The HVA revealed a wide range of threats for each of the 4 hospitals, ranging from bomb threats (100%) to internal failures (78%). Despite this, interviewees reported that: major incident plans were often not in place (51.2%); plans catered for only internal incidents (46.3%); the role of designated coordinator for incidents mostly landed on general surgeons (87.3%); major incident plans were only found in the ED (87.8%), and many staff had not participated in an annual drill (31%).
Conclusion: Kampala hospitals face a wide range of external and internal hazards and respond to frequent major incidents, but despite this they remain under-prepared. Reasons include lack of training, irregular drills, and lack of coordinated major incident plans and organization.

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ID 651: Lessons Learned from the Japan Tsunami Disaster

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Study/Objective: To clarify the lessons learned from the Japan Tsunami Disaster.
Background: The Great East Japan Earthquake of 2011, in which a huge tsunami struck modern cities, is an experience that humanity has encountered for the first time. The National Police Agency reported that across Japan 15,889 people were killed, 2,597 are missing, and 6,152 were injured due to the disaster as of November 10, 2014.
Methods: Before the Japan tsunami disaster the Japanese government had developed the National Disaster Medical System (e.g. Designated Disaster Base Hospitals, Disaster Medical Assistance Teams, the Wide-Area Disaster & Emergency Medical Information System, and the Wide-area Medical Evacuation System) which was established according to the lessons learned from the Great Hanshin-Awaji Earthquake. In terms of the ultra-acute phase medical care, the Japanese National Disaster Medical System worked adequately.
Results: However, we experienced another challenges on this disaster. There were very few trauma and also few severe cases. Among the very few trauma, only 10% were triaged as category I (Red). Number of patients on the first day was few, and rapidly increase from the third day. 70-80% of increased needs were medical maladies. Evidence shows that large-scale disasters would cause excess morbidity and mortality by indirect impact throughout all the phases of disaster response, especially among the vulnerable and high-risk populations in shelters and temporary housing, as the Great East Japan Earthquake-related deaths exceeded 3,000 as of end September 2013. The majority of these "indirect death" are caused by delay of non-clinical public health interventions.
Conclusion: Based on lessons learned from the disaster, more specific priorities and detailed action plans in public health sector should be reflected in the Japanese National Disaster Medical System.

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ID 654: Comparative Analysis of Four Disaster Triage Algorithms in Lu-shan Earthquake

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Study/Objective: The study objective was to determine the accuracy of 4 disaster triage methods (START, Rapid Emergency Medicine Score (REMS), Care-Flight triage and Sacco Score) when predicting clinically important outcomes in Lu-shan earthquake trauma victims.
Background: Some methods have been usually used in disaster triage situations, include simple triage and rapid treatment (START), Care-Flight triage, and so on. Seldom disaster experiences report triage accuracy in a earthquake.
Methods: Trauma victims records in Lu-shan earthquake Trauma Database were assigned triage levels, using each of 4 disaster triage methods: START, Rapid Emergency Medicine Score (REMS), Care-Flight triage and Sacco Score. Methods for approximating triage systems were vetted by subject matter experts. First standard was ISS score with area under the receiver operator curve (ROC), an ISS score equal to or exceeding 15 indicates a critical patient, and should be assigned red flag status. Secondary standards included being admitted to the intensive care unit (ICU), and a surgical operation was done in 24 hours.
Results: 257 trauma victims records in Lushan Earthquake Trauma Database were included. The REMS predicted critical patients most accurately, with area under the ROC of 0.873

(95% confidence interval 0.86 to 0.88). Sacco Score was more accurate than START and Care-Flight, with area under the receiver operator curve of 0.84 (95% confidence interval 0.82 to 0.88).

Conclusion: Among 4 disaster triage methods compared against actual outcomes in trauma registry patients, the REMS and Sacco Score was more accurately than other three triage algorithms.

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ID 656: Emergency Medicine Uganda (EMU): Driving the Need for Emergency Medical Care in Uganda

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Study/Objective: To describe formation, role, achievements and future plans of *Emergency Medicine Uganda*.

Background: LMICs account for 99% trauma deaths and 90% deaths from pneumonia, meningitis and other infections (Mock 2005). Despite this significant burden of time-sensitive illnesses and injuries, provision of timely treatment isn't a priority. (Razak 2002). Emergencies consume resources even without the systems in place to manage them effectively, thus the need to find effective options for better outcomes, tailored to local needs. Efforts to improve emergency care, however, need not lead to increased costs (Kobusingye 2005).

Methods: Review of; Social media reports, interactions and EMU documents.

Results: The idea for EMU was conceived 22/09/2014 between 2 individuals & is now a *voluntary* group of 14 Ugandan Health-workers committed to; 1. Advocating for Emergency Medical Care mainly through social media. 2. System strengthening through training, research, mentorship, and health policy influence. 3. Global Collaboration with like-minded individuals and groups. As of 30/11/2014; 4 Anaesthesiologists, 3 Residents, 3 Nurses (2 Critical Care, 1 ED) coordinated by 2 EM bound Medical Officers working through Whatsapp messenger, Google + & www.emuganda.blogspot.com (>8,000 views across the World in 2 months) Face book page & twitter (@EmedUg). Impacts: · Community Sense · Mentorship & career guidance (12) Projects: Injury prevention for school children, Simulation lab Research: 2 proposals for grant acquisition. 1 operational research in progress. Strategic Partnerships: Africa Federation for Emergency Medicine (AFEM), Department of Anesthesiology & Critical Care MakCHS, Intensive Care Society Uganda, Uganda National Ambulance Service, Global Emergency Care Coalition, Gulu University & World Vision. Plan for AFEM supported EM Uganda conference. Challenge: No supporting structures in place.

Conclusion: EMU has shown that Advocacy and Collaborations for Systematic Improvement of Emergency Medical Care in a low resource setting is a collective effort, achievable in a sustainable way using cost-effective approaches.

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ID 658: A Common Problem of the Military and Civilian Health Care Systems: Work Accidents

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Study/Objective: Work accidents are the leading cause of morbidity and mortality confronting military forces, they are also a complex problem. According to the International Labour Organization (ILO), more than 337 million accidents happen on the job each year, resulting, together with occupational diseases, in more than 2.3 million deaths annually. One of the leading public health problems in an otherwise healthy military population, affect operational readiness, increase healthcare costs, and result in disabilities and fatalities.

Background: In the United States in 2012, 4,383 workers died from job injuries, 92% of which were men. In Turkey, in the past 12 years, 12,686 people died in work accidents. Just in 2012, 278 construction workers died, 89 people in the agriculture and forestry sectors died, 83 in the energy sector and 80 workers in mine accidents and collapses. Accident causes at military services are similar with civilian communities.

Methods: We searched the words "work accident", "military", and "injury", at the literature and benefited from working experience as a military doctor.

Results: The top three causes of injury hospitalization of military personnel have been documented to be falls, athletics (sports), and motor vehicle crashes. Among other complexities, as with civilian communities, the leading causes of injury vary widely depending on the level of severity of injuries. In the past, "accidents" has focused primarily on fatalities, especially motor vehicle and aviation fatalities. Motor vehicle crashes have been the leading cause of unintentional, nonbattle injury deaths across all the military services. Falls can occur from stairs, ladders, and other heights, and on level surfaces during garrison or combat conditions.

Conclusion: What should be done to prevent accidents? Staff should be educated about more common and probable accidents. Military surveillance databases to identify the largest and most severe military injury problems should be used effectively. Priorities for both injury prevention research and program/policy implementation should be set.

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ID 659: Teaching Emergency Medicine Skills to Tanzanian Medical Students

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Study/Objective: To create a rotation to teach basic emergency medicine (EM) skills to Tanzanian medical students.
Background: The ability to respond to medical emergencies is an essential skill for all physicians. However, specific training in responding to emergencies has been lacking in the medical school curriculum in Tanzania, thus many physicians in practice have not been trained in these skills. The creation of an academic EM Department at Muhimbili University of Health and Allied Sciences (MUHAS)/Muhimbili National Hospital provided an opportunity to teach basic emergency medicine skills to medical students.
Methods: Local and international EM specialists determined rotation content based upon the African Federation for Emergency Medicine curriculum that was designed to have a regionally relevant focus. The curriculum was approved by MUHAS. The rotation included simulations, lectures, and clinical shifts. CPR and primary survey skills were assessed prior to the rotation, and again at the end of the rotation. Students completed an anonymous post-rotation survey to evaluate rotation content and perspectives on EM.
Results: 23 students took part in the first 5-week rotation. Prior to the rotation, no students could perform CPR or a primary survey. Upon rotation completion, all students successfully demonstrated these skills in clinical exam stations. Post-rotation surveys indicated that all students "agreed" or "strongly agreed" with the statement "During this rotation, I gained knowledge that will help me practice medicine in whatever field of medicine I choose to enter", and 91% of students "strongly agreed" that "All medical students in Tanzania should have an Emergency Medicine rotation".
Conclusion: Medical students could demonstrate basic EM skills after completing a clinical EM rotation with a simulation component. As these students will practice across Tanzania, this may be a way to disseminate these skills across the country. Further studies are required to evaluate knowledge retention after the rotation and to refine the curriculum.

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ID 665: Preparedness and Mass Gatherings Team Mission in Guča International Trumpet Festival in Serbia

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Study/Objective: Study objective was to assess the public health impact of the festival in addition to understanding the public health needs of the Roma population and to help facilitate Public Health Preparedness & Response as well as Health Promotion and Legacy.
Background: The world-renowned Guča International Trumpet Festival, established in 1961, attracts hundreds of thousands of participants worldwide every year in the small town of Guča (population: 2,000) in Serbia. The festival causes the town to inflate to 900,000 thus putting significant strain on local community resources. In the recent years the festival demographics have changed and include a larger number of young people. The foreign population has increased, thus increasing the exposure of new diseases. The Preparedness and Mass Gatherings team (PMG) proposed a mission in conjunction with WHO Country Office in Serbia, the Institute of Public Health of Vojvodina (a WHO Collaborating Centre), and the Regional Public Health Authority of Liberec, Czech Republic. Mission took place in August 2014 during the festival.
Methods: Mission checked several areas and conducted several tasks in order to provide proper recommendation as following: Risk Assessment; Risk Communication; Infection Control; Evacuation plan; Chemical, biological, radiological and nuclear defence; Testing and Exercising.
Results: Final report was prepared and summarized external recommendations that would have positive impact on the communities in the area of command and control, health promotion, surveillance and hazzard risk mitigation measures in the area of food safety.
Conclusion: Improved economic standing of the town over the years has positive impacts on the community and has potential to benefit the public health legacies that may be left. Reccomendations given by the misssion report may influence further improvement in Public Health Preparedness & Response.

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ID 667: Effect of the Dirty Bomb Responce Training of Previous the Nuclear Power Plant Disaster in Japan 2011

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Study/Objective: To compare between the R terrorism response training and nuclear power plant disaster response, consider the correspondence of the way to the radiation disaster.
Background: January 2011, on the assumption that a bomb containing radioactive materials would explode by terrorists in Ibaraki Prefecture, we carried out triage, treatment, transport of the casualties. It was the first R terrorism corresponding

simulation training in Japan. East Japan Earthquake occurred after two months, in the Fukushima Daiichi nuclear power plant disaster, we performed hospital evacuation and health management of evacuees.
Methods: A comparative study to R terrorism response training and radiation disaster response due to the Fukushima Daiichi nuclear power plant accident.
Results: Medical stuff should understand the mechanism of health problems caused by radioactive substances, while protecting themselves, correspond to casualties in each response.
Conclusion: R terrorism response training knowledge and skills is effective in responding to radiation disaster, including a nuclear power plant accident.
Prehosp Disaster Med 2015;30(Suppl. 1):s120–s121
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ID 669: Evaluating the Need for First Aid and Basic Life Support Training in Early Childhood Development Practitioners in Cape Town, South Africa

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Study/Objective: To assess the readiness and preparedness of early childhood development facilities to manage an emergency
Background: Unintentional injury remains one of the leading causes of morbidity and mortality among children worldwide. ECD (early childhood development) centres have an important role to play in communities by providing supervised care to preschool children. The aim of this study was to ascertain whether ECD practitioners working in ECD facilities in the Western Cape have training in emergency care, what their attitudes are towards emergency first aid and how competent they feel to manage emergencies.
Methods: A cross-sectional survey was carried out among ECD practitioners studying at the Goodwood campus of Northlink College in the Western Cape. The survey was voluntary and anonymous. A questionnaire based survey was used to assess the participant's knowledge and attitudes towards first aid and basic life support (BLS).
Results: 214 subjects completed the questionnaire. The average scores differed significantly across the different areas that were assessed. Only 12.1% of the surveyed learners had adequate knowledge. None of the participants answered all the questions correctly. The majority (47.7%) of the participants attained scores of 50% and 60% on the questionnaire. Subjects especially lacked knowledge in the areas of safety (8% correct), seizure management (28%), fractures (41%) and spinal immobilisation (46%). The participants revealed good knowledge in the sections on burns management (84%) and near drowning (97%). All of the participants felt that it was important to have first aid training and 99% said that they wanted further training in this field.
Conclusion: The level of emergency first aid and BLS knowledge in Cape Town ECD practitioners was low. There is an urgent need to educate and train staff regarding first aid and BLS practices.
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ID 670: The Application Value of Four Trauma Scores in a Prehospital Situation After Wenchuan Earthquake

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Study/Objective: To evaluate the application value of these four trauma scores (T-RTS, MOTS-RTS, CRAMS and PHI) in a pre-hospital situation after Wenchuan earthquake.To evaluate the application value of these four trauma scores (T-RTS, MOTS-RTS, CRAMS and PHI) in a pre-hospital situation after Wenchuan earthquake.
Background: At present, there are some pre-hospital scores for trauma, such as RTS (revised trauma score, which include T-RTS and MOTS-RTS), CRAMS (Circulation, Respiration, Abdomen, Motor, Speech) and PHI (Pre-hospital Index) and so on. However, there are few researches about the best trauma score in an Mass Casualty incidence (MCI) especially after an earthquake for a fast evaluation.
Methods: We retrospectively analyzed 5265 cases of Wenchuan earthquake database. Total 10 variables were extracted for the analysis, including gender, age, blood pressure (BP), respiratory rate (RR), heart rate (HR), Glosgow Coma Scale (GCS), Hemoglobin (Hb), the length of stay (LOS), whether death and whether being admitted to the intensive care unit (ICU). Then we calculated their MOTS-RTS, T-RTS, CRAMS and PHI. Four trauma score were compared against each other in terms of the standard of whether death or whether being admitted to ICU by receiver operating characteristic curve (ROC curve). We also compared the correlation between these four scores and the LOS.
Results: Among these four scores, CRAMS had the largest area under the ROC curve: in terms of whether death, the area was 0.839 ($P < 0.05$); And in terms of whether entering ICU, the area was 0.633 ($P < 0.05$). The best fitting curve between CRAMS and LOS is quadratic curve.
Conclusion: In our study, we recommend CRAMS for the pre-hospital evaluation for MCI especially after an earthquake.
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ID 671: Rapid Needs Assessment in a Humanitarian Crisis: A Focus on the Syrian Refugee Children in Jordan

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Study/Objective: An examination of the feasibility and value of rapid needs assessments conducted by academic centers to augment humanitarian response effort, through a study of the needs of Syrian refugee children in Jordan.
Background: The ongoing conflict in Syria has resulted in the displacement of 11 million people, three million of whom have fled to neighboring countries including Jordan, Lebanon,

Turkey and Iraq, severely straining humanitarian capacity in the region. We conducted a rapid needs assessment in Jordan to evaluate the impact of the policy gaps and insufficient funding on the protection and well-being of children and their families.
Methods: A four-person team comprised of experts in human rights law, medicine and public health was deployed over a two-week period to Jordan. The team conducted interviews with over 100 stakeholders including aid workers, UN staff, refugee families, including Palestine refugees from Syria, and the Jordanian host community.
Results: The most pressing challenges facing children revolved around access to education, further compromised by limited to no livelihoods regeneration for adults. Among this population, the Palestine refugees from Syria were particularly vulnerable as they were not legally allowed to enter Jordan, and constantly faced refoulement. Based on the intensive field research and several pre- and post-deployment meetings (in person and phone) with stakeholders, the team released a policy brief highlighting the most pressing challenges facing the refugee children (including the impact on the local host communities), and shared recommendations with aid organizations, UN agencies, US state department, and representatives of UN member states.
Conclusion: Academic centers can augment assessment and advocacy efforts of the UN and other institutions by providing rapid, rigorous, unbiased needs assessments to address policy gaps in the early phases of a developing crisis. Further work needs to be done on developing indicators to monitor the efficacy and impact of such interventions.

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ID 672: Global Collaboration in Point-of-Care Ultrasound Program Development: Emergency Department Physician Knowledge, Attitudes, and Practice of Bedside Ultrasound in Abu Dhabi

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Study/Objective: This study aims to introduce a unique, longitudinal point-of-care ultrasound (POCUS) partnership between a United States-based institution and a hospital in the UAE, and to evaluate ED physician (EDP) knowledge, attitudes, and practice of POCUS.
Background: Utilization of POCUS has expanded over the past decade and is recognized as an integral component of EM. The international uptake of POCUS has been limited by both cost and the global infancy of the specialty. There is no established standard to rapidly and effectively introduce a POCUS program in an international ED.
Methods: EM faculty at a US-based institution, together with local POCUS directors, conducted an onsite POCUS workshop with all EDPs at the partner institution. Knowledge, attitude, and practice of POCUS were studied using surveys of EDPs prior to, immediately following, and 90 days following the workshop. Statistical analyses were performed by exact tests.
Results: All EDPs (n = 19) completed surveys pre and post-course, and 15 completed surveys at 90 days. Though over half of respondents (53%) had previously taken a POCUS course, none were performing POCUS at the time of the training. Only 32% of EDPs felt comfortable acquiring POCUS images before the course, but 74% did following the course ($p < 0.05$), and this comfort level was sustained at 90 days. 26% felt confident interpreting POCUS images before the course, while 58% did immediately after the course ($p < 0.05$), and this confidence was sustained at 90 days. Post-course and at 90 days, EDPs felt that POCUS improved diagnostic accuracy, patient throughput, and patient satisfaction (all $\geq 80\%$). POCUS utilization increased significantly from 0 (95%CI 0-1) to 53 (95%CI 47-59) studies monthly following program implementation.
Conclusion: Global partnerships to create longitudinally-supported POCUS programs with rapid uptake are possible. Support of EDPs is needed during the initial POCUS privileging period to ensure that EDP attitudes remain positive and continued uptake is achieved.

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ID 676: General Workers Living with Younger Children in Fukushima had More Preventive Behaviors Against Radiation During the Fukushima's Nuclear Disasters

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4. Fukushima Occupational Health Promotion Center (Fukushima/Japan)

Study/Objective: To clarify the factors that influenced general workers living with children and the effects of child age groups in implementing preventive behaviors against radiation following the Fukushima nuclear disasters.
Background: During and after the Fukushima nuclear disasters, many parents were concerned about the effects of radiation on the health of their children.
Methods: A descriptive study of preventive behaviors among general workers was carried out 3-5 months after the nuclear disaster. The subjects were 1,394 regular workers, who took part in radiation seminars run by the Fukushima Occupational Health Promotion Center between July and September, 2011. In total, 1,217 responses were submitted, of which 1,110 were eligible for the present study. This anonymous questionnaire survey inquired about the presence and age of children in the household and about radiation preventive behavior

implemented after the Fukushima nuclear disasters. The contribution of each variable was assessed by logistic regression analysis.
Results: General workers in Fukushima who lived with younger children performed more preventive behavior against radiation during and after the Fukushima nuclear disasters. In particular, both location-related and daily routines were practiced significantly more frequently ($p < 0.01$) by workers living with a child in the age ranges of 0-6 (8 of 10 items) and 7-12 (5 of 10 items).
Conclusion: This is the first study to assess the positive association between living with children by age group and increased preventive behavior against radiation implemented by general workers after the Fukushima nuclear disasters. Our results provide information that may help with the targeting of health information after a nuclear disaster. This may contribute to determining an order of priority when distributing information after a nuclear disaster.
Prehosp Disaster Med 2015;30(Suppl. 1):s122–s123
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ID 679: Emergency Physician's Perspective on Point-of-Care Ultrasound

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Study/Objective: There is anecdotal evidence of an insufficient utilization of point-of-care ultrasound at the emergency department of Hamad General Hospital in Qatar. The aim of this study is to assess the current employment of ultrasound by emergency physicians, to quantify any deficiencies in its training and to find ways for further improvement.
Background: Point-of-care ultrasound is now valued as an important tool in the diagnosis and management of life-threatening traumatic, as well as non-traumatic, emergencies presenting to hospitals all across the world. The recent introduction of point-of-care ultrasound in the practice of emergency medicine has remarkably enhanced the clinical judgment and diagnostic skills of physicians. It has also improved the success rate of invasive procedures performed in an emergency department.
Methods: A cross sectional questionnaire survey was conducted among emergency physicians inquiring about their level of training, current utilization of ultrasound and any obstacles encountered in performing scans when required. Data was collected over a period of one month.
Results: A total of 105 emergency physicians including residents, fellows and consultants responded to the questionnaire. A majority of them had not received any formal training in point-of-care ultrasound; 44.8 % perform less than five scans a week, and lack of time has been stated as the most common reason for not performing point-of-care ultrasound. More than half of the respondents have expressed interest in improving their skills through practical courses and bedside teaching.
Conclusion: There has been an underutilization of point-of-care ultrasound in the emergency department due to a lack of time as well as a deficiency of formal training.
Prehosp Disaster Med 2015;30(Suppl. 1):s123
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ID 681: Correlation Between Sepsis Severity and Biomarkers in the Hungarian Emergency Sepsis Register

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Study/Objective: To detect any correlation in sepsis severity and levels of procalcitonin and lactate immediately at admission to the ED using a national database of the Hungarian Association of Emergency Medicine.
Background: Despite efforts in recognition and treatment of sepsis, associated mortality is still unacceptably high. Recognition of sepsis is cumbersome due to its complex pathophysiology. At the same time it is prudent to start early treatment, an important issue in improving survival.
Methods: An internet based, anonymous questionnaire was released by the Hungarian Association of Emergency Medicine and answered by physicians caring for septic patients in the emergency ward. 105 patient data were analysed regarding procalcitonin and lactate levels immediately at admission and correlated with severity of sepsis. Data are given as interquartiles and statistical analysis was carried out by two paired t-test.
Results: Procalcitonin levels were lowest in the sepsis group (5.3 ng/ml [0.125-5.425]), increased significantly in patients with severe sepsis (34.95 ng/ml [3.225-38.175]) ($p < 0.03$). Level of procalcitonin in patients with septic shock differed also significantly from those of sepsis (53.165 [12.75-65.915]) ($p < 0.01$). Lactate levels in patients with sepsis was different from those of severe sepsis, but the difference was not significant (1.675 mM/l [1.4-3.075] vs. 2.55 mM/l [2-4.55]) ($P < 0.14$). Lactate levels measured in patients with septic shock was significantly higher compared to the lactate levels of patients with sepsis (4.8 mM/l [2.45-7.25]) ($P < 0.001$).
Conclusion: Our register suggests that stratifiction of sepsis is supported by the use of biomarkers. Levels of procalcitonin showed a close correlation with severity of sepsis in all three groups, while lactate levels did not follow this trend. Time spent on the emergency ward should be decreased by quicker patient disposition definitely by using biomarkers and also by fast tracking.
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doi:10.1017/S1049023X15003490

ID 685: Comparison Between Medical Support Patients in Onagawa Town After the Great East Japan Earthquake and in Leyte, Philippines After the Yolanda Superstorm

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Study/Objective: I compared the experience of medical treatment between East Japan Earthquake and typhoon of Yolanda.
Background: On March 11th 2011, the Great East Japan Earthquake and tsunami hit Japan and on November 8th 2013,

the big typhoon "Yolanda" struck the Philippines. I have experienced the operations of medical support at the both cases.
Methods: The medical records were examined retrospectively and analyzed in terms of age, sex, diagnosis, medication. I also compared the similarities and differences in the subjects, ailments, medications used and medical relief management between the two disaster-struck countries.
Results: In Onagawa town, we provided medical care to 17 shelters for about two months. We went around 3-4 shelters a day. The average number of patients per shelter was 7-34 (average 17) and age was 3-100(average of 62). The most common disease was ARI, followed by hypertension and the most frequently used medications were multi-ingredient cold medicine and cough medicine.In Leyte we provided medical care to 7 locations for 9 days. The average of patients per location was 35-75 (average 65). The most common disease was ARI. Next to it was skin disease. Antitussives were the most frequently used medication.
Conclusion: Common points between both the earthquake victims of Japan and typhoon victims of the Philippines were 1) a lesser number of traumatized patients than previously expected and 2) ARI being the most frequent disease. And t ARI at the locations was caused not only by infection but also by dust. The differences were 1) The age of patients. Patients were younger in Leyte than in Onagawa, 2) Prevalence of disease. In Onigawa, it was hypertension and in Leyte, it was skin disease, 3) Medication used. Multi –ingredient cold medicine was for Onigawa and antitussive drugs for Leyte.

