Abstracts of Scientific Papers 18th World Congress on Disaster and Emergency Medicine

ID 3: Medical Support of Euro-2012 - Ukrainian Experience

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Background: The European Football Championship Euro-2012 was one of the most significant Mass Gathering Events (MGE) in Ukraine. The main public health tasks were defined as: 1) emergency care; 2) readiness for medical response in case of a huge incident like a terrorist attack.
Methods: The study was performed utilizing both quantitative and qualitative data. Medical support of Euro-2012 involved: 171 hospitals, including 50 hospitals in the host cities Kyiv, Donetsk, Kharkiv and Lviv, and 121 were located on transport routes. Total hospital beds were 39059. In accepting cities 38.9% (5840) beds were reserved. 92 first-aid stations were established additionally at the stadiums (34 (37%)), airports and railway stations (12 (13%)), on the fan zones (14 (15.2%)), and on the state border (32 (34.8%)). Field hospitals of the National Disaster Medicine Service were located near to stadiums. 319 ambulance teams were involved. These teams operated at stadiums, in the "fan zones" and "fan camping", along the route of movement.
Results: Total amount of tourists were 1.8 million. Medical assistance was provided to 1217 people (including 11 children). 40000 medical staffs were involved for medical assistance, including 11540 physicians (28.8%) and 28460 nurses (71.1%). Internal disease and injury prevailed among patients of MGE. We will show epidemiology of patients during Euro-2012 from the public health management point of view.
Conclusion: This study illustrated that involvement of 2.16% medical staff and 2.17% hospital bed was sufficient in relation to total amount of MCE participant for medical support to Euro-2012 in Ukraine.

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ID 4: Reliability of Emergency Severity Index Triage System – Meta-Analysis

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Background and Aim: Rapidity, ease and quantitative criteria based on vital signs are the most important advantages which facilitate the pervasive development of the emergency severity index (ESI) triage. The question is the extent to which this system is reliable in various emergency departments given that development has mainly occurred in the USA. Our aim is to gain insights from examining combined average of reliability coefficients of the emergency severity index in various emergency departments in order to achieve a more general understanding of the emergency severity index reliability.
Method: this review has been conducted based on meta-analysis Of Observational Studies in Epidemiology (MOOSE) guidelines. All studies about the emergency severity index reliability based on inclusion/exclusion criteria are examined. In selected articles, data about population, reliability method, kappa statistics and location are included. The key terms for search were triage, emergency severity index and reliability. Only full texts have been reviewed.
Results: 12 studies including 20340 triage decision-making situations were examined. Range and median for decision-making situations were from 62 to 6200 and 351. Range and combined average for inter-observer agreement percentage was from 73% to 83% and 82%. Range and median for kappa statistics were 0.985 (almost perfect) to 0.46 (moderate) and 0.83 (almost perfect). Combined average for kappa statistics was 0.72 (substantial). Only 2 of 12 studies were conducted outside of the USA (17%).
Discussion: Although the ESI triage system as a new approach has shown an acceptable reliability compared to traditional methods. However the use of weighted versus un-weighted kappa statistics, the focus of studies in the United States rather than other countries, the use of written scenario versus actual patients and methodological limitations in using reliability assessment methods indicates a need for more developed research to assess reliability.

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ID 5: Civilian Military Collaboration in the Education of Disaster Medicine in Saga University, Japan

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Background: The authors report civilian military collaboration in practical disaster medical education in Saga University, Japan. After the Hanshin Awaji Great Earthquake Disaster in 1995, education in disaster medicine in medical college became very important. Especially, practical exercises in collaboration with military medical teams became very important.
Method: The authors facilitated practical disaster medical education including simulated exercises of Disaster Medical Assistance Team (DMAT) activities, Disaster Imagination Games, triage, and communication training using transceivers from 2008. The education also included lectures and exercises in Japan Ground Self Defense Forces (GSDF) Metabaru Station. The exercises included patient transportation training using helicopters and wheel beds. Subjects were 7 nursing students and 5 post-graduated master and doctor course students. The period of the education was from June 27 to July 24, 2012. The authors examined the effectiveness of the civilian military collaboration in this disaster medical education by collecting the data from the reports submitted by all subjects after the education.
Result: All of the students answered that this education in GSDF Metabaru Station was "very important" and "very instructive". They also answered that the patients transportation exercise by the military helicopters and wheel beds were very instructive, and 91.7% of them answered that this practical training was very interesting. After the education, they reported that lectures concerning the role of GSDF in large scale disasters and international peace keeping operations were very important.
Conclusion: Civilian military collaboration in the education of disaster medicine and training medical students who can work effectively in disaster areas is considered very important. We must promote civilian military collaboration in disaster medical education for the future practical disaster relief activities.