Prehosp Disaster Med 2015;30(Suppl. 1):s123–s124
doi:10.1017/S1049023X15003507

ID 686: Chemical, Biological, Radiological and Nuclear Defence During Mass Gatherings

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Study/Objective: The objective of this paper is to discuss the components of CBRN Defence for mass gatherings as well as the factors that influence them, and some conclusions will be drawn.
Background: The prevention and consequence management of the use of chemical, biological, radiological and nuclear (CBRN) weapons is an essential and integral part of the planning and management of mass gatherings in both the security and disaster management environments. In the mass gathering setting the CBRN defence components are prevention, mitigation and normalisation.
Methods: The most important factor that will influence CBRN defence and guide the preparation process, is the nature of the mass gathering. A threat analysis should form the basis of the planning process. The purpose of the analysis is to determine the potential use of CBRN weapons, agents that could be used, potential targets and methods of dissemination. Roles and functions as well as equipment and skills requirements should be determined, gaps identified and planning done to address the gaps. Prevention will focus on a combination of intelligence and the application of control measures such as the identification and evaluation of suspicious containers and monitoring. Mitigation is the process that concentrates on the rescue of casualties and other contaminated people, their decontamination and evacuation as well as the identification and elimination of the source of contamination Normalisation occurs after the scene has been brought under control, all casualties and other people have been evacuated and the source of contamination has been removed.
Results: In the mass gathering setting the CBRN defence components are prevention, mitigation and normalisation. Most states do not have the resources to employ full time teams for this purpose and have to multi task.
Conclusion: CBRN defence is a complex action requiring multi agency and departmental involvement and cooperation.

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ID 687: Comparison The Performance of Three Trauma Scores on Evaluation of Injury Severity in Lushan Earthquake Patients

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Study/Objective: To investigate the performance of revised trauma score (RTS), the circulation, respiration, abdomen, motor and speech (CRAMS) score and prehospital index (PHI) on evaluation of injury severity in earthquake patients.
Background: There being no injury scores seemss useful in the promptly assessing of injury severity in earthquake patients at present in China.
Methods: After recording the initial clinical information of patients addimitted by the Emergency Medicine Department, West China Hospital, Sichuan University, during the Lushan Earthquake, we calculated injury severity score (Injury Severity Score, ISS), RTS, CRAMS and PHI. Attempted to find the optimal cutoffs and figure out the comparability between the tree scores and ISS score, we retrospectively made the Receiver-Operator Characteristic (ROC) curve and Linear Regression Analysis in our present study.
Results: There were 263 patients included in this present study in total. Among them, 86 ones' scores were at or over 16, and the other 177 ones' were less than 16. The difference of gender rates, RTS and CRAMS scores between these two kinds of patients were significant respectively. As a result of ROC curve, the area under the curve (AUC) of RTS, CRAMS and PHI was 0.547 ($p = 0.220$), 0.734 ($p = 0.000$) and 0.544 ($p = 0.250$), and the Youden Indexes of the three scores are 0.093, 0.443, 0.119, respectively. Moreover, the best cutoff values of them are 4.9, 9.5 and 3.5. Resulting in the Linear Regression Analysis, the correlation coefficient between CRAMS/PHI/RTS score and ISS score, was -0.413 ($p = 0.000$), 0.071 ($p = 0.250$) or -0.139 ($p = 0.024$), respectively.

Conclusion: Of these three instruments, CRAMS seems to performed best in the promptly assessing of injury severity in earthquake patients, since the correlation coefficient between CRAMS and ISS is much higher than the RTS and PHI.

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ID 690: An Evidence-based Framework for African Emergency Medical Services (EMS) Systems

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Study/Objective: To create a comprehensive evidence-based framework describing important elements of African pre-hospital emergency medical services (EMS) systems.

Background: Across Africa, EMS systems are mostly under-developed. Several African Ministries of Health and the World Health Organization have prioritized EMS system development to help address the large burden of acute disease. However, no 'Afrocentric' EMS system framework exists to guide efforts on this unique, under-resourced continent.

Methods: A systematic review of peer-reviewed (PubMed and Cochrane Collection) and non-peer reviewed ('grey') published literature from 1999-2014 was conducted using pre-defined search terms. Articles were independently screened by two reviewers and included if either reviewer identified content relevant to prehospital emergency care or EMS systems in Africa. Discordantly screened articles were re-reviewed and adjudicated by a third, independent reviewer. Content from included articles were sorted into EMS system categories, and sub-classified into EMS system elements.

Results: Of 2991 articles reviewed, 92 (3%) satisfied inclusion criteria. 23 countries from all five African regions were represented. Six main EMS system categories of relevance to Africa were identified through the review: operations (74, 80%), pre-hospital providers (54, 59%), public access (47, 51%), system-enhancement (45, 49%), finance (21, 23%) and governance (19, 21%). 17 unique EMS system elements were identified. The most frequently recurring elements were: primary transport (37, 40%), clinical care (33, 36%), initial education (31, 34%), equipment/medication (27, 29%), and inter-facility transport (27, 9%) (Table 1).

Conclusion: Our systematic review identified 6 essential categories and 17 elements of African EMS systems which served as focal areas in 15 years of published literature. The frequent occurrence of operations, training and public access in publications may indicate African priority in their development. The categories and elements have been integrated into an evidence-based framework to guide assessments and strategic development of African EMS systems.

	Articles	
EMS System Component	N	%
EMS System Element		
EMS Operations	74	80.4%
Primary Transport	37	40.2%
Interfacility Transport	27	29.3%
Equipment/Medication	27	29.3%
Community Integration	25	27.2%
Inter-agency Collaboration	15	16.3%
Documentation	6	6.5%
Providers	54	58.7%
Tier 2 (prehospital professionals)	39	42.4%
Tier 1 (first responders)	19	20.7%
Clinical Care	33	35.9%
Initial Education	31	33.7%
Continuing Education	10	10.9%
Recruitment/retention	6	6.5%
Public Access	47	51.1%
Cross-cutting Elements	45	48.9%
EMS sustainabiliy	22	23.9%
Healthcare Integration	16	17.4%
EMS Legislature, Rules & Regulations	14	15.2%
Research	9	9.8%
Quality Assurance/Improvement	3	3.3%
Finance	21	22.8%
Governance	19	20.7%

Note: percentages are non-cumulative (atricles can contain more than one EMS system component and/or element).

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ID 692: Risk, Disaster Risk Reduction and Related Terms: Harmonisation of Terminology

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Study/Objective: To use computer–based content analysis to harmonise the many definitions for the word risk and related terms

Background: Disaster risk reduction, risk and related terms have gained much popularity over the last fifteen years due to the efforts of the United Nations International Strategy for Disaster Risk Reduction (UNISDR) and programs such as the Integrated Research on Disaster Risk (IRDR) to mention a few. Since the impact from extreme events is increasing globally it is essential that there is harmonisation of terminology in the disaster area to facilitate sharing of data for both research and evidence-based practice.

Methods: Definitions for risk and related terms were obtained from professional glossaries (120 in total) found in books, publications, reports and the Internet. Leximancer IV (2011) software was used to analyse the different definitions. This software provides a visual output showing connectivity of common or repeated concepts and themes.

Results: The word risk appeared in 40 glossaries, with 263 definitions, there were 106 duplicates leaving 157 different definitions to be analysed. The term risk assessment had 103 definitions, 23 duplicates, in 33 glossaries. Risk management had 97 definitions, 20 duplicates in 29 glossaries. Risk reduction had 29 definitions, 9 duplicates in 18 glossaries; disaster

risk reduction, had 19 definitions, 8 duplicates in 16 glossaries. For each term the output of content analysis was used to produce a general definition built from the most common descriptive words and concepts found across the range of existing definitions. This resulted in a recommended definition built from a proxy consensus based on published definitions.
Conclusion: These results show the extent of agreement (and disagreement) in the core concepts and descriptors found in risk related definitions produced by organisations, learned associations and others in the field of disaster risk reduction and provides a starting point for the harmonisation of terminology.
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ID 693: Exercise Uplift: Flying Ebola in Australia

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Study/Objective: To assess the feasability of, and identify barriers to, aeromedical evacuation within Australia of patients with suspected Ebola Virus Disease.
Background: The 2014 West African Ebola epidemic presents healthcare challenges on many levels. Health systems in unaffected jurisdictions need to plan in advance for the potential arrival of cases. Australia's large size and small, dispersed population present significant challenges for the evacuation of an Ebola infected patient. Queensland, Australia's most decentralised state faces particular challenges. Retrieval Services Queensland exercised the scenario of a returned healthcare worker developing a fever during self-quarantine in a regional town, requiring aeromedical movement to a tertiary healthcare facility for further investigation and management, with the intention of identifying capability gaps and barriers to implementation.
Methods: A simulated patient contacted the state health helpline, from a regional town approximately 450km from the state capital. She described symptoms of a fever coupled with a recent history of travel to an Ebola affected area. The simulated patient was evacuated to tertiary care in a coordinated process involving Retrieval Services Queensland assets and coordination facilities, Queensland Ambulance Service, the local healthcare facility, public health and communicable disease medical officers and the State Health Emergency Coordination Centre. An observer accompanied the team through all stages using video recording and time stamped commentary. Post exercise feedback was sought from all participants and key stakeholders.
Results: The patient was retrieved by a team consisting of a retrieval physician and two nurses. For the duration of the transfer, the patient was contained in a disposable isolation pod. A range of improvement opportunities were identified affecting retrieval team welfare, infection control, patient wellbeing, hospital procedures, aircraft loading and unloading and communication pathways.
Conclusion: Valuable lessons learnt from the exercise have already been incorporated into contingency planning and standard operating procedures for this scenario.
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ID 695: The Current Situation on Disaster Management of the ASEAN Member States

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Study/Objective: To report the first ASEAN Disaster Medicine Workshop.
Background: In Southeast Asia, natural disasters claimed over 250,000 lives from 1998 to 2011. In order to strengthen regional capacity of Disaster Medicine through better coordination and networking among ASEAN countries, the workshop was organized from 23rd to 25th April 2014 in Phuket, co-hosted by Japan International Cooperation Agency (JICA) and National Institute for Emergency Medicine, Thailand.
Methods: Summurizing each countrie's presentation.
Results: It is acknowledged that there are differences in the capacities for emergency and disaster medicine systems among ASEAN countries. Therefore, it is necessary in some countries to train key personnel to strengthen capacity of Emergency Medicine as well as Disaster Medicine. After experiencing Typhoon Bopha and Haiyan, the Philippines showed a remarkable development on disaster response system. Especially on the acceptance system of Foreign Medical Teams (FMTs), other ASEAN countries and Japan are highly recommended to learn from the Philippines. However, there is still a room for further development in emergency medicine and infrastructures to cope with disasters in the Philippines. Indonesia has well developed disaster response system, but regional disparities inside Indonesia exist due to its large population and land area. Brunei has well developed Disaster and Emergency Medicine and will be a possible resource provider to other ASEAN countries in case of disaster. Since Thailand has developed Disaster Medicine system, it would be wonderful to share their knowledge and experiences, and utilize their resource, in order to strengthen the capacity of Disaster Medical system in the region.
Conclusion: In the first ASEAN Workshop on Disaster and Emergency Medicine, all participants came to a conclusion that it is important for every ASEAN countries to cooperate to improve emergency and disaster medicine in this region in the future. And JICA is planning to support such ASEAN endeavors and promote regional cooperation and integration.
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ID 696: Racing to Prepare: Using the Tour de Timor for Annual AusMAT Training

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Study/Objective: To describe how provision of a medical response team to the mountain bike race of a developing nation is an ideal opportunity to train AusMAT personnel for austere disaster environments.
Background: Training for deployment to sudden onset disasters is challenging to deliver. In-situ training within a disaster zone is resource intensive and potentially hazardous, while high-fidelity simulation of complex scenarios for training purposes is not easily achieved. The National Critical Care and Trauma Response Centre (NCCTRC) provides Australian Medical Assistance Team training and is tasked by the Australian Government to respond to disasters in the region. Since 2011, the NCCTRC has provided in-situ training to almost eighty AusMAT personnel through participation in the Medical Response for the Tour de Timor.
Methods: Twenty AusMAT trained personnel with no prior deployments are invited to participate each year. The exercise provides opportunities to practice safety and security principles and to develop their skills in international diplomacy, cultural awareness, interagency collaboration and deployment logistics. During the five day period team members become familiarised with AusMAT camp infrastructure, clinical equipment and protocols through the daily erecting and dismantling of a field hospital and the provision of medical care in static and mobile medical facilities. In particular, the exercise simulates the rigors of living and working in the disaster setting with regards to workload, team habitat, sleep deprivation and dietary challenges. Direct observation of individual performance, debriefing and evaluation allows the NCCTRC to identify the most suitable team members and leaders for future deployments.
Results: Post-deployment debriefing and evaluation reveals participants feel better prepared for deployment while providing individuals with valuable insight into their aptitude for working in the disaster setting.
Conclusion: The annual NCCTRC Medical Response to the Tour de Timor is a unique international training exercise which prepares staff and identifies suitability for AusMAT deployment.

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ID 700: Special Unit for Disaster Medicine of the National Centre of Emergency Care (EKAB): An 18 Months Experience of Disaster Exercises

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Study/Objective: The Special Unit for Disaster Medicine (Greek acronym: ETIK) is comprised of volunteers from doctors, nurses and rescuers of EKAB. During disasters, the public expects that emergency prehospital care will be available at a moment's notice. Emergency Medical Services (EMS) that is trained and prepared for disasters is necessary. Disaster preparedness is an area of major concern for the medical community. The emergency prehospital system must respond to all types of disasters, and must cooperate effectively with other services and agencies such as the fire, police, coast guard and sometimes even the military.
Background: Disaster exercises are intended to improve disaster responses effectiveness. Exercises exist in a wide variety, ranging from table-top scenarios to full-scale disaster simulations, offering participants different learning experiences.
Methods: The data of the last 18 months from the tabletop (TTX) to full-scale disaster field exercises (FSE) were gathered and examined.
Results: A total number of 27 exercises were analyzed, 17 were FSE and 10 were TTX (Photo). Of the field exercises four included civil- military cooperation and two had European Union Civil Protection Mechanism participation All involved more than one emergency response organization. The scenarios ranged from tsunami to earthquake and from Ebola to CBRN terrorist attack. Training sites included high-rise building to subway station and Naval base to NHS Hospital.
Conclusion: By any standard 27 exercises in 18 months is a rather rigorous schedule. Effective emergency response depends on the preparedness skill level of allied health professionals as well as cooperation with emergency responders in general. To cope successfully with the mass casualties of an actual disaster, ETIK must be trained and rehearsed to act together as a team to treat the critically ill and injured. Disaster drills of the EMS system offer ways to practice, to identify weaknesses, and enhance preparedness regarding disaster medicine.

Location	Date	Code	Type	Agencies
Naval Base, GR	06/13		Fire and base evacuation table top exercise (TTX)	Civil-military cooperation
Elliniko, GR, Subway station	12/13	IFESTUS	field exercise (FSE), fire in underground subway station	Interagency
Lavrio industrial zone, GR	04/13		TTX – Earthquake, chemical	Interagency
Chios Island, GR	04/13		FSE - Earthquake	Interagency
Vari, GR	04/13	Sisichthon	FSE- Earthquake	Interagency
Salamina, Navy Fort, GR	11/13		TTX - Major Accident	Civil-military cooperation
Aspropyrgos, GR	02/14		TTX - SEVESO directive. Port facility security exercise	Interagency
Attika, GR	02/14	Pythagoras I	FSE – major accident	Interagency
Kifisia, GR	03/14	Pythagoras II	FSE -Fire in skyscraper	Interagency
Eleusina, GR	03/14	TROY 2014	FSE – CBRN	Interagency
Peireus, GR	04/14	Sisichthon	FSE- earthquake, fire	Interagency
Tbilisi GE	04/14		TTX, PPRD EAST	EU partnership
Skaramaga, Navy Fort, GR	05/14		FSE – Major Accident Exercise - earthquake, CBRN	Interagency
Athens International Airport, El. Venizelos, GR	05/14		TTX, Crisis management and communication	Interagency, + Aegean & Olympic air. + Gold air handling
Attika ,GR, EU	06/14	Prometheus	FSE, EU Civil Protection Modules	Interagency + EU partnership
Eleusina, Air force base, GR	06/14		FSE, Major accident, earthquake, fire, CBRN	Civil-military cooperation
Pahi, Megara, GR	07/14		FSE	Civil-military cooperation
Public transportation, Attica, GR	07/14	Labyrinth	TTX, readiness exercise	Interagency
Port facility Petrogaz, Attica, GR	07/14		TTX	Interagency
Port facilities of Elefsina refinery, GR	10/14		FSE, firefighting, decontamination and rescue	Interagency
Hellenic Petrols, Attica, GR	10/14		FSE Security exercise - terrorist attack, bombing	Interagency
Amalia Fleming Hospital, Attica, GR	10/14		FSE- Management of Ebola patients	Interagency, + Ministry of Health, +Infection Control
ICG/NEAMTWS IOC-UNESCO, Attika, GR	10/14	NEAMWAVE14	TTX -Earthquake, tsunami	Interagency, + Ministry of Health, Ministry of Foreign Affairs, UNESCO
Athens International Airport El. Venizelos, GR	11/14		FSE- Airplane accident in airport	Interagency, + Ministry of Health
Skaramaga, Navy Fort, GR	11/14	Egelados	FSE	Interagency
Attica, Villia, GR	12/14	EVITA	TTX, Union Civil Protection Mechanism - Fire, SEVESO II	Interagency European program 1-2
Amalia Fleming Hospital, Attica, GR	12/14		FSE- Management of Ebola patients	Interagency, + Ministry of Health Hellenic Centre for Disease Control & Prevention

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ID 701: Evolution of a Deployable Medicine Cache for Disaster Response

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Study/Objective: To describe the development of a deployment ready medicine cache and the iterative process for continuous refinement.
Background: Historically the National Critical Care and Trauma Response Centre (NCCTRC) relied on medicines from the Intra-agency Emergency Health Kit (IEHK), managed by the World Health Organisation. Deployment in response to the Pakistan floods in 2010 highlighted limitations with this. Problems encountered included missing therapeutic options and medicine unfamiliarity. The Pakistan experience demonstrated the need for a medicines cache that deploys with the team, to support the NCCTRC model of care.
Methods: Recognising that a standardised kit facilitates rapid deployment, the NCCTRC cache was benchmarked against other readily available medicine lists including the IEHK, the International Committee of the Red Cross "Hospitals for the War Wounded" and the Medecins San Frontieres "Ebola Haemorrhagic Fever Kit". Medicines and their quantities were selected considering clinical relevance, hospital capacity and staff familiarity with their use. Logistical considerations were also taken into account such stock rotation through the local hospital to minimise wastage, robustness of medicine presentation and packaging as well as compatibility with field administration equipment Resources have been designed to support medicines best practice with standard protocols and information in volunteer training and pre-deployment briefings. After each deployment, usage reports and staff feedback inform the updating of the cache to ensure it continuously evolves to meet NCCTRC deployment needs.
Results: The NCCTRC has developed a medicines cache that complements its treatment mandate, equipment and staffing. Medicines are organised in a main kit with specialty kits added according to team composition and deployment brief.
Conclusion: Development and ongoing evolution of the NCCTRC medicines cache facilitates delivery of best practice care in a post disaster setting.

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ID 702: Preparedness and Mass Gatherings Team Mission at Mass Gatherings in Nigeria During Ebola Virus Disease Outbreak

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Study/Objective: This paper aims to elucidate the steps that were taken for prevention, containment, and mitigation of Ebola Virus Disease (EVD) in the setting of three mass gathering events (Yam, Osun-Osogbo, Sango Festivals) which took place in Nigeria during the EVD Outbreak.
Background: The latest EVD outbreak which is focused in West Africa is the largest to date and the risk of Ebola virus (EV) transmission during a MG is a concern for the current and future events. Nigeria was one of the affected countries during the latest outbreak, with 19 confirmed EVD cases and 7 confirmed deaths. The first EVD case in Nigeria was reported in July 2014. On October 20th, 2014 the country was declared to be free of EV transmission. The Preparedness and Mass Gatherings team (PMG) proposed mission for prevention, containment, and mitigation of EVD in the setting of three MG events which were taking place during the outbreak.
Methods: In the setting of three MG events mission was conducted in several areas. Following this risk assessment, the elements that were considered in order to reduce the risk and manage the consequences of alert, suspected, propable or confirmed EVD cases at a MG evet are; travel health, command and control arrangements, surveillance and laboratory, health-care facility preparedness for EVD, reducing the risk of infection transmission at the MG, and public health messaging.
Results: Final report summarized recommendations that would have positive impact on communities in the area of travel health, command and control, surveillance and laboratory, healthcare facility preparedness for EVD infection, reducing the risk of infection at the MG, and public health messaging.
Conclusion: Reccomendations given by the misssion report may lead to further improvement and a long lasting legacy in Public Health Preparedness and Response on EVD.

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ID 703: Ensuring a Ready Pool of Immunised Australian Medical Assistance Team (AusMAT) Volunteers

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Study/Objective: To describe the evolution of the National Critical Care and Trauma Response Centre (NCCTRC) vaccination clinic to maximise deployment readiness of AusMAT volunteers.
Background: The NCCTRC provides a standardised cost-effective vaccination service for all locally based AusMAT volunteers. Initially, volunteer immunisation was performed ad hoc at a weekly hospital vaccination clinic operated by a registered nurse. Volunteers were responsible for maintaining their vaccination records. Problems encountered with this system included variable demand on the service, insufficient documentation of essential data such as batch number and date of administration and subsequent uncertainty in determining vaccination status.
Methods: In 2011 management of the vaccination program was included as a core function of the newly employed pharmacist. The following changes were implemented: 1. A standardised vaccination protocol was developed to ensure compliance with vaccine courses; 2. The vaccination form was

revised to capture essential data and allowed customisation according to the volunteer's vaccination history; 3. An appointment-based vaccination clinic was established during business hours ensuring the availability of a medical officer in the event of adverse reaction. 4. The pharmacist assumed responsibility for management of records and a database of volunteer vaccination status.

Results: The changes allowed visibility of immunised volunteers and targeting groups according to missing skill sets. There are 80 volunteers fully vaccinated in the region, comprising of 37 Registered nurses, 15 Doctors, 14 Logisticians, 4 Pharmacists, 4 Paramedics, 3 Radiographers, 1 Environmental Health Officer, 1 Heat Specialist and 1 Pathologist. In other Australian jurisdictions volunteers are responsible for their own vaccinations and records. The NCCTRC model is under consideration by other Australian and New Zealand jurisdictions.

Conclusion: The NCCTRC model of vaccination clinic facilitates the deployment readiness of AusMAT volunteers and streamlines deployment decision-making.

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ID 704: Knowledge, Attitudes and Practices of Emergency Care Practitioners Towards Intimate Partner Violence

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Study/Objective: To describe current levels of knowledge, attitudes and practises about intimate partner violence (IPV) amongst emergency care practitioners (ECPs) in South Africa and; To describe differences in the above by respondent's demographics, profession and prior training.

Background: The WHO regards violence against women as a human rights issue but it is also clearly a health issue. The prevalence of IPV in South Africa is an estimated 30%. Many of the victims of IPV will have contact with ECPs, either for treatment related to the direct sequelae of the abuse or for other health issues. ECPs already play a role in identifying and managing IPV but current knowledge, attitudes and practises were not known.

Methods: A prospective, cross sectional study was performed using an online survey administered anonymously to ECPs in South Africa.

Results: 153 respondents completed the survey. 56% of the respondents were doctors, 33% paramedics and 9.8% nurses. Most respondents (65%) reporting having received no training on IPV. There was a significant association between having received IPV training and both self-reported knowledge, actual knowledge and practise. Younger respondents were more likely to report some training, which suggests a positive trend in medical training. Doctors tended to be more likely to have received any training, as compared to paramedics. Doctors also felt overall more knowledgeable regarding IPV and made more diagnoses. Despite low levels of training, it is encouraging to note that almost two thirds of respondents had diagnosed IPV in the last six months. Most of the ECPs who diagnosed IPV counselled the patients on options or referred to police or social workers.

Conclusion: Although ECPs are diagnosing and managing IPV, training in this important health concern appears lacking. Improved training for ECPs seems to improve knowledge and may lead to better care for victims of IPV.

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ID 705: Effects of Intraoperative Low Dose Ketamine on Cost of Postoperative Pain Management After Major Surgery in a Low-resource Environment.

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Study/Objective: To explore overall cost of acute postoperative pain management (first 24 hours) using intra-operative low dose ketamine with intravenous morphine after major surgery in a low-resource setting, and make cost reduction recommendations.

Background: In developing countries, daily healthcare constraints are complicated by frequent disasters and complex-emergencies worsening basic-services including surgical-care. Postoperative pain remains underestimated and undertreated due to large patient numbers, high costs of drugs e.g. opiates. Conversely, ketamine-inexpensive, easy to use and readily available is frequently used in low-resource and disaster settings. Many studies have proved effectiveness of pre-emptive analgesia with ketamine combined with opiates but there is none demonstrating overall cost reduction achieved.

Methods: Single-center, balanced-randomization (1:1), double-blind, placebo-controlled parallel group study. 46 consenting adults, 18-70 years, ASA I & II, scheduled for elective major-surgery randomized into 2 arms; K-Experimental and C-Control. INTRA-OPERATIVE: Group K-ketamine 0.15 mg/kg bolus at induction, and continuous infusion of 0.12 ml/kg/hour till start of skin closure; Group C-Normal saline. Both groups-Morphine 0.1 mg/kg IV at de-bulking. POST-OPERATIVE: Blind observer assessed NRS Pain score every 15min for first 1hr then every 4hrs for 24hours. If NRS >4, 2 mg increments morphine given until NRS $\leq$ 4.

Results: Of 46 enrolled-patients; 23 were females, 23 male with equal distribution in both arms according to sex, age, BMI, duration of study solution infusion. Commonest surgical procedures; Thyroidectomy (21,73%), Neck/parotid mass excision (19,56%), Mastectomy (10,86%) & Appendicectomy (8,69%). Overall cost of post-operative analgesia was higher in group C than K, but difference was not statistically significant

(p = 0.30). 15% of group C required additional analgesia compared to 6.5% in K. No life threatening adverse effects occurred.

Conclusion: Although impact on overall cost of acute post-operative pain management (first 24 hours) was not statistically significant, low dose intra-operative Ketamine is available, safe, effective and cheap, justifying its use for pre-emptive analgesia in low resource and disaster settings.

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ID 706: Ketamine Attenuates IL-6 Production but not IL-1b in Post Operative Patients in Mulago Hospital: A Randomized Clinical Trial

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Study/Objective: To study the effect of 0.5mg/kg of Ketamine administered preoperatively on postoperative inflammatory course

Background: Anesthesia and surgery are associated with immune system response, manifested as an increased pro-inflammatory immune mediator release or increased pain modulation. Excess inflammation affects or prolongs post-operative recovery especially with wound healing, due to collagen breakdown by pro-inflammatory markers. Ketamine, a cheap and readily available anesthetic induction agent, provides favorable outcomes in atopic individuals such as in asthmatics and cardiac surgical patients. We sought to determine the effects of ketamine given preoperatively on post-operative levels of pro-inflammatory markers.

Methods: We performed a stage 2 phase 4, randomized, double-blind, placebo-controlled trial was conducted in the main operating theatres of Mulago hospital among patients undergoing elective surgery. 39 patients were recruited and randomized to receive either IV ketamine 0.5 mg/kg (intervention arm) or an equal volume of normal saline (control group) before induction of anesthesia. Blood samples were taken at baseline before administering intervention, in PACU, 24 and 48 hours post operatively. These were used to determine the IL-1β and IL-6 levels, which were compared for the intervention and control groups. The study was registered under the clinical trials domain www.clinicaltrials.gov ClinicalTrials.gov Identifier: NCT01339065.

Results: 0.5 mg/kg ketamine given at induction added to Opioid-based anesthesia suppresses the increase of serum IL-6 at PACU and at 24 hours after surgery. IL-beta was not found in 98% of analyzed samples of the surgical population studied as there was no reaction in the pre-coated ELIZA antibodies micro wells on assay.

Conclusion: 0.5 mg/kg ketamine given at induction added to Opioid-based anesthesia, in non-contraindicated patients, suppresses the increase of serum IL-6 at PACU and at 24 hours after surgery. This attenuation of pro-inflammatory marker IL-6 is potentially beneficial when given preoperatively.

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ID 707: Governance, Ethics and Medical Standards Amongst Foreign Medical Teams in Emergency Humanitarian Response

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Study/Objective: To explore the challenges of, and actions for change required, regarding ethics, governance and medical standards amongst foreign medical teams in humanitarian emergencies.

Background: Oversight of medical practice and provision of clinical governance have often been overlooked in the context of emergency disaster relief. With an unfortunate bias toward regions with already fragile healthcare systems, the additional impact of war, 'natural' disaster or disease outbreak often overwhelms not only countries' capacities to deliver sufficient healthcare but also their ability to regulate the medical care given by individuals and organisations responding to the healthcare need acting within their borders.

Methods: Literature review and case reports.

Results: The combination of overwhelming urgent need, limited resources, loss of healthcare systems and infrastructure, lack of standards and clinical guidance following a humanitarian emergency, inevitably leads to complex, ethically challenging and diverse decisions that can result in some healthcare workers operating beyond their expertise or delivering inappropriate clinical care when treating an extremely vulnerable patient population. This paper will explore and draw on examples of the ethical and decision-making challenges foreign medical teams face in such a context, and highlight the need for professional and ethical integrity, operational, clinical and technical training pre deployment, and clinical competency of deploying teams.

Conclusion: This review puts forwards recommendations for the implementation of minimum standards and core principles of medical care in humanitarian emergencies (Classification and Minimum standards for FMTs in sudden onset disasters, Global Health Cluster, World Health Organisation 2013), in addition to the provision of a governing body integrated within the countries' ministries of health to provide on-going support and advice and ensure the accountability of FMTs to the host government and their patients.

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ID 708: Evaluation of a Pilot Community First-aid Training Program in Port-au-Prince, Haiti

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Study/Objective: To evaluate the acceptability and knowledge acquisition of a pilot first-aid training program in order to expand the program into a larger training module for community members.To evaluate the acceptability and knowledge acquisition of a pilot first-aid training program in order to expand the program into a larger training module for community members.
Background: In Port-au-Prince (PAP) Haiti, there is a lack of community-level training, including education about first-aid practices. Feedback from participants of the initial training program included a desire and need to learn about first-aid, as well as mental and women's health. This current study builds upon a larger existing community disaster risk reduction (DRR) program in PAP to address first-aid.
Methods: Pre- and post-test multiple-choice questionnaires, administered immediately prior and after the intervention, evaluated the impact of the first-aid education session. The training session included topics relevant to a resource-limited population, such as Advanced Trauma Life Support (ATLS) protocols, stabilization of unresponsive patients, initial management of fractures, and hemorrhage. Findings were tabulated and analyzed using SAS.
Results: Participants (N = 15) age ranged from20-59, lived in 6 communities, and were high-school students (N = 8) or university students (N = 6). Participants improved their ability to check responsiveness (27% improvement, 95%CI 0.11-0.85, p-value = 0.045) and fracture management (47% improvement, 95%CI 0.00-0.48, p-value = 0.008). High-school students improved on 57% of questions, compared to 28% by university students. Female participants improved on 71% of the questions, male counterparts 28% on the same set of questions.
Conclusion: There was significant improvement from pre-to-post-test evaluation particularly on knowledge pertaining to checking responsiveness and managing fractures overall. Women in particular improved in performance after the training intervention, as did high school students. These results demonstrate that the first-aid training module improved participant knowledge in Delmas. Consideration should be made for education and gender differences in knowledge acquisition for future refinement of this training module.

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ID 711: Australian Medical Assistance Teams (AUSMAT)–New South Wales (NSW) Health Implementation–A Case Study

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Study/Objective: The objectives of the NSW Health AUSMAT Working Group are to address the operational aspects of National AUSMAT requirements and health emergency management in an all hazards context with a focus on preparedness and response in the Prevention, Preparedness, Response and Recovery (PPRR) paradigm.
Background: The Australian Health Protection Policy Committee (AHPPC) has an ongoing interest in enhancing the capacity and capability of the Australian Health system to respond to health emergencies and disasters both domestically and internationally. In 2008, AHPPC members noted the need for consistency in AUSMAT administration, support and processes including standardised contracts, training and education programs, equipment and personnel databases. AHPPC requested that the National Health Emergency Management Subcommittee (NHEMS) establish a working party to develop agreed consistent national frameworks and guidelines for Australian medical assistance teams. All states and territories participated in a national working group and the National AUSMAT Manual was endorsed by the AHPPC in 2012.
Methods: The NSW AUSMAT Working Group was been tasked with ensuring: 1. A strategic approach and shared understanding to NSW AUSMAT preparedness and response; 2. A firm policy context for the NSW AUSMAT arrangements; 3. Agreed governance arrangements within NSW for domestic and international deployments of an AUSMAT; and 4. That NSW Health maintains the national consistency and interoperability of AUSMATs.
Results: The NSW AUSMAT documents developed by the working group members are compiled into a NSW AUSMAT manual that supports the NSW Health arrangements and the NSW Healthplan, and align with National and International Policy. The manual will include specific NSW issues pertaining to: 1. Strategic direction and policy framework; 2. Governance arrangements; 3. Command and control processes; 4. Equipment and training requirements; and 5. Pre and post deployment considerations including mental health.
Conclusion: Implementation continues within NSW with significant advances in education, training and cache management.

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ID 712: Military Conflict in Ukraine: A Case Seires of Patients with Mangled Extremities Treated at the North-Estonian Medical Center (NEMC) in Estonia

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Background: Following the annexation of Crimea by the Russian Federation in March 2014, a military conflict escalated in the Eastern and Southern regions of Ukraine. During the following months more than 4,042 people have been killed and 9,350 injured in the conflict. To respond to a shortage of public funds in Ukraine, a humanitarian mission was initiated by the Estonian government in collaboration with NEMC.
Results: Overall, 10 male patients (aged 19-57) with 14 lower limb and 2 upper limb injuries with a mean Gustilo-Anderson classification of IIIA were admitted. The trauma mechanism was blast injuries and gunshot wounds in 6 and 10 limbs, respectively. Tissue cultures revealed multiresistant

acinetobacter and pseudomonas in 70% of patients. Seven microvascular free-tissue transfers were performed (sucess rate 100%) in addition to an overall of 34 surgeries performed. After definitive osteosynthesis and soft tissue repairs, the patients were referred to a rehabilitation facility in Estonia or returned to Ukrainian hospitals. No limbs were amputated.

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ID 714: Inter-professional Disaster Education Intervention

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Study/Objective: The objective of this study was to determine if the intervention of focused videos on professional roles in disaster increased student exposure and knowledge of multi-disciplinary health professional roles in disaster response.
Background: The College of Nursing and Health Professions (CNHP) at Arkansas State University adopted mandatory criteria for inter-professional education (IPE) for all graduates. Two exposure and one emersion experience in IPE were required of all graduates in the college. Basic Disaster Life Support (BDLS) is a mandatory requirement for all degree programs in CNHP. Faculty transformed BDLS as one of the IPE exposure experiences by developing discipline specific videos.
Methods: This is a mixed methods, intervention design. Focused video presentations were developed on the role of each discipline/major in the college related to disaster preparedness. These videos were used as transition between speakers/topics when BDLS was provided. The quantitative method was a pre/post test design comparing knowledge of professional roles before and after attending the video presentations. The qualitative method is phenomenology. Three students from each of the nine disciplines in the college, and enrolled in BDLS, were randomly invited to participate in focus groups. A standard set of guiding questions for the focus group was created. Questions were designed to solicit student perception of the focused videos and their connection to the selected IPE competencies.
Results: Results will be reported by discipline. Quantitative results will be at a minimum descriptive and focus on the difference between pre and post test scores. Qualitative results will be reported by themes. All data will be triangulated to provide a cohesive analysis of the results.
Conclusion: This study is ongoing. Conclusions will be known by the time this presentation is given. Recommendations for revisions in the intervention and recommendations for practice will be provided.

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ID 717: Hope in Faith-based Disaster Response

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Study/Objective: To elucidate the concept of hope in faith-based disaster response. A secondary objective was to determine if a Visual Analogue Scale (VAS) could be utilized to measure hope in disaster settings.
Background: Faith-based organizations (FBOs) routinely respond to disasters. A frequently stated FBO objective is to provide hope to those receiving their services. This assumes victims are in need of hope and that staff and volunteers of the FBO have hope to impart. Evidence hope has been provided or received is difficult to obtain.
Methods: This quantitative exploratory study performs a secondary data analysis on two scales, the Hope VAS and the Herth Hope Index (HHI). Initially included in a mixed methods study, the two Hope scales were presented to participants recruited from a FBO response two years post-Katrina in New Orleans. Participants included volunteers and staff of the FBO as well as residents of New Orleans receiving FBO services. Descriptive statistics, comparison of means and non-parametric correlation analyses were performed.
Results: n = 42. The novel use of a Visual Analogue Scale to measure hope had no correlation to the HHI Scale. An item-by-item analysis of the HHI reveals a weak negative correlation between groups on the item "I feel my life has value." Volunteers and staff of the FBO as well as residents receiving their services demonstrated positive correlations for items linked to having hope and negative correlations to items associated with decreasing or limited hope. "Believing each day is has potential" is positively correlated with nine of the twelve items in the HHI.
Conclusion: Additional study is needed to determine if the VAS has potential to measure hope. Threads in the concept of hope were present in this study population providing or receiving FBO disaster response.

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ID 718: Noise Pollution, Do We Need a Solution? An Analysis of Noise in a Cardiac Care Unit

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Study/Objective: To measure and analyze sound levels in three different locations in the CCU. To review alarm reports in relation to sound levels.
Background: Hospitals are meant to be places for respite and healing, however, technological advances and reliance on monitoring alarms has led to the healing environment becoming increasingly noisy. The CCU, much like the ED, provides care to ill patients while being vulnerable to noise pollution. The W.H.O. recommends that for patients to best rest and heal, sound levels should average 30dB and maximum readings be less than 40 dB.

Methods: Over 1 month period sound recorders were placed in three separate locations in the CCU. Sound samples were recorded once per second, stored in csv format then exported to Microsoft Excel. Averages were determined, plotted per hour and alarm histories were recorded to determine alarm noise effect on total noise for each location.
Results: Room 1 (next to entrance) consistently had the lowest average recordings though all were >40 dB, despite decreases between 10pm-7am. During day time hours recordings maintained levels >50 dB. Overnight noise remained above recommended levels 55.25% of the period in room 1 and 99.61% for room 7 (next to nurses station). The nurses station was the loudest location. Alarms per hour ranged 20-26 during the day. Alarms per hour averaged 57.17 in room 1, 122.03 in room 7 and 562.26 at nurses station. Oxygen saturation alarms accounted for 33% of activity while heart rate was 40.79% of activity.
Conclusion: The CCU cares for ill patients requiring constant monitoring. Despite advances in technology, measured noise levels exceed W.H.O. and US Environmental Protection Agency standards of 40 and 45 dB, even during night hours when patients require rest. Further work is required to reduce noise levels and examine effects on patient satisfaction, clinical outcomes and length of stay.

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ID 719: Inter-rater Reliability of Sonographic Optic Nerve Sheath Diameter Measurements by Ultrasound Fellowship Trained and Resident Emergency Medicine Physicians

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Study/Objective: To compare the accuracy and precision of sonographic ONSD measurements by ultrasound fellowship trained and resident EM physicians.
Background: Ultrasound of the optic nerve sheath diameter (ONSD) is a powerful screening tool for increased intracranial pressure (ICP). ONSD measurements >5 mm are associated with elevated ICP, illustrating the importance of accurate and precise ONSD measurements among ultrasound operators to safely base clinical decisions on this diagnostic test.
Methods: Two ultrasound fellowship trained EM physicians and 51 resident EM physicians were enrolled to measure the ONSD on five static in vivo ultrasound images using a computerized ruler. Descriptive statistics for each ultrasound image were calculated, and the Wilcoxon ranked sum test was used to compare mean ONSD measurements between groups. Inter-rater reliability was estimated by intraclass correlation coefficients (ICC) and agreement between groups was assessed by Pearson's Correlation Coefficient.
Results: ICC among ultrasound fellowship trained physicians was 0.93 (95% CI 0.74-0.98) and residents was 0.61 (95% CI 0.35-0.93). Correlation between ultrasound fellowship trained and resident mean measurements was 0.66 (95% CI 0.60-0.72) Table 1: ONSD Measurements by Ultrasound Fellowship Trained and Resident EM Physicians.
Conclusion: While the mean ONSD measurements between ultrasound fellowship trained and resident EM physicians were not statistically significant, ONSD measurements by ultrasound fellowship trained EM physicians were more precise. Both the lack of precision and accuracy of ONSD measurements among resident EM physicians emphasizes the need for further ONSD ultrasound education before clinical use as a screening tool for increased ICP.

	Ultrasound Fellowship Trained EM Physicians (n=2)		Resident EM Physicians (n=51)		
In Vivo Ultrasound Image	Mean (SD)	Range	Mean (SD)	Range	p-value
1	4.88 (0.19)	4.74-5.01	4.84 (0.47)	3.90-5.97	0.98
2	7.13 (0.08)	7.07-7.18	6.50 (1.06)	3.50-7.77	0.51
3	4.92 (0.34)	4.68-5.16	4.86 (0.52)	3.74-6.13	0.73
4	6.76 (0.11)	6.68-6.84	6.31 (1.04)	3.42-7.53	0.71
5	5.31 (0.07)	5.26-5.36	5.34 (0.63)	3.90-6.43	0.82

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ID 721: What's in a Name: EMS or Paramedicine?

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Study/Objective: The paper calls on selected findings from an applied research study by the Justice Institute of British Columbia that explored the evolving field variously known as prehospital care, emergency medical services (EMS), and/or paramedicine.
Background: Early ambulance systems focused on assessment and treatment of critically ill or injured patients in the field, followed by transport to a care in the hospital. Advancing technology and evolving medical practice have led to increased expectations and expanded scopes of paramedic practice. Emergency Medical Technicians providing emergency care under direct control of a physician have evolved into autonomous paramedic practitioners who provide urgent, preventative and even primary health care services in a variety of contexts and settings. An intriguing aspect of this process has been growing disagreement around how to define and describe, or even to name, the field and its practitioners.
Methods: Semi-structured interviews with key stakeholders in Canadian EMS were analyzed to explore current conceptions of EMS and paramedic practice. Core terms were extracted and mapped thematically to explore descriptions of EMS and paramedic practice, its perceived boundaries, and current and future roles of paramedicine.
Results: There is no consensus, and little agreement, on what terms best describe the field. Participants often admitted the limitations of their preferred terms while offering them. Three

general sets of terms emerged: those focused on the type of care (e.g. emergency medical or emergency health services), identity of the practitioner (e.g. paramedics, paramedicine), and location of care (e.g. prehospital, mobile care). The most commonly used terms were "EMS" and paramedicine.
Conclusion: Participants' described contested visions of the role, boundaries, and goals of EMS. The tension in this discussion centres around conflicting conceptions of who the practitioners are (paramedics? Other health providers?), where they practice (ambulance, location/community -based, and/or in-hospital), and what their role is (emergency care, definitive care, preventative care).
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ID 722: Taming Haiyan: Factors Enabling the Rapid Deployment of the AUSMAT Field Hospital to Tacloban City During Operation Philippines Assist 2013

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Study/Objective: The deployment of the Australian Medical Assistance Team (AUSMAT) field hospital to the Philippines following Typhoon Haiyan was one of the fastest recorded. We review the factors enabling rapid response and clinical experience during 21 days of operations.
Background: AUSMAT is a program funded by Australia's Department of Health to maintain a standby medical deployment capability to sudden onset disasters (SODs) and medical emergencies.
Methods: Following a request for assistance from the Philippine Government, Australia's National Critical Care and Trauma Response Centre (NCCTRC) deployed its surgical field hospital to Tacloban City. A multidisciplinary team of 37 was selected from a database of Australian clinicians. All team members had been trained in humanitarian and disaster response, were fully vaccinated and ready for immediate deployment.
Results: AUSMAT personnel and 25 tonne of equipment were ready for deployment on Day 3 post-disaster. Decision-making regarding site of operations, insecurity, and bureaucratic processes of both donor and recipient government were factors affecting speed of deployment. Operations commenced 7 days post-disaster making this one of the fastest deployments of a fully self-sustaining field hospital to an SOD. The hospital provided inpatient and outpatient medical and surgical services received 2734 presentations, 238 theatre cases and provided 541 occupied bed days of care. Collaboration with the Philippine Government included the embedding of Ministry of Health nurses in the team, making the operating theatre available to local surgeons and transferring critical patients with the Philippine Air Force.
Conclusion: Although the deployment of the AUSMAT field hospital was rapid by historical standards there remains a significant gap between onset of disaster and delivery of medical assistance during which care needs are not met. Rapid response is facilitated by donor governments maintaining a standby self-sufficient capability, training a disaster medical workforce and streamlining donor and recipient government processes.
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ID 723: Critical Infrastructure Assessment Tool for Local Authorities

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Study/Objective: The Critical Infrastructure (CI) Assessment Tool provides Canadian local authorities with the means to engage in a structured conversation that identifies critical community assets, functions, goods and services, the relationships among them and their dependencies on external CI service providers.
Background: The Canadian Safety & Security Program and Emergency Management BC conducted several pilot projects that employed a comprehensive requirements and gap analysis for all-hazards risk assessment and CI analysis for emergency management in a Canadian province. These projects identified the need for CI and risk assessment/management tools that could enhance a number of existing emergency planning processes. The pilot projects found no simple tools that allow a municipality to assess their CI assets, dependencies and interdependencies while cross-referencing their hazard risk assessment.
Methods: The current project involved development and field trials of a Critical Infrastructure assessment tool and process, along with educational/support material in two diverse Canadian communities. The tool was refined and beta tested in a third Canadian community in a different geographic region. Evaluation criteria focused on functionality, content, and user-experience, along with critical analysis of community output from the process.
Results: Initial field tests indicated that the CI Assessment tool can be useful in a variety of community settings, including rural, urban, and regional district contexts. The project found, however, that different communities employed different terminology and focused on different blends of local critical infrastructure assets, goods and services, and functions. Thus, both the tool and the process its use must remain flexible to meet the unique needs of differing user groups.
Conclusion: This project demonstrated the value of a community-based tool and process for CI and emergency planning. The field tests engaged multiple community stakeholders in valuable discussion that informed ongoing disaster and resilience planning.
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ID 725: Experiences with Pilot Implementation of the African Federation for Emergency Medicine Trauma Data Project in a Large Urban Public Hospital in Ethiopia

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Study/Objective: We used a mixed methods approach to assess participant experiences of the implementation of the AFEM trauma data form protocol at Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia.

Background: Systematically collecting data on injured patients is essential for surveillance and quality improvement. AFEM has created a protocol for trauma data collection in resource-limited settings using a standardized clinical chart laying out a systematic approach to injured patients.

Methods: The first two months of collected data were reviewed for quality and completeness. In addition, a series of structured interviews were conducted with administrative, nursing and physician staff to assess the perceived impact of the trauma data project and to explore facilitators and barriers to implementation. Interviews were analyzed using an applied thematic approach.

Results: 174 handwritten data forms were completed by treating providers and entered into a database by the local data entry team. Variables successfully collected with high frequency included demographic data, vital signs and physical exam findings. Mechanism of injury, interventions and ED disposition were often incomplete in the database. Eleven key informant interviews were conducted. Respondents identified a key feature of the project as facilitating improved care by guiding junior providers through a thorough approach to injured patients. Challenges included frequent turnover of rotating junior providers, unnecessary duplication of documentation, and poor continuity of documentation as patients moved to different sections of the ED. Data collection was especially challenging during high-volume hours.

Conclusion: Record review allowed identification of key data gaps. Key informant interviews with multiple provider groups allowed identification of specific targets for data entry and data extraction process improvement. Data gaps resulted from poor understanding of the clinical chart by rotating junior providers, as well as shortcomings in the newly trained data entry staff's data extraction process. These have been addressed through improved training and protocol modifications.

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ID 726: The Development of Heat Acclimatisation Guidelines for Disaster Responders

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Study/Objective: To develop heat acclimatisation guidelines to mitigate risk of heat stress impacting upon the health, safety and performance of disaster responders.

Background: Minimal preparation time is a feature of responding to sudden onset disasters. While equipment and supplies are prepared for deployment at short notice, little is known of the physical preparation of medical responders. With many disaster prone areas classified as tropical regions, there is potential for responders to endure high ambient temperatures and humidity during deployment. Heat acclimatisation, defined as the beneficial adaptations induced by regular bouts of body heat storage, is a key strategy to improve tolerance of hot conditions by medical responders.