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ID 6: The National Health Services (NHS) in London 2012 Olympics Evaluation

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Background: The objective of this research is to evaluate NHS London's 2012 Programme. This programme was charged with assuring that NHS services in London could provide business as usual, and would be prepared for emergencies and public health risks during the Olympics.

Methods: We gathered data from three main sources before, during and after the Games to enable a longitudinal perspective. Data sources include:

- key individuals working for and with NHS London 2012 Programme, to explore planning and delivery from a wide range of perspectives;
- NHS London documentation through the duration of programme;
- previous Olympic healthcare reports from Sydney, Athens, Beijing and Vancouver, to analyse key issues identified from previous Games and to enable their comparison with the London Games.
- A thematic analysis was undertaken including triangulation of the three data sources.

Results: We will present our results in the following areas:

- descriptions of the plans to (i) address impact on local NHS routine and emergency health services, (ii) the emergency planning arrangements for participants and visitors to the Games, (iii) public health enhancement and protection during the Games and (iv) the range of interventions and health legacy initiatives undertaken;
- a critical evaluation of the processes, barriers, facilitators and outcomes of the planning and delivery activities, and analysis of re-occurring issues in every Olympic Games.

Conclusion: Our results have implications for:

1. Mass gatherings health planning: including recommendations about planning assumptions, organisation and management, maintenance of business-as-usual, public health and legacy;
2. The NHS: including generalisable lessons and long-term benefits;
3. The development of qualitative methods of the evaluation of major, rapid and complex intervention and service change.

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ID 7: Rescuing Disabilities

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Background: People with disabilities must have equal access to Human Rights and fundamental liberties.
This program gives psychosocial support and diminishes risks in a vulnerable group.
We are among a public Health problem and searching for a better life quality and suffering diminish in people with low possibilities of being rescued.
It is calculated that a 10% of population suffers some kind of disability. For this program the expectancy of population is of 1500 disabled people. The first stage would impact 410 people; the second stage would impact 690 and so on.
Method: The program will be implemented through associating activities of community interest with project instrumentation formulated and executed by public organisations or NGOs. It is directed at people with functional difficulties like mental,

cognitive or functional psychosocial or psychiatric issues due to the effect of social or catastrophic emergencies.
Supporting activities in the labor inclusion as a consequence of the financial crisis will promote the inclusion of disabled workers in developing new working opportunities. The training includes activities that encourage resilience.
There are associated projects for people with psychiatric diagnoses and/or mental weakness.
Result: 156 people and their families generated their own project with the economic help and training provided by the program organizers: NGO and Government.
60% of the Meta population has been oriented in a year work with a team of specialists.
Conclusion: These groups developed resilience. When facing physical and/or psychological damage it is very hard for families to accept looking at abilities instead of disabilities.
Also, many companies became conscious of the issue and included disabled people on their workforce. A change of paradigm is possible.
The person with the disability and his/her family are included on this program.

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ID 8: Tragedy and Rescue

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Background: Scientific instruments were used to evaluate the treatment of the psychological damage of the families of the victims of an air accident. The program was designed to complement social care service. It was considered the deep and chronic stress trying to avoid the risk of post-traumatic stress according to the DSM4.
Method:

- Analyze psychological-medical records of patients to assess the distribution of 12 professionals who treated 67 patients.
- Organize and lead a team of professionals in six provinces. Evaluate the course of treatment. Design reports, medical records, evolution, etc.
- Analysis of the records of the relatives of the victims.

They were assisted in:

1. Delivering the victims to the morgue with psychological support.
2. Inclusion of family members in crisis counseling to reduce mental health risks.
3. The victims were classified according their needs y regionalization as they were distributed in different provinces along the country.
4. The follow up was made for over a year and it was decided whether a patient should continue or not with the treatment.
5. The families visited the place of the accident and then they were taken to the city centre to identify the bodies.

Results: Due to the psychological treatment and the psychosocial support of the 42 professionals there weren't emotional overflows.
Scientific instruments were used which helped to evaluate the psychic damage developed by the traumatic situation and disruption which allowed to diminish the risk of post traumatic stress and to generate and rescue resilient attitudes. It was demonstrated that it is possible to organize a team of professionals from different areas of the country with the same objective who designed the coordination.
Conclusion: This research shows the benefits of integrating a group of mental health professionals in the treatment and evaluation of aftermath.