Methods: Heat acclimatisation guidelines were developed based upon duration of physical training and subjective perception of physical exertion. Training session objectives were profuse sweating and perceiving body temperature as hot. The guidelines were implemented for Team Bravo (2nd rotation) of the Australian Medical Assistance Team (AusMAT) deployed to Tacloban, Philippines following Typhoon Haiyan in November 2013. The guidelines were distributed electronically five to seven days prior to deployment, followed by a consultation. A group training session in hot conditions was undertaken prior to departure

Results: The AusMAT deployees to utilise the guidelines were based in cool or temperate climates that required extra layers of clothing and training during warmer parts of the days to achieve session objectives. Deployees reported the guidelines were simple to use, accommodated their varied training regimens and improved their confidence of responding to tropical regions.

Conclusion: The heat acclimatisation guidelines provided AusMAT responders the ability to quantify their physical training, and promote physiological adaptations to maximise their health, safety and performance during deployment. While maintaining year round heat acclimatisation is considered essential for medical responders, these guidelines may facilitate beneficial adaptations with a minimum of four days notice prior to deployment.

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ID 727: The Experiences of Amateur (Ham) Radio Operators in Disaster Response

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Study/Objective: To explore experiences of amateur radio operators in disaster response, and illuminate the roles they play as members of crisis teams, and the meaning they ascribe to their experience.

Background: The assistance of amateur radio operators is fleetingly acknowledged in after-action reports, yet though they are present or remotely involved in virtually every major disaster, there is no literature that documents the scope of their work, nature of the roles they play, or how they perceive their effectiveness or importance as members of crisis response teams.

Methods: Using a qualitative, existential phenomenological methodology, graduate students enrolled in a disaster nursing program, who were themselves certified as amateur radio operators, conducted open-ended, face-to-face or Skype interviews with amateur radio operators (N = 15) who had assisted with emergency communications during disaster events. Interviews lasting 60 minutes each, during which participants were asked to describe their experience, were digitally recorded. They were transcribed verbatim, analyzed in a qualitative research group using the methods of Thomas & Pollio (2002), and distilled to major themes.
Results: A majority of respondents had been involved in ham radio disaster response for decades. All described experiences reflecting the existential grounds of time, body, other, and world. They spoke of deeply sensory experiences, memories of bridging people-connections, pride in being reliable ("the last thing standing"). Key themes were being always prepared, maintaining a world-wide network, existing to help others, and having a mission to listen and pass messages accurately. Amateur radio operators, though often operating at a distance, nonetheless perceived themselves as integral to effective response, deeply connected to people.
Conclusion: Participants found great meaning and satisfaction in their capacity to respond when other communication fails, but were frustrated that their role is often overlooked. If their function was better understood, they could be even more effectively utilized.
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ID 732: Teaching Austerity Surgery - the Surgical and Anaeshetic AUSMAT Course

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Study/Objective: To evaluate the training course that Australian Surgeons and Anaesthetists are required to complete before deploying in response to a disaster.
Background: In the aftermath of Haiti concerns about the variability in standards in the appropriateness of surgical care (eg amputtion rates) by Foreign Medical Teams (FMT's) have been raised. The Australian Medical Assistance Team (AUSMAT) programme is funded by the Australian Government with the aim of better preparing clinicians to respond to disasters. This course focuses upon training perioperative staff to deliver appropriate field surgery.
Methods: This paper describes the development and implementation of the Surgical and Anaesthetic Australian Medical Assistance (AUSMAT) Course.
Results: Sixty-four surgeons and forty-six anaesthetists, from Australia, New Zealand, South East Asia and The South Pacific have been trained over the first four years. Candidates are selected after being nominated by their local state health authority as being suitable in training and temperament for deployment. The course introduces the principles and concepts of austerity surgery and anaesthesia delivered by experienced local and international Surgeons and Anaesthetists from both NGO and military backgrounds. Field craft, navigation, hostile negotiation and hostage behaviour are taught by humanitarian field trainers. The course concludes with a 2-day total immersion field activity, where candidates plan their own mission, travel to location and erect their own field hospital and operating theatre and begin immersed in a multiple casualty incident. The field exercise concludes with a field based animal lab demonstrating surgical techniques required to manage gunshot and crush wounds in the austere environment.
Conclusion: The Surgical and Anaesthetic AUSMAT Course is the qualification required for Austrlaian surgeons and anaesthetists to deploy in response to disasters. It aims to train candidates to apply appropriate professional techniques for field conditions, test candidate's physical and mental endurance, and equip them to survive in austere conditions.
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ID 734: Penetrating and Blunt Trauma to Neck: An Experience of 3 Years from Apex Trauma Centre in India

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Study/Objective: To study the epidemiology of neck injuries over 3years and their management.
Background: With advancement in trauma care, the evaluation and management of penetrating injuries to neck has evolved significantly. Neck, being not protected by skeleton, is not only vulnerable to external trauma but also carries vital structures.
Methods: a retrospective study of patients with neck injuries presenting to Emergency Department at Trauma Centre, AIIMS, New Delhi.
Results: Total 54 patients studied between 2012 and 2014. 46 (88.9%) were males and mean age of patients was 30.94yrs [3-70years]. 37(68.52%) patients suffered penetrating injuries. 17 (31.48%) patients had blunt trauma of the neck with 6 of them having associated abdominal injury and 4(7.40%) with thoracic injuries. Mean time difference between injury and presentation to Emergency was 182.5min. 15(27.8%) patients had threatened airway on arrival. Among the neck injuries, 43(79.6%) patients had injury in Zone II injuries. CECT neck was done in 26 patients (48.14%) and CT Angiography in 15 patients (27.7%). 14 patients laryngeal injury, 10 had tracheal injury while 17 patients underwent non therapeutic exploration. 11 patients had vascular injuries, 2 had common carotid artery transaction which were primarily repaired, 5 had internal jugular vein injury, 3 of them underwent primary repair while in 2 cases, Internal Jugular vein was ligated, 2 had external jugular vein injury while one patient had injury to superior and inferior thyroidal artery which were managed by liagtion of these vessels. Tracheostomy was done in 18 patients (33.3%). Only 14 patients (25.92%) required ICU stay with mean ICU stay of 4.42 days [1-16 days] and mean hospital stay for all the patients was 8.24days [1-35 days]. Two patients had ISS score more

than 25. ISS score correlated significantly with Hospital stay ($r2 = 0.386$, $p < 0.01$).
Conclusion: The penetrating neck injuries are far more common than blunt trauma of the neck and most of them are isolated injuries. Laryngeal injuries constitute major portion followed by vascular and tracheal injuries.
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ID 735: Description of Patient Presentations Post Typhoon Haiyan at the Australian Medical Team Field Hospital Oral Presentation Topic 8: Foreign Medical Teams

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Study/Objective: Typhoon Haiyan with damaging winds of 235km/hr and tidal storm surge caused catastrophic destruction in The Phillipines, 2013. We describe patient presentations at the Australian Medical Assistance Team AusMAT field hospital post this exceptional natural disaster.
Background: A Type 2 (WHO Foreign Medical Teams Classifcation) field hospital was established in Tacloban City, The Phillipines. At the time of deployment every hospital had sustained critical infrastructure damage and the major referral hospital was providing limited services.
Methods: Epidemiological and clinical patient data was collected prospectively. Data was classified using the Surveillance in Post Extreme Emergencies and Disasters (S.P.E.E.D) reports. Data was analysed to examine the type of clinical presentations post typhoon days.
Results: There were 2734 patient episodes from day 8 to 28 post disaster, due to the nature of the disaster environment there are incomplete data elements. There were 541 occupied bed days, 238 theatre cases, 60 patient transfers, 3 births and 9 inpatient deaths. Children aged <5 years account for 13.8%. The leading 3 presentations are wound, acute respiratory infection (ARI), skin disease, at 31.18%, 22.74% and 5.59% respectively. Days 17 - 18 post onset of disaster were the most frequent day for presentations.
Conclusion: Patient presentations were similar to those recorded in previous sudden onset disasters. The late peak in presentations at day 17 – 19 post disaster, likely reflects both delays in re-establishing usual hospital services and secondary infections of typhoon related injuries. An agreement with the local Ministry of Health to provide general and trauma services with obstetric care provided at the local referral hospital accounts for the low reported obstetric presentations. Foreign field hospitals are an important rapid deployment option particularly where local health infrastructure is inoperable in the immediate days following disaster. Teams can expect persistence of disaster-related presentations up to 4 weeks following the event.
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ID 736: Prehospital Coronary Care Networks in the Resource Limited Setting: The Effect of Prehospital Twelve Lead Electrocardiographic Telemetry on Reperfusion Times in the Gauteng and Western Cape Provinces of South Africa

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Study/Objective: 1. To determine the availability of prehospital 12 lead telemetric electrocardiography and PCI facilities for patients suffering myocardial infarction in South Africa. 2. To determine whether prehospital 12 lead ECG telemetry decreases reperfusion times in STEMI patients.
Background: Myocardial infarction (MI) is a time dependant injury. The longer the patient remains ischaemic, the greater the mortality. At late presentation, accelerating percutaneous coronary intervention (PCI) have been found to salvage myocardial mass. Expediting MI diagnosis in the prehospital environment has shown to decrease reperfusion times internationally. By forwarding a prehospital 12 lead electrocardiograph (ECG) to the emergency centre or cardiologist, much time has been saved to reperfusion. The theory exists that should non-PCI facilities be by-passed at initial presentation, and direct transport to PCI-capabale facilities occur, reperfusion can be accelerated. Its value in South Africa has not been investigated. This study will examine how ECG telemetry influences reperfusion times of STEMI patients in South Africa.
Methods: 1. Data sheets will be sent to private and provincial hospitals and EMS services requesting each to capture their resources. 2. A RCT design will be employed. Patients presenting with chest pain will be randomised to an NTel (ECG obtained - not transmitted) and a Tel group (ECG obtained and transmitted). The symptom onset- and door-to-reperfusion time will be recorded and compared between the two groups.
Results: This is a future study, and no results are currently available.
Conclusion: This is a future study. In light of a changing burden of disease and healthcare system it is essential to investigate the effects of ECG telemetry on reperfusion times in a healthcare model where PCI is centralised. As the first study of this nature in Africa, the results will inform future directions locally, but also provide valuable data in countries that employ similar referral networks and resource distribution.
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ID 737: Conflict, Crisis and Capacity: Building an Effective Mountain Rescue Service in Cape Town, South Africa

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Study/Objective: To describe the history and origins of Wilderness Search and Rescue (WSAR), and how it has built the capacity to offer an effective mountain rescue service in the Western Cape, South Africa.
Background: The Western Cape mountains (and particularly Table Mountain) are popular areas for all manner of outdoor recreational activities, from simple walks to extreme pastimes. In the past 30 years, parallel with the recent boom in the South African tourist industry, mountain usage has grown exponentially. So too, unfortunately, has been the need for wilderness rescue. Mountain rescues in the Western Cape have doubled every decade since the 1980's, from an average of 18.5 incidents annually in the 1980's (range 13-26), to an average of 157.4 incidents per year in the past 5 years (range 126-176). Of the latter 157 incidents, 36.7% involved injured patients, 8.6% being critically injured.
Methods: A few volunteers from the Mountain Club of South Africa Mountain rescue team working with Metro Rescue could previously manage all the incidents, but the team needed to grow in parallel to cope with the recent tenfold increase in demand. In consequence, an umbrella body, termed Wilderness Search and Rescue (WSAR), composed of diverse volunteer groups was formed. Against this background, and using illustrative data from the SA Mountain Accidents Database (http://alewis.its.uct.ac.za/sama/), we will sketch the birth and growth of WSAR.
Results: We hope to show how, despite its difficult history of conflict and crisis, WSAR has managed to build the capacity to cope effectively with the exponential demand for mountain search and rescue in the Western Cape.
Conclusion: WSAR's history also illustrates how a disparate team, composed of members with a broad range of skills and abilities can build the resilience to cope with the unique and highly variable demands of mountain rescue in a resource-limited environment.
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ID 738: Perception of Hospital Staff Towards the Quality Improvement Interventions Done by Trauma Nurse Coordinators in Level 1 Trauma Centre

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Study/Objective: To study the perception of hospital staff towards the quality improvement interventions done by TNCs and to improve TNC system.
Background: TNC position is a vital link in the development and operations of trauma care systems by doing quality improvement interventions. TNC system was started in J.P.N. Apex Trauma Centre, AIIMS in Feb. 2009. Now we assessed the perception of hospital staff towards the quality improvement interventions done by TNCs.
Methods: This is a descriptive study in which a survey questionnaire Comprises of 16 questions based on quality improvement interventions done by TNCs in clinical practices, education and research was used to assess the perception of 135 hospital staff. Responses were assessed on likert scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree).
Results: Among 135 hospital staff responded to survey questionnaire, 49 were doctors and 86 were nurses with experience of 1 month to 8 years in various clinical areas. Quality improvement interventions in the domain of clinical practices, majority of samples identified TNCs as patient advocate (59%), patient and family counsellor (53.4%), integrator of team approach (52.4%), coordinator of patients care (47.57%) and 38.8 % of samples agreed that after implementation of the TNCS, patient care improved. In the domain of education, majority of samples identified role of TNCs in coordination of various education programmes (62.1%), prevention of breach of protocol (56.3%), helpful in implementation of protocols (50.5%), helpful in policymaking to improve quality (44.6%). In the domain of research, majority of samples identified role of TNCs in collection of data (48.5%), providing data for research purpose (46.6%), doing trauma registry (42.7%).
Conclusion: Majority of hospital staff agreed to the role of TNCs in quality improvement intervention although there is always scope for improvement.
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ID 739: Overview of Disaster Medical Assistance Teams' Activities in the Great East Japan Earthquake

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Study/Objective: DMAT activities in the Great East Japan Earthquake are examined, and various issues are identified and discussed.
Background: Disaster Medical Assistance Teams (DMAT) in Japan were organized based on lessons learned from the Great Hanshin-Awaji Earthquake (1995) and other disasters. Mobilization of DMAT in the Great East Japan Earthquake (2011) was on a scale never seen before. Activities such as hospital support and wide-area medical transportation were implemented. This experience in Japan can provide many insights into disaster measures in medical care throughout the world.
Methods: Records of the activities from all the teams and from DMAT Headquarters supervisors were analyzed.
Results: For the DMAT activities in response to this disaster, over 1,800 people were rapidly assembled, chains of command from the national and prefectural level to the affected areas were established, emergency information systems were used, the situations in disaster base hospitals were ascertained, and wide-area medical transportation was implemented. Emergency needs in the first 48 hours were few; it was from the third to seventh day that the need for evacuation of hospital inpatients was greatest. DMAT used their organizational strength to respond to this situation, and contributed to the evacuation transportation of hospital inpatients.

Conclusion: There were issues with appropriate allocation of resources, timing of withdrawal, regulatory mechanisms for air transport, information-gathering from all hospitals, and logistics for the DMAT activities. In future, there is the need to further strengthening the logistic support in DMAT as a whole. This should include ensuring an information transmission system to share information about the state of damage to all hospitals, further strengthening of command control functions for appropriate allocation of resources, flexible use of wide-area medical transportation strategies, strengthening the coordination with other institutions when conducting air evacuation, and establishing activity strategies for smooth transition to the sub-acute phase.

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ID 740: Newly Arrived Refugee Resilience in Nutrition Education: A Mixed Methods Evaluation

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Study/Objective: The Nutrition Education program is a three month program with three knowledge modules at 2 weeks, 6 weeks and 8 weeks led by an IRC intern, accompanied by an interpreter. The objectives were to develop, coordinate and evaluate the IRC's Nutrition Education program.
Background: The International Rescue Committee (IRC) of Tucson, Arizona aims to prevent food insecurity by targeting newly arrived refugees through nutrition education focusing on food availability and access. Refugees face multiple challenges of low incomes, different food environments and learning another language that increase a refugee's chances of experiencing food insecurity.
Methods: The development of the program included reviewing other food security programs currently utilized with refugees, conducting interviews, observations, and building resilience by involving refugee participants to assist in developing the Nutrition Education Program with a focus on maintaining culturally appropriate foods. The evaluation utilized a mixed methods approach of pre/post surveys with refugee clients, participant observations, focus groups with refugee clients and interpreters that participated in the Nutrition Education program.
Results: Nutrition Education Curriculum to decrease food insecurity was developed, pilot tested and implemented for 6 months prior to the evaluation. Survey results show an increase in food security and knowledge regarding nutrition labels. Refugee and interpreter focus groups indicate positive perceptions of the Nutrition Education program, a need for pre-teaching certain topics before going to the grocery store, and to explain SNAP and WIC benefits in more detail.
Conclusion: Recommendations have been made to improve the curriculum, including assessing prior knowledge before teaching each module, pre-teaching specific concepts before going to the grocery store and developing a WIC specific module as well as incorporating language appropriate handouts.

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ID 742: WHO's Contribution to the United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic

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Study/Objective: The purpose of this Mission was to ascertain the facts related to the allegations of use of chemical weapons, to gather relevant data, to undertake the necessary analyses for this purpose, and to deliver a report to the Secretary-General.
Background: There were sixteen allegations of separate incidents involving the use of chemical weapons which were reported to the Secretary-General by Member States. On the basis of the sufficiency and credibility of the information received, the Secretary-General decided to establish a UN Mission following the report submitted by the Syrian Arab Republic alleging the use of chemical weapons and requesting the Secretary-General to investigate. In this context the Secretary-General requested WHO to provide technical support in assessing the public health, clinical and event specific health aspects of the allegations that have been brought to his attention.
Methods: During this mission WHO lead the biomedical team for biomedical sampling and victim interviews, conducting medical personnel interviews and forensic epidemiology and provided baseline public helath information. WHO Country office facilitated logistics, equipment procurement and coordination with UN Country Team. Hazard detection tools used to identify open source information.
Results: On the basis of the analysis of the evidence gathered during the investigation between April and November 2013 (and the laboratory results obtained, the conclusion highlighted that chemical weapons had been used in the ongoing conflict between the parties in the Syrian Arab Republic, not only in the Ghouta area of Damascus on 21 August 2013 as concluded in (A/67/997-S/2013/553), but also on a smaller scale in Jobar on 24 August 2013, Saraquebon 29 April 2013, Ashrafiah, Sahnaya on 25 August 2013 and Khan Al Asal on 19 March 2013.
Conclusion: WHO's operational epidemiological and outbreak investigation techniques are fundamental to investigation and will be called on again to lead similar investigations.

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ID 745: In Hospital Routine Triage of Trauma Patients on the Basis of Mechanisms of Injury, Physiological and Anatomical Trauma Scorings

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Study/Objective: To study the In hospital Routine Triage of patients on the basis of mechanisms of injury, physiological findings using trauma scoring & anatomical findings using ISS.
Background: In hospital "triage" is one way of sorting out patients according to the needs of the patient and the type of

care he might require. Our study looks at In hospital Routine Triage of Trauma Patients on the basis of mechanisms of injury, physiological findings (trauma scoring) & anatomical findings (using ISS) & analysis of under triage patients.
Methods: The present study is a retrospective analysis of a prospectively maintained database from injury surveillance and Trauma registry forms maintained at JPN Apex Trauma Centre, AIIMS.
Results: From 1st August 2013 to 31st July 2014, 9131 patients who registered in trauma registry of JPN Apex Trauma Centre, AIIMS. Out of which 26.48% were Red Triaged, 70.20% Yellow, 0.38% Green and 6.43 % Brought Dead patients. Out of 9313 patients, 84.63% (7882) maintained their initial triaged and 15.36% (1431) were either up triaged or down triaged. Among 1431 re triaged patients 849 (59%) were over triaged & 582 (41%) were under triaged out of 582 under triaged patients randomly selected 80 patients for analysis. Maximum frequency of under triaged patients were having unintentional fall from height were 17.5% followed by fall from stairs were 11.25% then pedestrian hit by car were 7.5% then 6.25% were skid from motorised two wheeler & assault. Patients fell from height between 10 feets to 15 feets having more isolated head injuries (50%) followed by abdominal injuries (28%). While calculating the ISS of under triaged patients, their mean value were higher i.e. 9.8. but there is no significant correlation between mechanisms of injury & ISS scoring.
Conclusion: START Triage criteria (physiology based) is good tool but we should also consider the mechanisms of injury.
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ID 746: A Review of the History and Use of 'Health Disaster Management Guidelines for Evaluation and Research in the Utstein Style'

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Study/Objective: This study, based on a review of historical goals and development of the 'Utstein Guidelines', was designed to determine the use of these 'Guidelines' since their conception in advancing the evidence base of disaster health.
Background: In 2003, the Task Force on Quality Control of Disaster Management (TFQCDM) published the 'Utstein Guidelines' framework for evaluation and research of health disaster management, making a strong case in recommending uniform data reporting. It was anticipated that this standardized reporting framework would advance evidence-based disaster health science.
Methods: This study undertook: (1) a literature review of peer reviewed and grey literature documenting the history and use of the 'Utstein Guidelines'; and (2) during 2014, a series of semi-structured interviews of 15 experts in the fields of disaster medicine, disaster management, emergency management and / or humanitarian assistance management with experience in undertaking evaluation studies to determine both their opinions of and the use and usefulness of the 'Guidelines' in their research work.
Results: Despite a persistent lack of adherence to defined standards for collecting and reporting data (Stratton, 2012) the literature review and interviews confirmed that generally the 'Utstein Guidelines', although well referenced, were not used to structure research or evaluations in disaster health. However, interviewees suggested that the 'Utstein Guidelines' were deemed of value and were used as a conceptual framework in education and teaching especially in providing consistent terminology.
Conclusion: It is suggested that with a renewed incorporation of the 'Utstein Guidelines' framework into basic disaster health research and education it is anticipated that future research will eventually adopt the conceptual framework that the 'Guidelines' offer. These 'Guidelines' have the potential to provide a better understanding of the essential structures designed to improve the overall quality and consistency of data acquisition, analysis and reporting that are currently lacking.
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ID 747: To Assess Reporting of Incidents by TNC Helps in Making Protocols and Improving Inhospital Systems in a Level 1 Trauma Center AIIMS, New Delhi

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Study/Objective: To assess reporting of incidents by TNC helps in making protocols and improving inhospital systems in a level 1 trauma center.
Background: Incidents reporting was perceived as having a positive effect on improving health care systems not only by leading to changes in care processes but also by changing staff attitudes and knowledge.
Methods: It's a retrospective analysis of a prospective maintained data of incidents in trauma nurse coordination system was done from 1st January 2013 to 20th October 2013 and 1st January 2014 to 20th October 2014.
Results: In January 2013 to October 2013 total number of registrations of patients in emergency department were 50099 whereas in 2014 were 53012. Total number of incidents reported in both the year were 114 out of which 43 were in 2013 and 71 in 2014. The incidents were categorized in to 8 subgroups : Inappropriate triage, Inappropriate referral, Violence/abuse, Delay in reveiew, Delay in shifting to OT, Deviation from protocol, Technical/engineering/equipment fault, Lack of awareness about protocol. In 2013 delay in review, number of incidents reported were 10[23.25%] whereas 3[4.22%] were reported in 2014. P value is less than 0.00. It is found to be highly satistically significant. Hence, from these 8 subgroup incidents 3 has shown positive effects and got decreased in 2014

as compared to 2014 due to strongly followed the protocols by healthcare workers. On the other hand other incidents has been increased in 2014 as compared to 2013 due to not properly noticed or taken action by the concerned departments though it is emphasized by TNCs. For instance, inappropriate referral incidents reported in 2013 were 6[13.95%] whereas in 2014 were 25[35.21%].

Conclusion: Incident reporting by TNC can be a powerful tool for developing and maintaining an awareness of risks in health care practice.

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ID 749: Malaysia Airlines MH17 Plane Crash in Ukraine: Health Outcome Assesment

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Study/Objective: The post disaster respons strategy in the Netherlands was activated after the plain crash in the Ukraine. The Centre for Environmental Health, available 24/7, gives integrated advice on public health and social care. In the case of the plaincrash Ukraine, they advised the Ministry of Public Health. The Centre worked with a network of experts with a wide range of expertise. They advised the ministry about: registration of the victims, about the need and value of health outcome assessment (HOA). And thirdly they advised about the implementation of the HOA.

Background: In July 2014 an airplane of Malaysia airlines crashed in the Ukraine. During this disaster in total 283 people, with ten different nationalities perished. Among them were 193 people from the Netherlands. More than 1600 people in the Netherlands lost a relative or a good friend, colleague.

Methods: The network of experts advised that health outcome assessment was needed. They focused on the health effects on the people who lost a relative or friends, on an individual level and on the level of the population. They advised to use two types of monitoring: questionnaires or interviews (surveys) and monitoring of the survivors and rescuers.

Results: The results of the study may help policy makers and health care providers in optimizing the care and support of the people who lost relatives and friend. In December of this year, questionnaires are conducted among the target group. The results of the studies will be presented during the congress.

Conclusion: the conclusions, expected january/february 2014, will be presented during the congress in April.

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ID 750: Mass Casualty Animal Euthanasia in Disasters: Human Animal Bond and Post Event Stress

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Study/Objective: The objective of this case study was to review the incident and response in order to identify and recommend actions for the planning and execution of emergency response in mass casualty wildfire events involving livestock.

Background: In 2006, a wildfire severely damaged and killed several hundred sheep on two ranches in northern California. A multi-stakeholder response team provided triage and humane care or euthanasia to over 1,600 sheep in an unprecedented mass casualty response involving sheep. The volunteer Veterinary Emergency Response Team (VERT) from the School of Veterinary Medicine (SVM), University of California at Davis coordinated animal triage and treatments, humane euthanasia of sheep, carcass disposal, labor, and resource distribution.

Methods: Retrospective case study. Interviews were performed with both farmers, two of the main veterinarians and two of the students. We also critically reviewed and analyzed data from ranch and hospital records, team email correspondence, fire department and sheriff reports, insurance, utility company and legal documents, personal letters from community members.

Results: The team provided daily care to over 800 sheep for 42 days, addressed public health concerns and provided media briefings. Initial losses due to death or euthanasia totaled 1,447 sheep from both farms; only approximately 232 of the 1,679 sheep survived until day 42. Many sheep died late in the response largely due to slowly progressing severe injuries of the hooves. The importance of acknowledging the human-animal bond was recognized and special emphasis was placed on dealing with the psychological burden on the team members.

Conclusion: This retrospective review and analysis of the successes and failures of this incident response provides a model for livestock emergency response, which may serve as a basis for the development of education protocols for emergency response training of livestock owners, veterinarians, first responders, and community members.

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ID 751: Out-of-Hospital Time and Survival: Assessment of Golden Hour in Trauma Victims of a Level 1 Trauma Centre

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Study/Objective: To study association between golden hour and mortality, ICU days and hospital days, also whether trained persons shift trauma victims earlier than untrained ones.

Background: The first hour after the onset of out-of-hospital traumatic injury is referred to as the "golden hour". This term is commonly used to characterize the urgent need for the care of trauma patients.

Methods: This was retrospective analysis of prospectively maintained Injury Surveillance and Trauma Registry forms from August 2013 to July 2014. Inclusion criteria were age between 18 to 60 years, ISS (Injury Severity Score) >12. Referred patients were excluded from the study. Total 440

subjects were analysed. They were divided into group A (subjects who arrived within golden hour) and group B (subjects who arrived after 1 hour of injury).
Results: Out of 440 subjects analysed, 228 subjects were in group A and 212 subjects in group B. Mortality rate in group B was significantly high (93, 43.8%) as compared to group A (77, 33.7%) ($p = 0.03$). However there was no difference in ICU days and hospital days between both the groups ($p = 0.5$, $p = 0.6$). Trained persons shifted 53.49% subjects within golden hour as compared to 49 % by untrained ones which was significantly higher in number ($p = 0.001$).
Conclusion: Mortality is less when trauma victims are transferred to hospital within golden hour. Trained persons shift injured patients earlier than untrained ones. There is a need for more awareness programs and basic life support training among rural and urban population.
Prehosp Disaster Med 2015;30(Suppl. 1):s141–s142
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ID 755: What Evidence is Available and What is Required in Humanitarian Assistance?

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Study/Objective: To investigate the current landscape of evidence, with particular emphasis on evidence from impact evaluations (IE), in the humanitarian sector attempting to identify areas in which actionable evidence is available, where more evidence is needed to direct research to valuable areas and identify internationally agreed priorities.
Background: Conducting IEs of interventions, actions and strategies in natural disasters and complex emergencies are challenging. There is no single source of information currently informing researchers of gaps that exist in the current research nor what the priority areas are for IEs.
Methods: The study incorporated multi methods to assess available evidence including: online survey of participants knowledgeable in the humanitarian sector; semi-structured interviews with experts from the humanitarian sector; extensive literature reviews of repositories of humanitarian studies and strategy documents of major humanitarian organisations; and map presenting the results of a thorough search for completed, ongoing and planned IEs of humanitarian interventions.
Results: With the exception of health/nutrition, most areas in the humanitarian sector suffer from a paucity of evidence. Showing evidence gaps provides an illustration of the landscape of evidence. There is agreement amongst policymakers that decisions should be based on research evidence and that IEs can and should have a greater role to play in building the evidence base. Priorities were identified.
Conclusion: Recommendations include: Humanitarians must agree upon a way of prioritising research needs. This study suggests a framework for prioritizing further research. Efforts need to be made to index and classify existing evidence and a single unifying repository or portal should be made to improve the ease of accessibility to existing evidence. A single set of templates, data collection and reporting guidelines should be agreed upon to aid in the indexing and classification of evaluation studies. Implementation research and causal chain analysis is required to further this research.
Prehosp Disaster Med 2015;30(Suppl. 1):s142
doi:10.1017/S1049023X15003969

ID 757: Australia's National Critical Care Trauma Response Centre: A Model for Building Disaster Preparedness, Capacity and Resilience Through Regional Partnership and Engagement

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Study/Objective: To outline the role of the National Critical Care and Trauma Response Centre (NCCTRC) in enhancing disaster response capacity through engagement with key partners in SE Asia.
Background: The NCCTRC is funded by the Australian government to maintain an acute care standby medical deployment capability. Uniquely located in Darwin, Australia, the NCCTRC sits in a geo-politically significant area in close proximity to Southeast Asia, enabling pre-positioned rapid response into regions most likely affected by sudden onset disasters.
Methods: The NCCTRC is actively building strong relationships with its neighbours and key international and institutional partners in the region, with a particular focus on Indonesia, Timor-Leste and Civil-Military Training.
Results: Following the 2002 and 2005 Bali bombings the NCCTRC developed a relationship with the Rumah Sakit Umum Pusat (RSUP) Sanglah Hospital and provides trauma and mass casualty training. Our relationship with Indonesia has broadened to active participation in the Australia-Indonesia rapid disaster response workshops via the East Asia Summit. High level delegates from 11 partner nations were toured through the Australian field facility in 2013 enhancing knowledge of the deployable medical capability available to the region. A needs assessment workshop for the ASEAN Military Medicine Humanitarian and Disaster Response group brought together officers from 8 different nations to develop knowledge on principles of disasters needs assessment. Capacity and capability in our nearest and newest neighbor, Timor L'este, has been enhanced through our assistance to the annual Tour de Timor bike race since 2011, and teaching first aid skills to primary care providers.
Conclusion: Collaborative opportunities build awareness amongst partner nations and institutions of our capacity to contribute to regional disaster response. The multi-sectoral engagement strategy demonstrates that operational agencies can play a key role in regional training and policy development with the aim of enhancing responsiveness and efficacy during disasters.
Prehosp Disaster Med 2015;30(Suppl. 1):s142
doi:10.1017/S1049023X15003982

ID 758: Audit of a Novel Initiative to Improve Publication Success for Acute Care Authors from Low to Middle Income Countries

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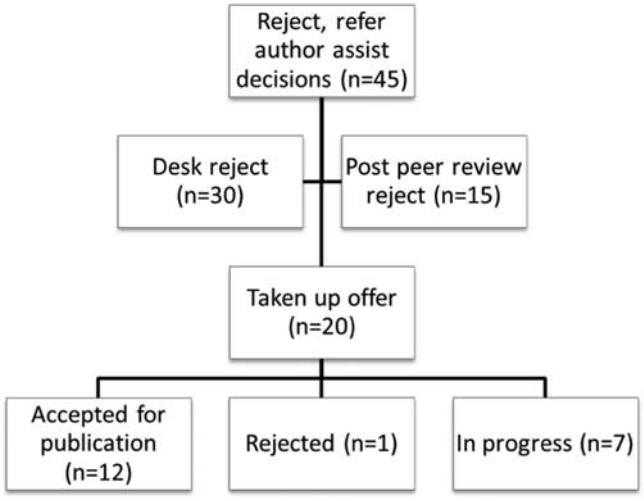
Study/Objective: The aim of this study was to compare publication decision pre- and post- author assistance.
Background: Following the launch of the African Journal of Emergency Medicine (AfJEM) in 2011, it was noted that many manuscripts submitted by African authors lacked the quality to result in successful peer review. A free Author Assist service was introduced to improve manuscripts before submission to further peer review.
Methods: Author assist were offered either following a desk reject or rejection after the initial peer-review. Subsequent peer-reviewers were blinded to whether assistance was rendered. A new set of peer-reviewers were assigned if the manuscript had previously passed through peer-review. Assistants are drawn from a bank of experienced, published volunteers. The sample was drawn from the journal records between January 2011 to November 2014. All authors that were offered assistance due to language, technical or formatting issues were included. The primary outcome measured was publication decision pre- and post- author assistance. Data are expressed as proportions.
Results: Figure 1 presents the descriptive data. Original articles made out 31/ 69% of the rejected sample referred for author assist and the rest were a mix of reviews and case reports. Nearly half (20/ 44%) of authors offered assistance took up the offer with only one rejected thus far (in 2013). The majority of authors that took up assitance followed desk rejections (17/ 85%). Accepted papers made out 27% of the originally rejected cohort.
Conclusion: The importance of a free author assistant service to authors publishing within a developing specialty such as emergency medicine should not be underestimated. Increasing and research quality and outputs will largely dictate academic growth of the specialty within the low to middle income African setting. Author Assist introduces a journal-led initiative that appears to be effective in increasing African emergency medicine outputs without compromising on quality.



Prehosp Disaster Med 2015;30(Suppl. 1):s143
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ID 759: Challenges in the Development an Acute Care National Disaster Nursing Workforce

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Study/Objective: To review and identify challenges encountered in the development and sustainment of a skilled, flexible and trained national acute care Disaster nursing workforce.
Background: The Australian Medical Assistance Team (AUSMAT) program is funded by Australia's Department of Health to maintain an acute care standby medical deployment capability to sudden onset disasters (SODs) and medical emergencies.
Methods: Review of recent (AUSMAT) nursing staff experiences and staffing models whilst working in the field environment was undertaken to identify key themes for Nurse leadership in Disaster settings and future directions for consideration. Specifically, the Australian field hospital deployment in Tacloban following Typhoon Haiyan was used to illustrate the main challenges of delivering acute care nursing in austere disaster environment.
Results: Delivery of care in an austere disaster environment creates many unique nursing challenges; operating in a resource limited multidisciplinary team, identifying relevant scopes of practice, specialised skill sets and currency requirements, competency and skill mix considerations, human resource management and patient flow. In addition increasing dependence upon technology in the standard delivery healthcare, the absence of many modern diagnostic tools in an austere environment necessitated a return to the foundation principles of nursing care and application of "clinical medicine". Such practice standards are fast becoming the primary domain of a widely acknowledged, ageing generation of nurses.
Conclusion: In the context of overwhelming demand, limited resources and a low-tech environment, there is a requirement for a flexible, adaptable, multi-skilled nursing workforce to in order to adequately meets the needs of the population at risk. Nursing leadership was pivotal in ensuring effective and efficient running of an acute care surgical field hospital with limited resources in an austere and environmentally challenging setting.

Prehosp Disaster Med 2015;30(Suppl. 1):s143
doi:10.1017/S1049023X15004008

ID 760: Provision of a Government Funded, Centrally Co-ordinated Register and Platform for Training for Healthcare Workers Volunteering to Respond to Humanitarian Emergencies: the UK Example

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Study/Objective: The recent Ebola Virus outbreak in West Africa has demonstrated the need for improved co-ordination of deploying foreign medical teams, registration of teams, authority to practice in the affected country and, primarily, the need for specific pre deployment preparation and training. For

deploying UK clinicians, delivery of this was supported through the UK International Emergency Medical Register.
Background: The UK International Emergency Trauma Register and UK International Emergency Medical Register are hosted by UK-Med and supported by the Department for International Development. Established in 2011, the registers provide one central co-ordinated portal of application and platform for training and deployment of UK health care workers interested in volunteering for a humanitarian emergency. Key to an effective medical response is cohesivenss and integration between health care workers, logisticians, humanitarian agencies, ministries of health and local health care providers.
Methods: Literature review and case example.
Results: All UK based health care workers are eligible to apply. After applicant to a web-based registration system, applicants undergo screening to determine seniority and suitability to deploy as part of a UK FMT. Applicants are invited to attend a government funded 2 day compulsory pre-deployment training, which provides context to humanitarian environments, experiences from the field and a security overview. Additional government funded technical (team leader), operational (logistical, water sanitation) and clinical training (anaesthesia and surgery for austere environments) is provided. Clinicians also have the opportunity to gain experience in global health settings through a number of international placements. These projects involve integration with local health care providers, strengthening through collaboration, training in all aspects of trauma and medical care. Pre-and post deployment, health screening including vaccinations is provided, in addition to a comprehensive deployment kit bag.
Conclusion: Recent examples of UK FMT deployments drawing on trained clinicians from the register include Typhoon Haiyan, Gaza and the Ebola Virus Outbreak.
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doi:10.1017/S1049023X1500401X

ID 761: Thermal Burden of Ebola Virus Disease Treatment in Hot Conditions

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Study/Objective: To quantify the thermal burden of working within an Ebola Virus Disease (EVD) treatment centre.
Background: Working within an EVD treatment centre requires personal protective equipment (PPE) that shields health care workers from disease transmission, but also drastically limits body heat dissipation. When undertaking physical activity in hot environments, the required evaporative cooling to limit the rise of core body temperature (T_c) exceeds the capacity of the microclimate within the PPE. Such conditions are termed uncompensable, increasing the risk of responders exceeding ISO9886 T_c limit value of 38.5°C, and heat stress related errors.
Methods: Eight heat acclimatised doctors and nurses (3M, 5F) undertook simulated duties within an EVD treatment facility wearing PPE in hot conditions (ambient temperature 38.3°C, WBGT 32.3°C). Physiological monitoring included core body temperature (T_c) through the use of an ingestible thermometer, and axilla skin temperature (T_{sk}) based upon established protocols[1]. Thermal sensation was assessed at the end of the treatment phase. The 70-minute simulation consisted of 20 minutes preparation and donning, 35 minutes of treatment, and 15 minutes of doffing[1]. Brearley MB, Heaney MF, Norton IN (2013). Physiological responses of medical team members to a simulated emergency in tropical field conditions. Prehosp Disaster Med 28(2):139-44.
Results: On average, T_c rose from 37.4°C at a rate of 0.14°C/10 mins to attain 38.4°C at cessation of the simulation. Four of the participants attained or exceeded the T_c limit value of 38.5°C, with a maximal value of 38.8°C. T_{sk}approximated T_c during the latter stages of the treatment phase, and when combined with elevated T_c, caused the responders to feel hot.
Conclusion: This study demonstrates that heat acclimatised medical responders can exceed ISO9886 guidelines when undertaking simulated EVD treatment in hot conditions. Medical responders are recommended to familiarise themselves to elevated T_c and T_{sk} to minimise the risk of heat stress related errors.
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ID 762: The Chain of Resilience

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Study/Objective: A review of 'resilience' definitions in the multidisciplinary disaster literature informs the 'Chain of Resilience' to strengthen communities across all phases of the disaster cycle.
Background: The global emphasis on increasing community capacity to meet the growing challenges of disaster threats be they natural, technological, environmental or manmade, gains momentum. The consequences of disasters provide the stimulus and momentum for building disaster resilience. During July 2013-June 2014 saw the fourth consecutive year where economic losses exceeded $100 billon; 16,300 people died and 358 internationally reported disasters affected 113 million people. International and national standards and frameworks, such as the *United Nations International Strategy for Disaster Reduction*; the United Kingdom *Strategic National Framework on Community Resilience* (2011); the United States *Disaster Resilience: A national imperative (2012)*, and the Australian *National Strategy for Disaster Resilience* (2011) underpin concepts to build community resilience to disasters.
Methods: A recent review of community and disaster resilience in peer reviewed and selected grey literature identified multiple definitions.
Results: No consistent definition emerged from the review. 'Resilience' presents as a cross-disciplinary definitional conundrum for those working to build disaster resilience across all

phases of the disaster cycle. Consequently, the conceptual ambiguity that produces the definitional conundrum inhibits productive resilience building activities.
Conclusion: This paper offers a unique recommendation to build resilience across all phases of the disaster cycle by adopting and adapting the internationally recognised and community-based *Chain of Survival* which has proved successful in improving outcomes from out-of-hospital cardiac arrest. Proposing a community-based ***Chain of Resilience*** holds enormous potential for providing a much needed pathway to creating a consistent resilience building approach across all phases of the disaster cycle while maintaining conceptual flexibility for situational differences.

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doi:10.1017/S1049023X15004033

ID 763: Surgery in the AUSMAT Field Hospital after Typhoon Haiyan

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Study/Objective: To critically evaluate the clinical outcomes of surgical care delivered by the Australian Medical Assistance Team (AUSMAT) Field Hospital after Typhoon Haiyan.
Background: On 8th November 2013, Typhoon Haiyan struck the Philippines, resulting in 6,000 fatalities and 28,000 injured. In response, an AUSMAT Field Hospital with Surgical Capability was deployed to Tacloban.
Methods: A prospective database of all surgical procedures was maintained throughout the deployment. Data collected included demographics, relationship to typhoon, injury or illness and surgical procedure performed. Quality was measured by mortality, amputation rate and unplanned returned to theatres. This paper reviews the establishment of the operating theatre, the surgical caseload and documents the steps taken to adhere to the World Health Organisation (WHO) Guidelines for Foreign Medical Teams.
Results: A total of 222 surgical procedures were performed on 131 patients over the deployment. The AUSMAT Field hospital dealt with trauma and general surgery, and the local hospital managed obstetrics. Soft tissue surgery predominated, but a wide spectrum of acute surgical and traumatic conditions was encountered. Diabetes was present in 27% of the surgical patients, with diabetic foot sepsis accounted for a large proportion of the work. Major amputations were uncommon, with the five amputations performed due to advanced diabetic sepsis after relatively minor injuries. new presentations of untreated typhoon related injuries presented throughout the deployment, not just in an initial peak as previous experience would predict. The facility adhered to the WHO guidelines for FMT's ensuring appropriate surgery and anaesthesia, sterility, consent and documentation.
Conclusion: AUSMAT Surgeons worked professionally and collaboratively with local Philippino Surgeons and other FMT's. Diabetic foot wounds, constituted the majority of the workload, a refelction of the growing epidemic of diabetes in Asia. At the conclusion of the deployment there was direct hand over of the patients to local surgeons ensuring continuity of care.

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ID 764: TrackMi: An Innovative Patient Tracking System for Major Incidents, Disasters, & Humanitarian Response

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Study/Objective: During a Mass Casualty Incident (MCI), Disaster, or Humanitarian Response, sharing key information about the size, location and scale of the incident is crucial to accurately resource the overall response with sufficient medical personnel and assets. We will describe an integrated software and hardware system called TrackMi that is able to transfer incident information in a highly accurate, time critical fashion.
Background: The National Critical Care and Trauma Response Centre (Australia) has created TrackMi - an integrated real-time tracking system for the effortless capture and dissemination of patient information - to assist in the management of disasters and major incidents. Information is collected by users of handheld devices in the field and then sent to a secure website for viewing by command teams and medical personnel. SMS and email alerts are also possible.
Methods: The system has been used in blinded trials, as well as successfully tracking hundreds of patients during hospital relocations in Australia. The system currently utilises barcodes to identify patients, but will support Radio-Frequency Identification (RFID) in the future. Uniquely, users can easily customise 'apps' for individual incidents.
Results: The system works offline, is highly flexible and is designed to auto-heal itself.
Conclusion: TrackMi has the ability to be used across a broad range of disciplines in the disaster, medical, and humanitarian response fields. The system has proven to be timely, fault tolerant, and highly accurate, allowing for the effortless secure distribution of critical scene information.

Mass Casualty Incident (MCI) Exercise Blinded Trial Results

	TrackMi	Traditional Radio & Paper Method
First Information Reported		
to Command Teams	86 Seconds	17 Minutes
Patients Reported	100%	96%
Deceased Reported	100%	0% after 4 hours
Other Information	Scan Times: Fastest: 2 seconds Average: 6 seconds Requires no extra staff at the scene.	Requires extra staff at the scene to collect information

Prehosp Disaster Med 2015;30(Suppl. 1):s145
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ID 765: Feasibility of a Predictive Multi-sector Cholera Emergency Preparedness and Control Tool for Haiti

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Study/Objective: To develop a predictive multi-sector cholera emergency preparedness and control tool for Haiti. This tool is based on the hazards-of-place-model approach and will help to identify potential high-risk cholera outbreak areas.
Background: Inadequate environmental management and the existence of aquatic reservoirs are major factors in the endemic development of cholera. Haiti has faced ongoing outbreaks of cholera since October 2010 due to its location and an inadequate drinking water and sanitary sewer infrastructure. There have been 703,510 reported cholera cases to date. We present preliminary phase results from an ongoing study to determine the feasibility of such a tool in Delmas, Haiti.
Methods: Microbial contamination of surface water stations was obtained from the National Laboratory of Public Health of Haiti. Researchers conducted an onsite epidemiological risk assessment by identifying non-point sources of pollution and potential cholera reservoirs. The sources and reservoirs were geocoded and with the use of a geographic information system (GIS) the distances from drinking water sources were estimated. In addition, the socio-economic characteristics of the potential vulnerable population were assessed by surveying the local population during workshops addressing local emergency preparedness issues.
Results: Application of GIS identified the spatial distribution of highly contaminated sites. In the majority of cases, these were located near known slum areas with a high level of morbidity. The social context findings were consistent with the features of cholera in other affected countries and the highest contamination zones occurred close to the watershed while the lowest values occurred in land.
Conclusion: A social vulnerability index is a tool that can be used to help emergency preparedness personnel identify and map areas that most likely require intervention before, during, and after a cholera outbreak. These findings corroborate the feasibility of developing a dynamic tool for predicting high priority areas based on a localized geocoded database and GIS.

Prehosp Disaster Med 2015;30(Suppl. 1):s146
doi:10.1017/S1049023X15004069

ID 767: A Model Rapid Risk Assessment of the Ebola Virus Disease Outbreak in West Africa and its Potential Impact on Mass Gathering Events

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Study/Objective: The objective of this study is to provide a model that complements existing efforts and that could be used by the meeting organizers when conducting a specific risk assessment for EVD in the country where the event is taking place.
Background: Mass gatherings have the potential to attract, locally amplify, and disperse infectious diseases around the world that can threaten global health, security, and economic prosperity. Prevention or minimization of the risk of injury or ill health and maximization of safety for participants, spectators, event staff and volunteers, and residents can be achieved through careful risk assessment, surveillance, and response. The latest outbreak which is focused in West Africa is the largest to date and a concern for the current and future mass gathering events. In planning appropriate preparedness measures, meeting organizers should conduct a specific risk assessment (RA) for the event, in close collaboration with the appropriate public health authorities. As part of the technical guidance WHO could provide a model for the rapid risk assessment of the Ebola Virus Disease outbreak in West Africa and its potential impact on the mass gathering event.
Background: Mass gatherings have the potential to attract, locally amplify, and disperse infectious diseases around the world that can threaten global health, security, and economic prosperity. Prevention or minimization of the risk of injury or ill health and maximization of safety for participants, spectators, event staff and volunteers, and residents can be achieved through careful risk assessment, surveillance, and response. The latest outbreak which is focused in West Africa is the largest to date and a concern for the on-going and up-coming mass gathering events. In planning appropriate preparedness measures, meeting organizers should conduct a specific risk assessment for the event, in close collaboration with the appropriate public health authorities. As part of the technical guidance WHO could provide a model for the rapid risk assessment of the Ebola Virus Disease and its potential impact on the mass gathering events.
Methods: Risk assessment is performed on six different groups/segments of the population possibly involved in the event and risk level is assessed by combining probability and impact in one algorithm; through answering six distinct questions.
Results: This model is an effective rapid risk assessment tool for EVD and its potential impact on mass gathering events.
Conclusion: As part of the technical guidance WHO could provide this model as useful tool for the rapid risk assessment of the Ebola Virus Disease outbreak and its potential impact on the mass gathering event.

Prehosp Disaster Med 2015;30(Suppl. 1):s146
doi:10.1017/S1049023X15004070

ID 769: Transfer Challenges of Burn Patients in Disasters: A Qualitative Study in an Iranian Context

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Study/Objective: The present study was performed with the aim of describing transfer phenomenon from pre-hospital emergency staff view in burn patients.
Background: As the pre-hospital emergency situations are unique, there are a lot of challenges in referring the victims to the treatment centers. Little is known about the quality of referring of burn patients to treatment centers by emergency technician.
Methods: The present qualitative study was performed using a content analysis method. In total, 18 Iranian emergency care personnel participated in the study. A purposeful sampling method was applied until reaching data saturation. Data were collected using semi-structured interviews and field observations. Afterwards, the gathered data were analyzed through face content analysis.
Results: By analyzing 456 primary codes, four main concepts were obtained through the content analysis of interview data: 1) Unsuitable ambulance/dangers in the route, 2) Victim with burn injury and, 3) Pre-hospital incoordination were extracted from the experiences of pre-hospital emergency personnel during burn care. These concepts along with their subcategories are discussed.
Conclusion: The findings of the study show, that unsuitable and poor transportation is one of the challenges of referring burn victims which has various reasons including unsuitable condition of ambulance and dangers in the route of patients' transportation. Other challenges of referring of these victims include not accepting the victims due to limitation in admission to these specific patients and incoordination in pre-hospital system. In order to promote pre-hospital emergency clinical service, such challenges should be investigated and resolved in the dynamic and regular programs of emergency system.

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ID 770: Updating Key Considerations for Mass Gatherings – KC2

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Study/Objective: In 2008, WHO published a guidance document on key considerations on communicable disease alert and response for those planning mass gatherings. This was designed as a guide for those responsible for the health needs of individuals attending a mass gathering (MG), and to help them plan their actions. This has now been updated and expanded beyond just communicable diseases and to reflect learning in this field.
Background: Planning and preparing public health systems and services for managing an MG is a complex procedure: advanced risk assessment and system enhancement are critical to identifying potential public health risks, both natural and manmade, and to preventing, minimizing and responding to public health incidents.
Methods: Since 2008, there has been a substantial increase in involvement of the WHO, and associated collaborating centres, in providing expert advice on delivering MGs, and capturing the processes and learning from delivering these. This is increasingly important due to the higher profile of these events and recognition of the risks associated with MGs. In addition, these events are opportunities to enhance public health systems, IHR compliance and provide a significant legacy to the host country.
Results: This document is primarily aimed at those responsible for the management of public health, both at the event and the host country, as well as key policy makers, planners and executive personnel. In addition to those in the health sector, there are many others involved in contributing to healthy outcomes at MGs, who will also find this document useful, including event promoters and managers, emergency service personnel, government bodies, and any organisations or individuals who contribute to the organisation of mass gatherings.
Conclusion: This updated document reflects this shift in knowledge, understanding and approach and was written by a cadre of global experts.

Prehosp Disaster Med 2015;30(Suppl. 1):s147
doi:10.1017/S1049023X15004094

ID 773: Hélicoptère et Médecine de Catastrophe: Quelle Place?

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Study/Objective: Présenter la discussion du rapport avantages/contraintes de l'hélicoptère dans un contexte de catastrophe à effet limité ou majeur. Présenter les prérequis à son emploi dans le contexte.
Background: L'hélicoptère est progressivement devenu un moyen sinon indispensable du moins très utile dans un contexte de médecine de catastrophe. Sont néanmoins apparues des limites à son emploi, en termes de contraintes techniques et opérationnelles, de gestion parmi les autres vecteurs de transport sur le site, et de majoration du risque pour les sauveteurs et les victimes par rapport à un moyen terrestre.
Methods: Revue systématique (bibliographie, entretiens avec des utilisateurs) des avantages, des contraintes et des risques liés à son emploi dans le contexte.
Results: La synthèse de ces différents entretiens et revues laissent apparaître des avantages dans le contexte, en termes d'aide au commandement (cartographie rapide et précise de la zone concernée), de souplesse et de rapidité de mise à disposition de moyens logistiques et soignants au profit des populations impliquées, et d rapidité des évacuations. Ces avantages doivent toutefois être mis en balance avec les contraintes logistiques (rayon d'action, capacité d'emport, transport de matériels lourds ou potentiellement dangereux, création ex nihilo de bases au sol), les limitations opérationnelles (conditions météo) et le risque non négligeable d'accident grave.
Conclusion: La décision d'engagement de moyens héliportés sur un théâtre d'opérations de type catastrophe doit être

murement réfléchie, après une évaluation détaillée des avantages attendus et des contraintes prévisibles. Cette décision est susceptible d'être révisée en fonction de l'évolution des circonstances locales. Une formatio de l'ensemble des intervenants demeure nécessaire préalablement à leur engagement.

Prehosp Disaster Med 2015;30(Suppl. 1):s147–s148
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ID 774: An Analysis of Blood and Blood Products Used in an Emergency Service

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Study/Objective: In this study, the indications of blood and blood products which are used in emergency services, and requests of other clinics are evaluated.
Background: In recent years, utilization of blood or blood product in emergency service has increased. Because of various conveniences, other services request for help about transfusion of blood products from emergency services. The reason of this request may be related efficacy of intervention to complications which have life-critical features.
Methods: This study was planned as retrospective and cross-sectional, and the cases which are given blood and blood products at between February 2013 and February 2014 were evaluated. Blood groups, the type of used blood and blood product and use indications in 115 patients were evaluated, and data of physicians and clinics which request blood and blood products were analyzed.
Results: Fifty five (47.8%) of the patients were female, while 60 (52.1) patients were male. Administered blood products were: 233 (73.5%) erythrocyte suspension, 74 (23.3%) fresh frozen plasma and 10 (3.15%) thrombocyte suspension. It was evaluated that utilization of blood and blood products increased in rate of 14% when compared with data in last year. Also, blood group of 37.5 % of the case given blood product was A Rh (+). In cases receiving erythrocyte, blood hemoglobin values of 67.2 of patients were in between 5-7 mm/dl. Request for use of blood and blood products carried out by an emergency medicine specialist about 71 (61.7%) of the cases, while other clinicians requested about 44 (38.2%) cases. Most common indications were gastrointestinal bleeding, anemia respectively.
Conclusion: The utilization rate of blood and blood products increases in emergency services. According to the study results, 38.2% of use of blood products in our emergency service was requested by other clinics. This situation may increase workload and cause errors when using blood products.

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ID 776: Hospital Based Chemical, Biological, Radiological, Nuclear (CBRN) Technical Training: Enhancing Perceived Capability Through Value-streamed Simulation

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4. CBRNE Collaborative (Toronto/ON/Canada)

Study/Objective: The aim of this trial was to pilot the value-streamed Chemical, Biological, Radiological-Nuclear (CBRN) simulations for hospital first receivers with the aim of enhancing perceived capability.
Background: Several CBRN technical training programs for hospital first receivers exist with varying durations from 1-3 days, but the length of training to enhance perceived capability is unknown. Longer training presents operational challenges including staff coverage and increased costs. A value-streaming exercise was undertaken to seek improvements to CBRN technical training.
Methods: Participants were surveyed and asked to rate, using a 5-point Likert scale, how capable they felt responding to the specific CBRN event pre and post training.
Results: Chem-Pilot A (n = 17) had a pre-training median of 1 (1,3) on the perceived capability to respond to a chemical event and post-training median of 3 (2,4). Chem-Pilot B (n = 14) and Chem-Pilot C (n = 22) had similar findings with pre-training medians of 2 (2,3.25) and 2 (1,4) respectively, and post-training medians 4 (4,5) and 4 (4,4) respectively. Overall Chem-Pilots A, B, and C had an average pre-post training percent change of 94, 101, and 102 percent respectively. The Bio-Pilot (n = 9) had a pre-training median of 2 (1,3) on the perceived capability to respond to a biological event and post-training median of 3 (3,4). Overall, the Bio-Pilot had an average pre-post training percent change of 88 percent. The RadNuc-Pilot (n = 24) had a pre-training median of 2 (1,3) on perceived capability to respond to a radiological-nuclear event and post-training median of 3.25 (2,4). Overall, the RadNuc-Pilot had an average pre-post percent change of 59 percent.
Conclusion: Pilot results in three different CBRN circumstances illustrate that value-streamed technical training enhances perceived capability to respond to CBRN events by hospital first receivers. This is important as it may serve as a model to enhance response, optimize the training experience, and save operational dollars.

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ID 777: Le Support Médical de l'équipe de Recherche et de Sauvetage Expérience de l'UAE USAR Team

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Study/Objective: Le but de notre travail est d'analyser la fonction, le rôle et la responsabilité de l'équipe médicale de l'UAE USAR team durant les opérations de recherche et de sauvetage des victimes.
Background: L'équipe de recherche et de sauvetage de l'Emirat Arabe Unie (UAE USAR team) est la première équipe au moyen orient et en Afrique qui a obtenu la classification internationale de l'INSARAG, reconnue par les Nations Unies, en 2009 en tant

que Medium team et la première au monde qui est passée du Medium au Heavy team en 2013. Cette équipe a effectué Cinq missions, pour tremblement de terre, entre les années 2005 et 2009, en Pakistan, Afghanistan et Indonésie.
Methods: Nous avons étudiés rétrospectivement tous les fichiers des interventions de l'équipe médicale de l'UAE USAR team durant cinq participations pour tremblement de terre (2005–2009).
Results: La première tâche que l'équipe médicale a assurée est le bienêtre physique et mental de tous les membres de l'équipe USAR : Vingt sauveteurs ont été traités pour des troubles digestifs et cinq pour lombalgies. La deuxième tâche était le traitement et la stabilisation de 350 blessés trouvées par les sauveteurs avant de les évacuer aux institutions locales de santé, et l'aide des sauveteurs dans l'extraction de six cadavres. Avant chaque mission, et durant la période de préparation, l'équipe médicale a vérifié la vaccination et a assuré la visite médicale pour tous les membres de l'équipe USAR. Durant la période d'activation le médecin de l'équipe a assisté aux briefing conduits par le team leader (TL) et a informe tous les membres de l'équipe de la situation hygiénique et sanitaire et les précautions nécessaires à prendre.
Conclusion: L'équipe médicale de l'UAE USAR team est bien entrainée et expérimentée et a participé dans le succès de ses cinq premières interventions de recherche et de sauvetage.
Prehosp Disaster Med 2015;30(Suppl. 1):s148–s149
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ID 778: HRO Resources During Different Types of Mass Gatherings: Developing a Generalized Collaborative Instrument

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Study/Objective: The aim of the study was to construct at predicative instrument, adapted to all HROorganisations useful on different types of mass-gatherings and events. The idea is the instrument can be used in collaboration when planning resources.
Background: The need of HRO organisations-resources, i.e. police, fire department and ambulance services vary depending on the type of event and mass-gathering. Available instruments are often predicting the need of resources from one HRO organization and also specialized to a certain type of event. This induces the need of a collaborative tool estimating risks and need of resources whether it is a concert, sport-event or a cityfestival. Such a generalized tool can possibly encourage organizers and HRO: organisations to meet and reach a common plan contributing to the safety of the event. Such a routine would contrast to non-collaborative and ad hoc behaviour when preparing mass-gatherings.
Methods: The tool was developed from an existing one made for concerts. Three expert groups, one academically specialists, one including senior officers and a third one including event organizers and HRO: specialists participated. Analysis of accuracy and inter-rater reliability was conducted through three simulated cases.
Results: The results revealed a mean of unweight kappa value from the three cases of 0.44 and a mean accuracy of 66%. Conclusion: The collaboration tool showed a substantial accuracy and moderate agreement when using simulated cases.
Conclusion: The instrument can be used in advance planning events. However, it cannot be used as a substitute for experience from senior officers but serve as a collaborative tool during preparation.
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ID 779: Quick Assessment of Intra Abdominal Pressure in Emergency: An Option for Better Decision Making in Cases of Blunt Trauma Abdomen

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Study/Objective: The study was designed with an objective to measure intra abdominal pressure using intra vesicular pressure monitoring in conditions predisposing to abdominal compartment syndrome in surgical trauma patients.
Background: IAH is defined as a sustained or repeated pathologic elevation of IAP of greater than 12 mm Hg. Serial monitoring of IAP warrants early initiative for conservative treatment of IAH before dangerous levels of IAH develops.
Methods: This study comprised of 30 patients who were above the age 10 years presented with acute abdomen with suspected intra abdominal hypertension. IAP was measured at 0hr, 8hr, and 16 hours. Data included demographics, main diagnosis on admission, APP (MAP-IAP), APACHE II score; ICU stay, hospital stay, complication and mortality.
Results: Total data of 30 patients was taken and IAH (IAP $\geq$ 12-20 mmHg) was observed in 18 (60%) of cases and ACS (IAP $\geq$ 20 mmHg) was noted only in 3 (10%). There was male preponderance 2.33:1 and raised IAH in 61.9% of males. Majority (46.7%) of patients were admitted with perforation peritonitis with significant abdomen distention (96.7%). The mean IAP at the time of study was 14.73 ± 2.83 ($P = 0.92$) in IAH group and was 19 ± 2.98 ($P = 0.74$) in ACS group whereas the mean APP was 53.60 $\pm$11.01 ($P = 0.92$) in IAH group and 39 ± 11.43 ($P = 0.97$) in ACS group. Mean Acute physiology score was 19.4 ± 6.4 while majority (47.6%) observed high APACHE II score (>20). Mean APACHE score in ACS group (27.3 $\pm$10) was higher with higher mortality rate 58.3 ± 31.94 as compared to IAH group (20.4 ± 6.04, mean mortality 34.78 $\pm$18.25). Medical therapy (isotonic crystalloids in 100%) and surgical therapy (midline laparotomy 86.7%) was offered in majority.
Conclusion: Raised IAP leading to IAH and ACS is a hidden threat to the surgical abdomen. For early prompt diagnosis & prediction of mortality, IAP and APP monitoring are effective.
Prehosp Disaster Med 2015;30(Suppl. 1):s149
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ID 780: Universal Travel Screening in the Emergency Department: A Case Series Illustrating Rapid Surveillance and Identification of Patients at Risk for Ebola Virus Disease in Colorado, USA

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Study/Objective: To illustrate a series of patients presenting to two Emergency Departments (EDs) in Colorado, USA that required further evaluation to rule-out Ebola Virus Disease (EVD).
Background: The ED, a crossroads of medicine and public health, has a unique responsibility to rapidly identify and isolate patients with potential epidemic infections such as EVD. Based on the Centers for Disease Control recommendations in the Fall of 2014, universal travel screening during ED triage was instituted at two Colorado Hospitals—University of Colorado Hospital, an academic tertiary referral center in Aurora, Colorado near a large refugee community and major international airport, and an affiliated community hospital in Colorado Springs.
Methods: A chart review was performed on a series of patients presenting to these two EDs who answered affirmative to at least one of two travel screening questions regarding travel to an affected country and/or contact with any person with EVD in the past 21 days. Of interest were travel history, clinical course, final diagnosis and disposition.
Results: As of December 10, 2014, positive travel screening identified four adult patients. Two traveled from endemic nations in West Africa. One was falsely reported after travel from Cameroon. The fourth had no international travel history but was a healthcare worker concerned about potential occupational exposures. Three out of 4 required investigation by infectious disease specialists or the state health department. Final diagnoses included acute otitis media, duodenal erosion causing hematochezia, and chronic lymphocytic anemia with tumor lysis syndrome and sinusitis. The fourth did not receive a definitive diagnosis but remains suspicious for sub-clinical malaria.
Conclusion: Epidemic emerging infectious diseases such as EVD may be low prevalence but can be high significance. Therefore, the ED, open to all comers, is charged with the responsibility to rapidly identify and isolate high-risk patients.

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ID 781: IV Acetaminophen in the Emergency Department: Impact of Educational Interventions on Prescribing Patterns

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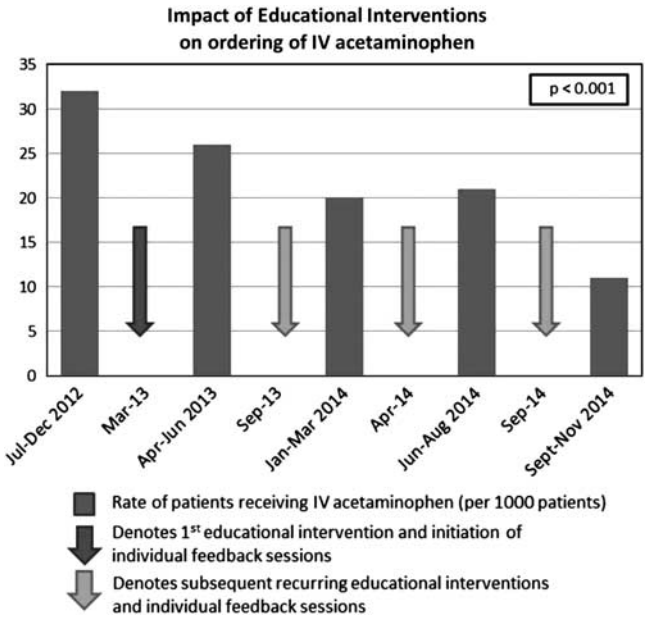
Study/Objective: This study aimed to examine the volume and appropriateness of intravenous (IV) acetaminophen orders in the emergency department (ED) and to implement a physician-based educational intervention about IV acetaminophen use.
Background: Appropriate, cost-effective medication use is an important focus in quality improvement aimed at physicians. IV acetaminophen is equally effective as oral acetaminophen, but is much costlier. Physicians may be unaware of its cost and may order it for inappropriate indications.
Methods: A retrospective chart review was conducted in the Al-Rahba hospital ED in the UAE to assess volume of IV acetaminophen orders (July-December 2012). Orders from 100 randomly selected charts were assessed for appropriateness (considered appropriate if patients had nausea/vomiting, were receiving opioids or were in severe pain, or had persistent fever >1 day despite antipyretics). Appropriate indications and current usage trends were shared with physicians in educational interventions supplemented by individual feedback sessions targeted at frequent prescribers. Volume and appropriateness of use were assessed after the intervention (April-August 2013). 3 subsequent educational and feedback sessions (emphasizing evolving usage trends) were conducted; each was followed by a 3-month volume assessment period.
Results: Initially, on average, 211 patients received IV acetaminophen each month. 60% of sampled orders were inappropriate. After the first intervention, on average, 167 patients received IV acetaminophen per month. Only 35% of sampled orders were inappropriate ($p = 0.002$). The initial and subsequent interventions correlated with 41% overall decrease in IV acetaminophen prescribing rate (95% CI: 38% to 46%). A sustained, significant trend towards decreased IV acetaminophen prescribing was seen over the repeat audit periods ($p < 0.001$) (fig 1).
Conclusion: Repeated educational interventions were correlated with decrease in overall and inappropriate use of IV acetaminophen. This study demonstrates the utility of ongoing direct physician feedback in sustainably modifying physician behavior. It highlights the need for physician awareness of cost and indications for frequently-prescribed medications.



Prehosp Disaster Med 2015;30(Suppl. 1):s150
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ID 782: Development of a Global Mentorship Programme to Support African Emergency Nurses

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Study/Objective: This presentation will describe the creation of a global mentorship arrangement designed to support emergency nurses in Africa and the potential benefits and limitations of such a project.
Background: Emergency nurses care for patients in the emergency or critical phase of their illness or injury, focusing on the level of severity and time-critical interventions. The emergency nurse identifies life-threatening problems, prioritises care, and initiates resuscitation and appropriate management often as the first health professional the patient comes into contact with. In Africa emergency nursing is delivered in a range of acute clinical and community based health contexts with much variation across the various countries.
Methods: In November 2011, an international emergency nursing workgroup convened in Cape Town, South Africa, to develop a framework for emergency nursing in Africa with implications for nursing education and training, continuing education, and staffing at institutional and regional levels throughout the African continent. This was followed up in 2013 with the development of a Pan African Emergency Nursing Strategy with the specific aim to develop and implement a theoretical and competence framework for emergency nursing in Africa. In order to provide support and continuing professional development for emergency nurses in Africa a mentorship programme was developed. Examples exist of Afrocentric mentorship arrangements which enhance the personal development and expertise of novice health practitioners however no current mentorship infrastructure exists to support the development of emergency nurses in Africa.
Results: Experienced emergency nurses from around the globe were invited to participate in this mentorship programme to embrace the development of emergency nurses in Africa; providing support and guidance to these nurses in the difficult work they do.
Conclusion: The further development of emergency nurse in Africa can be enhanced by a robust global mentorship infrastructure.

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ID 783: GHHA Working Group III: Creating a Sustainable Business Model

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Study/Objective: To design a sustainable business model for the new Global Humanitarian Health Association (GHHA).
Background: To address the need for qualified humanitarian health practitioners, leaders and key stakeholders in the humanitarian sector have come together to develop a unified platform of professionals: the first Global Humanitarian Health Association. GHHA promotes the professionalization of the humanitarian health sector. It aims to be a neutral interface between aid organizations, private and academic sectors, and other interested parties. GHHA aims to address the need for greater professionalization of the humanitarian workforce, to promote the rigorous implementation of evidence-based practice ethical guidelines and best practices, and to foster a culture of innovation and knowledge dissemination.
Methods: The business model for GHHA was developed through an extensive research and consultation process. This involved an evaluation of ten professional organizations and a comparative analysis of their status, mission, management structure, revenues and operations amongst other categories. Interviews with key stakeholders were performed, and a working group conducted consultations with individuals from the academic, humanitarian and business sectors. The business plan will be presented to a broader collective of stakeholders in Montreal, Canada in January 2015. A final version will be drafted based on the outcomes of this working meeting.
Results: A five-year sustainable business model for the GHHA including mission, goals of the organization; structure and membership; financial planning, revenues and costs; timelines and next steps.
Conclusion: The GHHA will be built on a sustainable plan based on external grants and membership subscriptions its first three years of operations. As membership numbers grow each year the proportion of external grants to membership fees will remain relatively constant – reflecting the growth in the size of the association and the work that it will be undertaking. By its fourth year of operation GHHA will move near financial self-sufficiency in non-project related operating costs.

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ID 785: Women's Considerations in Disaster Risk Reduction (DRR) Trainings

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Study/Objective: Understand health challenges and vulnerabilities women face in order to develop strategies to engage women and minimize the effects of disasters.
Background: Historically and culturally-rooted unequal power relations create challenging social conditions for women, placing

them at increased vulnerability especially in disasters. Understanding the impact of disasters with respect to gender helps identify factors that increase vulnerability. In February 2014, UIC and Haitian-community leaders collaborated to conduct focus groups to understand roles and realities women face in communities where DRR trainings are conducted. Incorporating a gendered-perspective considers needs specific to women to develop effective strategies for DRR.

Methods: A focus group was conducted with women >18-years old and living in Bel-Air, Port-au-Prince. Grounded theory was used to analyze a direct-transcription of the session. Objectives were to: identify perceived gaps in health information needs and determine key content areas for a women's health DRR module.

Results: Qualitative data analysis identified 3 themes that can be integrated into trainings. Each category: 'Community Concerns', 'Women's Health', and 'The Female Role and Identity' represents characteristics that contribute to vulnerability of women in Bel-Air. The categories serve as content areas in a proposed women's health module within a DRR-training program. Additionally, several positive attributes emerged, indicative of optimistic attitudes women expressed. These strengths are important assets that can be leveraged to foster overall community resilience.

Conclusion: Analysis provides a foundation for women's health education within DRR trainings. The findings reflect thoughts, needs, and concerns of women in Bel-Air. Study limitations include single community, small sample size, narrow and younger age-range, making it challenging to generalize findings to the entire female population. However, it is imperative to incorporate women's perspectives of access to resources, legal protection, reproductive needs, and decision-making, in creating any women's health module. The sensitive nature of gender-based-violence and issues surrounding gender-dynamics in Haiti demands careful implementation.

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ID 786: The Burden of HIV Disease on an Emergency Department in a District Level Hospital in Kwa-Zulu Natal, South Africa

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Study/Objective: To determine the burden of Human Immunodeficiency Virus infection and co-infection on a district level Emergency Department (ED) in KwaZulu Natal.

Background: Human Immunodeficiency Virus (HIV) is a leading cause of morbidity and mortality in Sub Saharan Africa. The province of Kwazulu Natal is particularly affected; reportedly having the highest number of HIV related deaths and thus, carrying a high burden of the disease. However, little is known about the direct impact of HIV and its related disease presentations on emergency departments.

Methods: A retrospective review of the case notes of adult medical patients who presented to the ED over a 3month period was evaluated. Patient demographics, HIV status, disease presentation, severity of illness, investigations undertaken and length of stay in the ED were assessed.

Results: A convenient sample of 861 files collected from March until May 2014 were reviewed. An HIV positive prevalence rate of 50 % was found. This prevalence rate may well be higher as 37% of patients had an unknown HIV status. 89% of the HIV positive patients were admitted to hospital versus 83% of the remainder. This was found to be significant ($p < 0.02$). Further details on triage and disease presentation will be discussed.

Conclusion: There is indeed a heavy HIV disease burden in KZN. At least 50% of cases presenting to the ED have a known HIV positive status. This further impacts on hospital resources as this group has a higher admission rate than non-HIV cases.

Prehosp Disaster Med 2015;30(Suppl. 1):s152
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ID 788: Disaster in Tanzania: Lessons Learned in a New Emergency Medicine Department in Sub Saharan Africa

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Study/Objective: To compare staff participants' perception of EMD's first disaster response to the perception of the response to a recent disaster after the implementation of a new disaster response plan.

Background: Since the first Tanzanian EMD was opened until the time of writing, seven significant disasters have occurred in the country that has been managed by this EMD.

Methods: This was a descriptive comparative study assessing the management of disasters by the EMD. Prospective survey data was collected in order to assess the staff perception of the EMD disaster management during a 12-story building collapse that occurred in 2013 after establishment of disaster plan compared with available data on EMD's first disaster during the ammunition's explosions at an army base in 2010.

Results: Twenty-four staff who were present for the building collapse responded, of whom 14 were present at both disasters. During the building collapse successes listed included quick organization, mobilizing staff, sending EMD physicians to triage patients in the field, managing and disposing patients in time. Challenges listed were lack of prehospital care (33%) and running out of supplies in the EMD (21%). During the building collapse disaster, the EMD and other department staff were notified via phone calls and text messages. Among those respondents present at both disasters, the majority (93%), thought, this mechanism worked better than the first MCI. Communication between the EMD and the field was observed to be easier and better by 71.4% of respondents. Teamwork among departments was thought to be the same by 85.7%. Regarding triage, 71.4% thought this process was better and more organized in the second disaster.

Conclusion: After establishment of disaster plan in EMD, communication and triage seems to have improved. Areas for further improvement identified would be building prehospital response, and improving the supply chain in the EMD.

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ID 792: A New Research Platform for Training of EMS Personnel

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Study/Objective: The aim of the present project is to develop an integrated platform for research on training for EMS personnel.
Background: There are many challenges to effective and realistic training of EMS personnel. Because accidents may occur anywhere, work activities and provision of care will take place in a wide range of environments, including transportation between them. The work situation is often characterized by stress and lack of information. Because of the complexity of the prehospital care process, current training approaches are not sufficient for effective training. At present, different aspects are typically trained in isolation, e.g. medical skills using patient simulators.
Methods: In order to create an enhanced learning environment covering all aspects of the prehospital chain, a collaboration between the Centre for Prehospital Research at the University of Borås, the School of Informatics at the University of Skövde and the Region Västra Götaland ambulance services has been established. A more advanced training process covering the entire prehospital chain of events with integrated technology support is enhanced by game based training. The game components include rich scenarios and challenges to further enhance immersion and engagement.
Results: A pilot study has been performed, in which 20 subjects participated. All subjects were experienced EMS personnel. Preliminary results based on observations, interviews and surveys indicate that the enhanced rich scenarios were considered superior to traditional simulation scenarios for the entire chain of events, from the initial ambulance alarm to the final handover process at the ED.
Conclusion: A serious gaming/immersion environment seems beneficial for the training of EMS personnel. The integrated technology support has made it possible to capture a large quantity of soft data (e.g. communication and team work) as well as hard data (e.g. vital parameters from patient simulators and process adherence parameters). This information is yet to be analysed.

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ID 794: A Qualitative Analysis to Map Intervention Efforts to the Ebola Epidemic Curve

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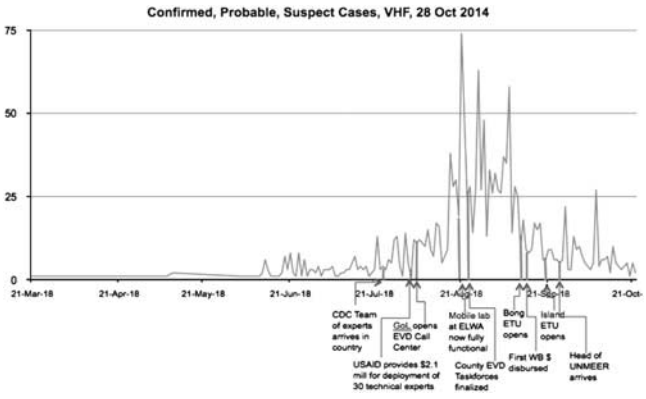
Study/Objective: To identify which interventions could or could not have contributed to the steep decline in Ebola Virus Disease (EVD) transmission observed in Liberia in September 2014.
Background: The Ebola epidemic in West Africa began with an index case in Guinea in December 2013 and rapidly spread to Liberia by March 2014 and peaked in late August. Major international funding and response efforts began in August/September.
Methods: Surveillance data and case reports from the Liberian Ministry of Health were used to plot the epidemic curve and R-value. A systematic review of EVD situation reports from CDC, USAID, Liberian Ministry of Health (MOH), WHO, and UNICEF was conducted, from which data on activities, personnel, and funding were coded and extracted. Gaps in information were filled by minutes and action logs from EVD response meetings, as well as news articles. Key interventions were plotted against the epidemic curve and reproductive number using R, version 3.1.2.
Results: Major international response efforts focused on construction of Ebola Treatment Units (ETUs), laboratory strengthening, deployment of expert personnel, and financing. The number of daily suspected, probable and confirmed cases peaked at 127 in the third week of August and declined rapidly to approximately 20-per-day in late October. Yet, the vast majority of international personnel and funding arrived well after this decline began.
Conclusion: The epidemic curve had decreased prior to implementing the full ETU building program and before many international programs or personnel were in place. Evidence indicates that widespread and pervasive behavior change of Liberians most likely had the greatest impact in slowing the transmission of Ebola in Liberia.



Prehosp Disaster Med 2015;30(Suppl. 1):s153
doi:10.1017/S1049023X15004240

ID 795: Alaska Medical Station (AMS): A New Disaster Resource in an Earthquake Prone Zone

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Study/Objective: To evaluate the AMS, observe and document the flow of this new disaster resource, as well as the interactions of the National Guard with the local disaster personnel.
Background: Alaska Shield (AS2014) 2014: multidisciplinary drill emulating 2nd largest recorded earthquake (magnitude 9.2) and resulting tsunami on March 27, 1964. Alaska is isolated, has a population 3x larger than 1964, and averages 1000 events/month (11% of world's recorded earthquakes). AMS was staffed by local disaster personnel and the National Guard (NG). There was a separate "OR" operated by Samaritan's Purse.
Methods: Alaska Office of EMS invited our team (15 disaster evaluators) to observe the drill. AMS was outfitted with specific zones: triage, pharmacy, registration, treatment, psychosocial, discharge, and a separate non-medical shelter area.
Results: Limitations and "lessons learned" identified include:
- Flownurses not well-versed in "triage". Emergent identification and management of critical patients/issues suboptimal. Efficiency and psychosocial management were problematic.
- Registrationweight, height, picture required for child identification/protection.
- Medical Surge Capacitynever tested, and staff refused "inject".
- Securitygreater security presence required in triage and for behavioral health.
- Lack of physical familiarity with AMS:
- Communicationdeficit in radios identified; poor communication between areas.
- Samaritan's Purseworked very well, but overused. "Treatment Area" with highly trained medical staff underutilized for stabilization and medical treatment.
- Designated Areas needed "Private Area" for interviews, "Family Reunification", "Child Safe Zone", Behavioral Health".
- Pharmacystock and resupply were identified as potential weaknesses based on population medical demographic.

Conclusion: This new "Medical Station" built within any intact, large structure is unique and helpful for disaster response. NG and AK teams worked well together. An independent OR was shown to be very beneficial. Advance familiarity with basic set-up is vital as well as identifying qualified staff, pre-assigning roles, identifying transport needs/resources and conducting regular drills will improve response capabilities for next earthquake.

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ID 798: Analysis of State-level Guidance on the Implementation of Crisis Standards of Care in Hospitals in the United States

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Study/Objective: This study seeks to provide details on how many states are publically acknowledging the process of developing crisis standards of care, how many have legal guidance for their practitioners, and what care areas are commonly addressed.
Background: Disasters such as Hurricane Katrina in 2005 and the Haiti Earthquake in 2010 have brought the relevance of crisis standards of care to the forefront of emergency and disaster medicine. In 2009 the Institute of Medicine developed guidance to assist health officials in creating standards of care in times of disaster, and in 2012 released a report with further clarification. Many states have yet to implement guidance for their health practitioners, despite the annual occurrence of disasters that stretch resource utilization and care options in the United States.
Methods: A web-based search was conducted of state Departments of Public Health, Hospital Preparedness and Emergency Preparedness for publically available documents. The Assistant Secretary of Preparedness and Response (ASPR) Communities of Interest site as well as the Center for Disease Control's Office of Public Health Preparedness and Response listings were included. Data was collected on states conducting protocol development protocols, states with publically available complete protocols, protocols addressing ventilator usage and protocols reliance on their influenza planning as guidance.
Results: Forty-two of fifty states are currently developing or have released guidance on crisis standards of care. 68% of states have no guidance for their practitioners. Sixteen states have publically available guidance, all of which are heavily based on their influenza planning. All of these plans address ventilator usage and usage of critical care resources. Some of these plans also specifically address burn care.
Conclusion: While there is some guidance on crisis standards of care that is well developed in the United States, many states have yet to establish specific care guidelines for their physicians.

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ID 799: Analysis of the Implementation of Crisis Standards of Care Internationally

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Study/Objective: This study seeks to provide an overview on the status of implementing crisis standards of care in the international health community.
Background: Disasters such as Hurricane Katrina in 2005 and the Haiti Earthquake in 2010 have brought the relevance of crisis standards of care to the forefront of emergency and disaster medicine. In 2009 the Institute of Medicine developed guidance to assist health officials in creating standards of care in times of disaster, and in 2012 a report was released with further clarification. Despite this timeline, many areas have yet to implement guidance for their

health practitioners, despite the annual occurrence of disasters that stretch resource utilization and care options internationally.
Methods: Independent web-based searches were conducted of Ministries of Health, Departments of Public Health, Hospital Preparedness and Emergency Preparedness of six countries for publically available documents. Data was collected on areas conducting development of protocols, areas with publically available protocols, and details of any existing protocols. Countries surveyed include: India, Ireland, Italy, Saudi Arabia, Thailand, and the United States of America.
Results: Of the six countries surveyed, only two have indications they are working towards developing or have released guidance on crisis standards of care. Both Ireland and the United States have some progress towards resource utilization of ventilators during times of disaster. In the United States, 68% of states have no official guidance for their practitioners. All surveyed countries have general disaster protocols in place or in development.
Conclusion: While the international community has worked to address disaster preparedness and planning on a national level, there is still a gap in addressing the specifics of medical care and liability associated with resource utilization during a time of crisis.
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ID 801: 2014 Attacks on Health Care Workers: an Assessment of the Extent of the Problem

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Study/Objective: The study objective was to compile and analyze 2014 data and reports on violence to health care workers, facilities, vehicles, and patients in complex humanitarian emergencies and to provide discussion on the implications of the problem pertaining to short- and long-term health care systems.
Background: The World Health Assembly has passed several resolutions on attacks in health care. The issues, initially around health and medical services in armed conflict, have extended to address the need to: strengthen health care facilities, implement preventive measures, and provide leadership at the global level to develop methods for systematic collection and dissemination of data of these attacks.
Methods: Quantitative data were compiled using open source, online data systems e.g., ACLED, Aid Worker Safety Database, media reporting, and compiled into a database that resolved duplications. Qualitative reporting augmented the data with report summaries from relevant actors, e.g., International Committee for the Red Cross, Doctors without Borders, and Physicians for Human Rights.
Results: Over 300 attacks, representing over 30 countries were identified within this 22-day study period. Approximately 30% of the initial attack resulted in secondary or tertiary attacks causing additional injuries and/or deaths. Attack definitions, however, were frequently subjective and created discrepancies among the data. Source verification, particularly for individual reporting, was sometimes questionable, creating a need for minimum and consistent standards of data collection. A lack of reporting specific to nationals affected in this health care context existed.
Conclusion: The extent of the attacks on health care is inconsistently reported and has elements of questionable source reliability and validity. Under-reporting is likely occurring and may be influenced by unknown factors, e.g., disincentives for reporting. Data standardization, code-book creation, and data collection guidance would improve reporting precision among actors. A central data repository would add efficiency to document the full extent of violence in health care problem.
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ID 802: Professionalizing Humanitarian Health Practice: Global Humanitarian Health Association

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Study/Objective: The Global Humanitarian Health Association (GHHA) is a newly formed consortium of humanitarian health training and education organizations aimed at addressing the need for a unified platform for professional, certified humanitarian health practitioners in the humanitarian sector. As a neutral interface between aid organizations, academic institutions, the private sector, and other interested parties, GHHA will manage a wide spectrum of issues pertaining to the professionalization of humanitarian healthcare, including accreditation of education and training organizations, and certification of individuals. Building on prior work done by ELHRA, GHHA joins the professionalization movement in endorsing a rigorous and standardized approach to training, certification, and practice. GHHA will promote the implementation of evidence-based and ethically sound principles in humanitarian practice, through supporting a culture of scientific rigor, innovation and knowledge sharing.
Background: GHHA, representing the quality performance interests of the worldwide humanitarian health community will be initially registered as a charitable non-governmental organization in Canada (with global remit). WADEM or other designated institution will host its secretariat.
Methods: After an initial planning meeting in Montreal (January 2015), the inaugural GHHA meeting will take place in April 2015 during the World Association of Disaster and Emergency Medicine (WADEM) world congress in Cape Town, South Africa. Vested organizations will be signatories of a Marco Polo Declaration facsimile document committing them to uphold GHHA precepts and Association working groups will present their progress to date for discussion and further development.
Results: Current members represent institutions and organizations including but not limited to: the Centers for Disease Control, George Washington University, Harvard University, Enhancing Learning and Research for Humanitarian Assistance (ELRHA), the International Society of Physical and Rehabilitation Medicine, Johns Hopkins University, McGill

University, Professionals in Humanitarian Assistance and Protection, the University of China at Hong Kong, Universita del Piemonte Italy, the UK International Trauma Registry, the World Association for Disaster and Emergency Medicine and the World Health Organization.

Conclusion: GHHA's organization, business plan, communication strategy, and blueprints for registration, accreditation and certification are presented through its six working groups, in the following sections.

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ID 803: GHHA Working Group VI: Developing Certification for Humanitarian Health Professionals

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5. Research Center in Emergency and Disaster Medicine and Computer Science Applied to Medical Practice (Novara/Italy)
6. Harvard Humanitarian Initiative, Harvard University (Cambridge/MA/United States of America)

Study/Objective: To establish GHHA certification standards for humanitarian health professionals.

Background: Currently there are no established global standards to guide the certification process for humanitarian health training. There are a wide range of programs, the world over, ranging from short online courses to comprehensive master's programs in disaster medicine. GHAA will formulate guidelines for establishing competency based certificaiton in humanitarian health training.

Methods: Building on prior work done by ELHRA, GHHA joins the professionalization movement in endorsing a standard route to certification involving completion of competency-based curriculums, and demonstrating competency through examination or experience. Through an iterative, inclusive and consensus-based process, involving a comprehensive review of published literature, consultations with existing training programs and accredited providers, and roundtable workshops, this WG will a) define core competencies for entry-, mid- and higher-level candidate humanitarian health professionals; b) identify pathways for competency acquisition: didactics, simulations, field-experience c) develop standardized metrics for documenting competencies, and d) develop standards for maintenance of certification. Aligning with the WG on Accreditation, recommendations for certification process and product will be formulated.

Results: The exercise will result in guidelines for a standardized but non-linear, dynamic, certification process that will allow for, and reflect, modular and incremental expansion of competencies through the practitioner's career. The guidelines will support the work of the WG on Accreditation, providing an additional layer of granularity for training and certification. This group will also work with the WG on Global Registry to ensure that the registration data will also reflect the nuances of competencies and certifications addressed here. The product from this project will be a Certification Framework for humanitarian health professionals worldwide. Expected completion date: 2015.

Conclusion: The product from this project will be a Certification Framework for humanitarian health professionals worldwide. Expected completion date: 2015.

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ID 808: Alaska Shield 2014 Drill: Evaluating This International Drill in "The Last Frontier" State. Is EMS Ready When this Occurs Again?

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Study/Objective: Five EMS experts within our disaster team evaluated the EMS system and its readiness for a large-scale event. Different factors were looked at including education, protocols, surge capacity, and quality metrics.

Background: Alaska Shield (AS2014) 2014: multi-disciplinary, international drill emulating the 2nd largest recorded earthquake (magnitude 9.2)/tsunami on March 27, 1964. Alaska facts: isolated, has 11% of the world's recorded earthquakes (average 1,000/month), and population has tripled since 1964. With a very limited initial national response, local EMS needs to be ready and trained.

Methods: Alaska Office of EMS invited our team (15 disaster evaluators including 5 EMS experts). We visited 6 hospitals, Emergency Operations Center, Alaska Medical Station, and cities of Valdez and Fairbanks. EMS agencies were interacted with randomly. Transport of pre-designated patients was observed (staffed by military and US Public Health Service).

Results: Limitations and "lessons learned" identified include:

1. Alaska EMS lacks appropriate protocols. Uniform "standard protocols" and "point-of-entry protocols", especially with an MCI in isolated geographical area.

2. Educational standards limited for EMS personnel. Certification requirements substandard when compared nationally. CME, disaster education/preparation, and general education suboptimal.

3. EMS drill participation suboptimal because Alaska EMS operates at 100% capacity daily. Response to real disaster will be challenging given no "surge capacity". Opportunities for disaster drills important for EMS personnel and systems.

4. "Medical Direction" and consistent physician oversight is lacking. Lack of consistent standards with respect to "Quality Assurance and Improvement".

5. Communicationsignificant reliability on cell phones identified despite cell towers non functional in drill. Facility

updates, communication with hospitals, and communication between sites not fully tested.
Conclusion: Like Alaska, many countries lack funding, proper oversight, and resources for EMS. EMS is an integral part of disaster response, decreasing morbidity and mortality. Education, medical oversight, drill participation, and quality assurance are key to any effective EMS system particularly in the Last frontier state.
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ID 809: GHHA Working Group V: Developing Accreditation of Training Programs

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6. Harvard Humanitarian Initiative, Harvard University (Cambridge/MA/United States of America)

Study/Objective: To establish GHHA humanitarian training program accreditation standards. To design a framework to support both the development and evaluation of competency-based professional humanitarian training programs that meet GHHA accreditation standards.
Background: The first Global Humanitarian Health Association (GHHA) meeting in January 2015 will address the need for a unified platform of professional, qualified humanitarian health practitioners, leaders and key stakeholders in the humanitarian sector. As a neutral interface between governmental, inter-governmental, and non-governmental organizations, private and academic sectors, and other interested parties, GHHA will manage a wide spectrum of issues pertaining to the professionalization of humanitarian healthcare. This will include the accreditation of humanitarian training programs at institutions and organizations globally. The training programs at accredited institutions and organizations will be required to meet competency-based key indicators.
Methods: GHHA training program accreditation standards will be developed using a multifaceted approach including stakeholder meetings, surveys of current humanitarian training programs and a review of the published and grey literature. First, a GHHA Training Program Accreditation Framework will be developed by drawing on systematic, preliminary, formative, and summative approaches. This will include a document scan of humanitarian educational training materials and course curriculum from universities with humanitarian health training programs, the Consortium of British Humanitarian Agencies (now START) Competencies Framework, and other relevant evaluation materials. Data from surveys of current competency-based humanitarian training programs will be reviewed to assess for common themes in core humanitarian competencies. Stakeholders representing both academic institutions and programmatic agencies in the humanitarian sector will meet in January 2015 to review these materials and develop a preliminary version of a Systematic Educational Evaluation (SEE) Framework that outlines the evaluation processes and tools required for GHHA to effectively assess humanitarian training program content. Finally, this new framework will be pilot tested against a humanitarian training program at a leading university.
Results: This project will produce an Accreditation Framework for the development and evaluation of humanitarian training programs. The program evaluation will highlight key indicators in the assessment of (1) training program learning objectives and content; (2) training program implementation, and, (3) training program outcomes. The Accreditation Framework will also serve as a tool to identify essential program components, which can be used in the development of future humanitarian training programs.
Conclusion: This project will produce an Accreditation Framework for the development and evaluation of humanitarian training programs.
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ID 810: GHHA Working Group IV: Building a Global Registry

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4. Case Western Reserve University (Cleveland/OH/United States of America)
5. Center For Global Health And Development, Boston University (Boston/United States of America)
6. Humanitarian Studies Initiative, McGill University (Montreal/QC/Canada)
7. World Association for Disaster and Emergency Medicine (Kamloops/BC/Canada)

Study/Objective: To create a global registry of humanitarian health workers, consolidating data from the pre-existing credentialing systems of academic institutions and deploying organizations.
Background: GHHA, representing the quality performance interests of the worldwide humanitarian health community will be initially registered as a charitable non-governmental organization in Canada (with global remit).
Methods: Research was conducted to seek out other similar registries or past attempts at creating registries, and these findings were discussed by a team of interested parties from the US, Canada and Italy. The model itself is being developed by a team of senior systems designers with extensive background in

cyber security based in British Columbia, Canada. Since the registry will be in accordance with Quebec privacy laws, special attention is being paid to developing a functional trusted third party model. Individuals in the registry will be assigned a unique identifier similar to the Canadian HINC number. A full plan of the registry and credentialing process will be outlined by January 2015 and a working model of the registry will be presented in April 2015.

Results: A trusted, third party based global registry of humanitarian health workers in which individuals are assigned a unique Humanitarian Health ID (HH-ID) Number. Accredited Organizations (AO) can access, add, and edit individual's credentials and the registry will be an invaluable resource during all humanitarian emergencies, ensuring that the most effective and appropriate response teams are deployed.

Conclusion: The perpetuity of the Global Humanitarian Health Association will depend on the success of the registry and its credentialing component. The registry must be sustainable and maintain relevance which can be achieved solely through the buy-in of major actors in the sector.

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ID 811: Learning to Write, Baby Steps for the Research Novice

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Study/Objective: To demonstrate effective strategies to improve production for the novice researcher.

Background: Many undergraduate programs now include formalised teaching in Medical informatics however such curricula do not always include the technical electronic (no prosaic) writing skills that the novice researcher requires. Established or experienced practitioners may not have benefitted from such undergraduate experiences and will more likely provide services in an environment where the Windows platform is dominant. As a result the medical researcher is faced with challenges when looking for technical help with regard to finding evidence, access to data, data management and production of a referenced well structured electronic report.

Methods: We developed a short program focussed not on prosaic skills but on learning how to save, store and apply a standard nomenclature to documents to ensure the novice applies a consistent approach to document management. The next step focuses on search skills and gaining an awareness of the various onlne electronic repositories and how to search them directly or by using an interface reference management software application. Once source materials are found we teach the novice how to manage the digital files both manually and also usng software products which store the retrieved pdf documents in a usuable database. Final step involved document production including physically managing references and also formatting a bibliography or reference list manually and also using a software application.

Results: Through this brief intervention novices report increased confidence in their ability to source research materials, manage a data repository and write a research report.

Conclusion: Research skills are hard learned for many of us involving much trial and error. We have developed a simple brief program to develop the skills of research novices utilising widely available software products which has enhanced the novices ability and in some cases developed competent technical writers in short time periods.

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ID 812: Derivation and External Validation of a Novel Prediction Score for Early Trauma Care

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Study/Objective: To establish a simple tseverity score for early trauma care.

Background: The Revised Trauma Score (RTS) was widely accepted as a prediction score in early trauma care, however was not easily to calculate at bedside. We investigated derivation and external validation of easy-to-calculate trauma score based on information of the primary survey in trauma care using data from the Japan Trauma Databank (JTDB, the derivation cohort) and Clinical Randomisation of Antifibrinolytic in Significant Hemorrhage 2 (CRASH-2) trial cohort (the external validation cohort).

Methods: On the derivation cohort, a logistic regression analysis to predict in-hospital death selected significant predictors which was available at the primary survey of trauma care. We designed TRIAGES (Trauma Rating In Age, the Glasgow coma scale, Respiratory rate and Systolic blood pressure) which can be simply calculated by sum of numerically scored categories of age and vital signs and ranges from 0 (mild) to 18 points (severe). Receiver operating characteristics (ROC) analysis and net reclassification improvement (NRI) analysis compared TRIAGES score and RTS on the external validation cohort.

Results: TRIAGES score and RTS were tested in 20197 subjects in the external validation cohort. ROC analysis demonstrated improved accuracy of TRIAGES score in comparison to RTS (area under curve of 0.816 versus 0.811, difference of 0.005 [95%CI 0.002-0.009] in bootstrapping). Furthermore, TRIAGES score demonstrated improved reclassification in comparison to RTS (continuous NRI of +0.182, 95%CI 0.144-0.221, $P < 0.001$). Optimal threshold for TRIAGES score and RTS to predict trauma death on the external validation cohort was ≥ 3 (sensitivity, specificity, positive and negative likelihood ratio of 0.870, 0.548, 1.925 and 0.238) and <7.2 (sensitivity, specificity, positive and negative likelihood ratio of 0.852, 0.563, 1.948 and 0.262), respectively.

Conclusion: A novel and easy-to-calculate TRIAGES score demonstrated predictability of trauma death slightly accurate than conventional RTS. We expect to implement TRIAGES score in early trauma care.

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ID 814: GHHA Working Group VIII: Developing Accreditation Standards

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4. Harvard Humanitarian Initiative, Harvard University (Cambridge/MA/United States of America)

Study/Objective: To conduct a literature review to identify existing competency sets for disaster management and humanitarian action that would serve as a guidance for the development of GHHA accreditation standards for training programs.
Background: The first Global Humanitarian Health Association (GHHA) will address the need for a unified platform of professional, qualified humanitarian health practitioners, leaders and key stakeholders in the humanitarian sector. As a neutral interface between aid organizations, private and academic sectors, and other interested parties, GHHA will manage a wide spectrum of issues pertaining to the professionalization of humanitarian healthcare. This will include the accreditation of training programs at partner institutions and organizations globally. It is well know that competency–based education and training represent the cornerstone in the professionalization of disaster medicine and humanitarian aid. Therefore, the training programs at accredited institutions and organizations must meet competency-based key indicators.
Methods: As a part of a multifaceted approach to develop GHHA training program accreditation standards, a systematic review of English-language articles was performed (according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) checklist) on Pubmed, Google Scholar, Scopus, ERIC and Cochrane library. Studies were included if reporting competency domains, abilities, knowledge, skills or attitudes for professionals involved disaster relief or humanitarian assistance. Exclusion criteria included abstracts, citations, case studies and studies not dealing with disasters or humanitarian assistance.
Results: Thirty-height papers were analyzed. Target audience was defined in all articles. Four references (10%) reported cross-sectorial competencies. Most of the articles (73%) were health-care specific. Eighteen (47%) papers included competencies for, at least, two different disciples and eighteen (47%) for different professional groups. Nursing was the most widely represented cadre. Eighteen papers (47 %) defined competency domains and thirty-six (94%) reported a list of competencies. Eighteen articles (47%) adopted consensus-building to define competencies and 12 (31%) included competencies adapted to different professional responsibility levels.
Conclusion: This systematic review revealed that a high number of papers were mainly focused on the health-care sector. The lack of agreement on the terminology used for *competency* definition and phrasing precluded Authors to develop a comprehensive competency framework on the basis of the articles reviewed. Further efforts to define and standardize and validate a competency-based education framework in disaster medicine and humanitarian assistance are needed.

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ID 815: Disaster Sim Day: Resident Emeregency Preparedness Training Utilizing High Fidelity Simulation and Rotating Hands-on Work Stations

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Study/Objective: To test trainee comfort level with core competencies in disaster medicine before and after simulated, hands-on, and didactic training sessions and to demonstrate their knowledge acquisition through improved performance on pre and post quiz results.
Background: The American College of Emergency Physicians defines disaster medicine and emergency preparedness as core curriculum components for Emergency Medicine (EM) resident training programs. Educational curriculum in this area remains unstandardized, despite evidence that many hospitals worldwide are under-prepared to function in a disaster.
Methods: We developed a 1 day (2.5 hour) disaster medicine course for residents and students designed to expose future EM providers to core concepts in emergency preparedness. Two groups rotated between stations which included an organophosphate poisoning simulation, donning and doffing of level C PPE, orientation to a state-of-the-art hospital decontamination unit, mass casualty triage exercises, and interactive debriefing and didactic sessions. Trainees participated in pre and post surveys of the event.
Results: Trainees (n = 14) included 11 emergency medicine residents, 1 medical student, and 2 faculty. 36% reported no prior experience with provision of medical care in a disaster setting. The mean (SD) score for the pre-test was 4.6 (1.55), or 57% correct. After training, the mean (SD) score was 6.9 (0.73), or 87% ($p < 0.0001$). Participants also completed pre and post-training surveys in which they ranked their level of comfort with various disaster medicine concepts and skills.
Conclusion: EM resident training programs can benefit from participating in high-quality medical disaster exercises. Residents report high satisfaction and demonstrate effective learning from just 2.5 hours of high-yield curriculum.

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ID 816: Inapparent Ebola Infections: Symptom-based Case Definitions Fail to Identify Laboratory-positive Cases

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Study/Objective: We evalulated the performance of a commonly-used definition of a probable Ebola case, based on symptom and contact history, which is used prior to definitive diagnosis based on laboratory testing.

Background: In many infectious disases, any unknown fraction of infections do not display the symptoms that are commonly associated with the disease, increasing the probability that these cases will go undetected, which hinders prospects for surveillance and effective control. The clinical symptoms of Ebola can be non-specific and mimic many common conditions, making them difficult to diagnose without laboratory testing. During an Ebola epidemic, in the event that laboratory testing is not available, or while waiting for laboratory results, the World Health Organization recommends assessing the probability of Ebola using symptom and contact history.

Methods: We tested this approach, using data on 329 safe and dignified burials conducted by the International Federation of Red Cross and Red Crescent Societies (IFRC) during the recent Ebola epidemic in West Africa. The data contained both symptom and contact history, as well as the results of a laboratory test on an oral swab sample taken at the time of burial.

Results: The majority of laboratory-positive burials did not fit the definition of a probable case. Furthermore, neither the number of symptoms, nor the presence or absence of contact with a known or suspected Ebola case were significantly associated with a positive laboratory test.

Conclusion: Safe and dignified burial programs are critical to controlling Ebola epidemics, particularly in areas where access to formal healthcare is limited. The decision to do a safe and dignified burial should not be based on symptom or contact history. Employing safe burials, or other Ebola management strategies, based on symptom or contact history alone risks overlooking a majority of the infections.

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ID 817: Community Resilience and Human Trafficking: A Thailand Flood Qualitative Analysis

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Study/Objective: Our objectives were to gain an understanding of how community resilience affected risk of human trafficking during the 2011 Great Flood of Thailand as well to inspect disaster preparedness strengths, weaknesses, opportunities, and threats related to human trafficking prevention and protection.

Background: Natural and man-made disasters increase the risk of human trafficking by increasing vulnerabilities of individuals and groups via lack of access to shelter and income, changing family structures, and subsequent migration.

Methods: We conducted a qualitative research study, utilizing rigorous semi-structured interviews with established disaster response and anti-human trafficking NGOs in Thailand. Interviewees were selected via a purposive sampling method. Interviews were conducted in language of fluency for participant, in secure, private settings, by two interviewers. Data analysis was done using NVivo software.

Results: Twenty-eight individuals were interviewed, representing a breadth of UN agencies, local NGOs, international NGOs, and Thai governmental agencies working in disaster response and anti-human trafficking in March 2012. Community resilience mechanisms, including use of technology and community vulnerability mapping appeared to decrease some communities' risk of trafficking. Sectors at highest risk of trafficking were those involved in factory work and fishing industry. Geographically fragmentation of families and an undocumented status may have left certain groups further vulnerable to trafficking. Communication via social media was a helpful tool to many communities with access to internet. There were no mentions of explicit human trafficking prevention efforts during the flood time.

Conclusion: The shifts in the labor markets during the 2011 Great Flood of Thailand increased the vulnerability of specific groups to human trafficking. Community resilience appeared to strengthen a community's response to flood related vulnerability, including trafficking. A population study based on the sample frames defined during this study will help to further understand the impact of disasters on human trafficking and thereby inform future prevention and protection measures.

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ID 818: To Design and Assess a Mobile 3D GIS for Disaster Response in Low-ressource Settings

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Study/Objective: To assess a mobile, collaborative, and evidence-based 3D GIS solution aiming to enhance disaster response.

Background: Information plays a critical role in organizing rescue, relief and reconstruction work for all kind of disasters. Humanitarian organizations, both in acute and recovery phases, need more mobile and "technology-resilient" tools. As was experienced in multiple emergencies and disasters, data collection, information visualization and knowledge sharing is more complex in emergency context, especially in urban environment. Rapid modelling of newly designed structures such as fields hospitals, mobile clinics, refugees camps, or temporary/transition housing is more challenging in such contexts, and there is a need for a new approach about 3D site design and 3D site planning.

Methods: We have developed a collaborative, evidence based, field-tested and affordable solution aiming to enhance humanitarian response. Rapid 3D GIS modeling offers a flexible interactive system for providing the best visual interpretation, planning and decision making process, allowing fast and integrated GIS planning of essential information.
Results: Built on public-health evidence and guided by multiple years of field experience, HUMANIT3D was developed to improve geolocated information capture and management in austere environments. HUMANIT3D captures, organizes, visualizes and shares organization's essential information. HUMANIT3D collects, filters, processes and distributes information for through peer-to-peer mesh network in low-connectivity settings. Its integrated ecosystem allows on the fly design and data-collection of information, positioning of this information in 2D and 3D environment, and collaboration within an organization in a very secured way. We will implement this tool and assess its efficiency at three simulation projects at the Humanitarian Simulation Exercice conducted by three universities in 2015. The solution will also be used for clinical management and research work in Ebola Treatment Center with a real life situation in 2015.
Conclusion: Mobile 3D GIS is a promissing collaborative, evidence-based, field-tested and affordable solution aiming to enhance humanitarian response.
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ID 819: A Framework for Structuring Post Disaster Evaluations

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Study/Objective: To develop a framework that may provide an opportunity to better structure the science of disaster health.
Background: Frameworks for Post Disaster Evaluations are diverse, lack agreement, and require a stronger evidence-base. The aim of this paper is to outline an evolving model to underpin the diversity of disaster evaluations.
Methods: An unstructured literature review of contemporary disaster evaluation standards and guidelines was undertaken and an initial framework developed.
Results: The core of the evolving Framework is adapted from the TFQCDM 'Guidelines for Research and Evaluation in Health Disaster Management' (2003). Five evaluation domains were identified:
- A baseline set of essential pre-event data
- Basic societal functions to structure a sequence of event consequence assessments for influencing response and recovery needs assessments and monitoring, including real time evaluations
- Event outcome evaluations, often in the form of formal Inquiries or accountability reviews
- A range of process evaluations for different purposesA structured Event Report to describe the event; Standards, audit and Quality assurance - measuring Key Performance Indicators (KPI's); debrief and lessons learnt
- Impact evaluations to measure the causality of specific interventions at any stage in the natural history of the disaster

Conclusion: As a "work-in-progress", this model has been successfully used to guide the development of graduate education programs in disaster evaluations and to structure associated research projects to further inform the framework. The model provides a framework to facilitate common communication and structuring the science and evidence-base of disaster health research and practice. Issues identified which require resolution include: definitions; terminology; methods to identify key literature; reconciling the multiple sets of standards and guidelines in this endeavour; and, the emergence of 'logic maps' and 'theory of change' to guide evaluations in this domain.
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ID 820: The Paramedic Factor: What Flavour is Your Life Saver

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Study/Objective: Comparison of skills and scope of practice of paramedics internationally.
Background: In prehospital emergency medical systems the designation of paramedic is reserved for the most advanced prehospital technicians. Paramedic's scope of practice includes basic and advanced skills focused on acute management and transportation of patients. As EMS systems aspire to best practices and regional systems of care, comparisons of these systems occur both domestically and internationally. In order to compare or evaluate Prehospital/ EMS systems, standard definition of providers must be implemented so that standard variables can be compared.
Methods: Scope of practice for paramedics obtained and capabilities mapped for the following countries: USA, India, Ireland, England, France, Thailand, British Virgin islands, UAE, GSA, Trinidad and Tobago, Jamaica, US Virgin Islands.
Results: Internationally paramedic is a generic term with widely varying scope of practices. In the USA and countries that adopt a similar prehospital model, Paramedics are definitive prehospital providers with a scope of practice certified by Ministry of Health, State Department of Health or certifying organization e.g. NREMT. Some countries do not have prehospital advanced life support capabilities and thus do not have paramedics. In some countries the term is used generically and there are different level of providers.
Conclusion: The practice of prehospital medicine is an evolving field internationally and as EMS Systems aspire for improvement, comparisons of systems will identify best practices. In order to make such comparison similar terminology must be adopted. In this study comparison of paramedics revealed that the term may be more of a generic description

and in order to compare systems there must be delineation of the scope of practice of advanced prehospital care providers.

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ID 821: Clinical and Research Mobile Platform for Emergent Infectious Disease in Low Resource Environment: The Case of Mobile Electronic Data Capture Using Smartphones for Ebola Epidemic in Africa

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Study/Objective: To design and assess a mobile Data Collection Ecosystem for infectious disease (Ebola) response in low-resource settings.
Background: Emergent infectious diseases constitute a major health problem in our connected world. As of 2014, the most widespread epidemic of Ebola virus disease in history is currently ongoing in several West African countries. While various interventions are so difficult in such environments, the supporting system for clinical management and clinical research is even more challenging. In fact, there actually is no solution available for a sustainable, large-scale, multi-institutional distributed research network in low-income countries. Moreover, the lack of electronic health records and public health registries limit the possibilities of such distributed health networks. Even when available, the integration across various institutions to form multi-institutional federated data networks is not well designed for low or no connectivity, and low resource settings.
Methods: Our proposed innovative solution is an adaptive mobile Electronic Data Capture mEDC with GIS capabilities based on the latest data exchange standards within the humanitarian domain. The EDC/GIS mobile applications uses custom data capture tool and user adaptive workflow where healthcare workers can electronically collect and share clinical and research data.
Results: By using a distributed and decentralized structure, based on peer-to-peer technology, we hope to prove its efficiency by a multi-centric study. Using simple smartphones allows also overcoming the computer literacy issues, and helps to increase capabilities through embedded knowledge-base within the mEDC/GIS expert system. We will implement this tool and assess its efficiency at three disaster simulations conducted by three Canadian and American universities in 2015. The solution will also be tested in clinical management and research protocols in Ebola Treatment Center in 2015.
Conclusion: Mobile EDC is a promising solution for emergent infectious disease clinical management and research studies in low resource settings.

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ID 823: Seizing the Moment

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Study/Objective: Can disasters be an opportune time to execute public health campaigns.
Background: Typhoon Haiyan was the deadliest typhoon that devastated the Philippines on 7th November 2013. It was responsible for over 6000 deaths, and affected nearly 11 million people. A massive international rescue response occurred in the Philippines to address a population in need of medical care food and shelter. During the provision of emergency care it was discovered that many of the affected children had not received routine immunization. The Philippine Ministry of Health with the assistance of local and international volunteers used the opportunity to administer vaccination to affected children.
Methods: Medical teams comprising of international and local volunteers, as well as staff from the Philippines' Ministry of Health were deployed by ground and by helicopters to affected population in Tacloban. Vaccines were obtained through coordination with UNOCHA and the Philippines' Ministry of Health.
Results: A total of 13, 888 children above six months and less than five years were immunized in Tacloban by UNICEF for Oral Polio , Vitamin A and Measles.
Conclusion: During disaster affected populations are motivated to seek medical assistance. this is an opportune time if the resources exist to address preventative and public health needs of at risk populations. After the initial disaster response, search and rescue, and during the recovery phase, emergency management agencies and health departments can utilize volunteer and public health workers to address immunization needs for affected populations. Example of vaccinations that can be done include DPT, MMR and, Flu.

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ID 824: Thematic Analysis of Seven Australian Disaster Reports or Inquiries

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Study/Objective: The main research problem is based on the lack of globally accepted disaster evaluation frameworks, methodologies, and sharing of information. The aim of this study was to validate a structured disaster impact framework by undertaking a thematic analysis of seven recent Australian disaster reports or inquiries.
Background: Around the world, disasters continue to increase in frequency and magnitude. As the global population increases in number and density, the risk of disasters resulting in mass casualties and affecting the lives of many communities continues to increase. In an effort to reduce the risk of harm an evidence-based approach to disaster reporting utilising a validated framework is urgently required to: establish a systematic and timely approach to disaster evaluation reporting, using a common template and agreed definitions; share disaster reports; and, be easily accessible and user friendly.
Methods: A disaster impact framework was structured based on the 2003 'Health Disaster Management Guidelines for Evaluation

and Research in the Utstein Style' (TFQCDM). A thematic analysis of seven selected recent Australian disaster reports dating from 2006 - 2014 was undertaken. The disasters occurred in four different Australian states, covered four different types of events, included four different types of reports and were chaired by six different Chairpersons. Results were checked by two researchers.
Results: The review identified that all elements of the framework used were present in each of the 7 Australian Disaster Reports/Inquiries.
Conclusion: This review and analysis has validated the core framework based on 2003 'Health Disaster Management Guidelines for Evaluation and Research in the Utstein Style'. Future research needs to be undertaken to seek validation in other settings.
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ID 826: Understanding the Disaster Recovery Outcomes Literature

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Study/Objective: To undertake a systematic literature review to better understand the strengths and weaknesses of the disaster recovery outcomes literature.
Background: Disaster recovery is poorly researched, (Olshansky, 2005), neglected (Rubin, 2009) and not easily searched (Smith, 2009) (Chen & Burkle, 2013). Understanding good recovery outcomes could facilitate planning and preparedness for future events.
Methods: The search strategy initially used key words: 'disaster and recovery', and their synonyms. Inclusion criteria focused on: evaluations; guidelines; best practice; good; successful; objectives; outcomes; indicators; measures; or effectiveness. Using a number of indexed databases and general search engines, the search focused on papers written in English, from 2000 onward.
Results: From 1320 peer-reviewed titles identified, two people reviewed 448 abstracts with 9 (2%) papers meeting the inclusion criteria. 35 papers from the grey literature were also included. The following themes helped to structure the analysis of the 'recovery outcomes literature': 1. Theory of recovery 2. Best practices 3. Case studies 4. Outcomes 5. Models (Recovery Diva 15/10/14).
Conclusion: Stratton describes peer reviewed disaster literature as process focussed and low quality, (Stratton, 2014) which the outcomes of this study reflected. The 'grey literature' proved more valuable than the 'peer reviewed' literature. Whilst a recent trend exists towards measuring outcomes and the development of recovery indicators, their use is not widespread and often confounded by the 'resilience' literature. Three clear recovery themes emerge: (1) the need to plan for recovery before major events occur, identified as 'Advanced Recovery', (2) the need for community-led activities, and, (3) the importance of community and individual networks. Greater scope for a 'community development' approach within the recovery framework could prove more fruitful. Recovery is complex and requires more research to examine recovery issues. The reasons for the paucity of recovery literature remain unclear.
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ID 828: A "How-To" Disaster Preparedness Manual for Clinics in Underserved Areas and the Developing World

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Study/Objective: To create a concise and practical manual intended to fill the existing knowledge gap to guide healthcare clinics in underserved settings or the developing world establish effective disaster management plans aimed to improve the management of patients following catastrophe.
Background: There is a paucity of evidence assessing the impact of structured disaster preparedness educational tools in general medicine clinics in underserved areas and the developing world, where clinics often serve as the healthcare system's point-of-entry for patients with both acute and chronic illness. Such "safety-net" clinics may benefit from a clear and concise reference guiding appropriate preparedness interventions.
Methods: The effectiveness of the manual will be assessed in a pilot study of 4 clinics that will look at the efficacy of the manual via a survey assessment tool and a table-top drill.
Results: The manual is completed. The pilot study will be completed in February 2015 with deployment of the assessment tool and table-top drills at 6 and 12 months post-intervention.
Conclusion: Conclusions will be based on results once completed.
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ID 829: Pattern of Violence Incidents at Emergency Department of a Level 1 Trauma Centre in Delhi

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Study/Objective: To access the type of Violence Incidents occurring in the Emergency Department.
Background: Workplace violence is a serious problem of society with serious health, safety and legal consequences. Workers in health care settings are 16 times more likely to experience violence. If the frequency of violent incidents is reduced, there could be increased job satisfaction, job retention & improved staff-patient relationships.
Methods: The present study is a prospective analysis of data collected by survey method by distribution of questionnaire in October 2014.
Results: Total numbers of staff in the study were 80. The responders in age of 20-30 yrs were 58.7%, 31-40 yrs were 32.5%,

and 41-55 yrs were 8.75%. 60% male & 40% female. 15% Doctors, 40% Nurse, 25% Security Guards & 20% hospital attendants. Perpetrators were family members 80%, Age of perpetrators were between 20-30 yrs 51.25% & 31-40 yrs 23.75%. Maximum Cases of the violence incidences occurred during night time 87.5%.Responders admitted that 100% was verbal abuses, 87.5% physical abuse and 76.25% property damage. Causes of violence are delay in review & discharge, more numbers of patients & relatives in ED. ED routine work was hampered for 10 minutes to > 2 hrs. 56.25% cases were reported to police. 47.5% responder feel unsafe to work in ED. 21.25% responders had undergone the communication skills classes. For copying method maximum number of responder use "show similar behavior" in 35.23% and "report incidence to higher authority" in 30.47%. When asked about reactions 62.5% reported reaction as low self-esteemed, anger, anxiety, and helplessness.

Conclusion: The result of the study suggest that during night there should be extra security personnel's. The green area should be segregated. Serious measures needs to be taken in order to avoid the growing number of violent incidents. Training on violence should be available as inservice education for the staff.

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ID 831: To Study the Injury Pattern and its Outcome in Alcohol Intoxicated Trauma Patients Admitted in Level 1 Trauma Centre of a Developing Nation

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Study/Objective: To determine injury pattern, GCS, ISS, ICU days, ventilator support days and mortality of alcohol intoxicated trauma patients.

Background: Since the first documented use of alcohol over 10,000 years ago, it has been integral to many social interactions. However alcohol misuse is now the leading risk factor for serious injuries and the third leading cause of preventable death.

Methods: The present study is a retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry of alcohol breath smell positive negative patients.

Results: We analysed 338 data out of which 170 were breath alcohol positive and 168 were negative. The age of the patients were 18 to 60 years. Out of 45 up triaged samples in emergency 69% patients were alcohol intoxicated and 31% were non alcoholic which is significant. The mean arrival GCS of alcoholic positive patient is 12.7 that is low in comparison with non -alcoholic patient 14. Compared to non-alcoholic patients, alcoholic patients significantly required airway management 72%. The mean ISS of intoxicated patient is 12. There is no significant difference in both categories in relation with body region injured. In ICU admission, 71% were alcohol intoxicated compared to non alcohol patients 29%. The mean days of ICU and ventilator support days (p 0.0002) of alcohol intoxicated patient. The mortality of alcohol intoxicated and non-alcohol is almost equal; 52% and 48% respectively which is not significant (p 0.878).

Conclusion: The patients under influence of alcohol are usually neglected during triage. Their GCS is low and ISS is high and requires airway management more often in comparison with non-alcoholic patients. In addition to this they require more ICU and ventilator days than other sub group. So public awareness about the bad impacts of alcohol is necessary to prevent its morbidity and mortality.

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ID 834: Call-up Systems to Reinforce Hospital Personnel During Emergencies

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Study/Objective: To examine the effectiveness of an advanced call-up system of generic healthcare workers, developed for the purpose of reinforcing designated personnel during emergencies.

Background: Hospitals are required to build and sustain preparedness for various emergency scenarios, natural disasters or man-made conflicts, thus necessitating capacity to reinforce personnel effectively and speedily. This task is challenging especially in evening shifts, weekends and holidays, dictating utilization of designated methods to call-up staff.

Methods: An advanced call-up system was developed in a level 1 trauma center, based on generic roles of healthcare workers (in variance to specific officials), such as physicians and nurses from the emergency departments or surgical units. As the system was founded based on the "salary-payment" structure, a high reliability of the system was achieved. The system is installed in the computer of the in-charge general nurse as well as in the nursing post of the emergency department, and is easily activated by her pressing one button only. Once the button is pressed, text messages are automatically disseminated concerning type and scope of the event to the number of personnel that were predefined, instructing them to report to the hospital. The staff is requested to report back concerning their availability and estimated arrival time to the hospital.

Results: The call-up system is fully operative and is regularly tested once a month. Over 90% of the contacted personnel responded positively to the call-ups exercised in the past three months, expressing their capability to report to the hospital within 30 minutes.

Conclusion: The call-up system has been proven effective in assuring healthcare workers' reporting to the hospital in emergencies. The system enables to call specific personnel, based on explicit needs derived from the unique characteristics of each emergency event.

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