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ID 9: Prevalence of Substance Abuse Among Injured Drivers From Motor Vehicle Crashes

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Background: Studies have found a high prevalence of substance abuse in injured patients. The aim of this study was to assess the prevalence of substance abuse in all patients admitted to the 7 tier emergency department with injuries from accidents.
Methods: Patients admitted to the hospital from motor vehicle crashes were included. Prevalence of substance abuse was determined by history taking from patients. Demographic factors, kinds of trauma and time of consumption were recorded.
Results: A total 802 patients were enrolled. Substance abuse was more prevalent in men between 21-30 years old; of these patients 20% were substance abusers. The most prevalent substance was inhalatory opium, and the most prevalent injury was lower limb trauma.
Conclusion: The present data confirm that a significant percentage of injury-producing traffic crash involves patients who are under the influence of drugs. The high proportion of positive findings of substance abuse in trauma patients suggests that the epidemiological environment for these patients is great of concern. These data may be of interest for the design of future prevention campaigns.
Key word: substances abuse, motor vehicles crash, traffic accident

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ID 10: Effective Information for "Mental Health Care Team" in Large Scale Disasters

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Background: In the large scale disaster like the Great East Japan Earthquake in March 2011, exact information is very important for effective mental health care for victims. The source of effective information is also important for medical support activity. The authors examined what was the effective information for disaster relief activity.
Method: Subjects were 20 medical staff who participated in the disaster relief activity of the Great East Japan Earthquake as a member of "Mental health care team". A self-administered questionnaire was distributed to the subjects between June 1 and September 16 in 2012. The overall response rate was 90.0% from 18 subjects. The valid response rate was 100%. Informed consent was obtained and all participants were informed that they could refuse to participate or withdraw from this study at any time. The main content of the questions were "(Q1) What kind of information was effective in the actual disaster support activity?" and "(Q2) What was the source of effective information?". Additionally, age, sex, years of experience as a medical professional, and experience in disaster support activity were also collected from the subjects.
Results: Main answers for Q1 were "Disaster victims' individual health state", and "Environment of the shelters". Most answers for Q2 were "Local public health nurses who were working in the health centers or public offices", "Local public health nurses who supported medical service together", "Advanced mental health care team" and "Administrative officer in charge of a shelter".
Conclusion: "Disaster victims' individual health state" and "Environment of the shelters" were effective information for practical activity. Sources of effective information were "Local public health nurses", "Administrative officer in charge of a shelter", and "Advanced mental health care team". Exact information from appropriate sources is very important for effective and smooth activity.

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ID 11: The National Emergency Medical Services Information System (NEMSIS) as a Tool for Emergency Preparedness Planning and Research

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Background: Current understanding of incidents that overwhelm Emergency Medical Services (EMS) systems in the United States is often limited to local geographic regions and individual incidents documented through case reports or anecdotal narratives. Data-driven approaches hold significant promise to improving preparedness at the national level. The National Emergency Medical Services Information System (NEMSIS) was explored as a potential tool for identifying and mitigating preparedness and response gaps in emergency care systems across the United States.
Methods: The NEMSIS is a system for standardizing EMS patient-care data collection across the United States by promoting the use of standard definitions, data formats, and data reporting. 37 states and territories currently submit NEMSIS-compliant data describing EMS events to the National EMS Database, which contains 24.5 million records. In this study, the frequency and characteristics of mass casualty incidents (MCI), defined in NEMSIS as events which overwhelm the EMS system, as recorded by submitted EMS events occurring in reporting states in 2009-2010, were analyzed.
Results: MCIs and specific natural disasters were characterized. During the 2009 H1N1 pandemic, a high incidence and statistically significant temporal pattern of H1N1 symptoms was identified in Florida. During the 2010 Tennessee floods, the frequency of EMS dispatch requests significantly rose from April 30th into May, and then dropped from May 1st to 2nd. From 2010 data, 9,982 MCIs were estimated, 61.5% of which occurred on streets or highways. 39.4% of an estimated 13,661 MCI patients were injured due to motor vehicle traffic crashes.
Conclusion: NEMSIS is a promising new tool for emergency preparedness planning and research. NEMSIS-compliant data can be used to understand public health trends and emergency system gaps within the context of local, state, national, and international disasters. Such understanding can lead to better emergency and information management as well as situational awareness during catastrophic incidents.

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ID 12: Life-Saving Performance of Trainees Utilizing a Competency-Based Disaster Curriculum

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Background: Few emergency preparedness training (EPT) programs possess both competency-driven goals and metrics to measure performance during a multi-actor simulated disaster.
Methods: We developed a 1 day (8 hour) EPT course for patient care providers designed to enhance provider knowledge, skill, and comfort necessary to save lives. Nine learning objectives, 18 competencies, and 34 performance objectives were developed. Ten 4th year medical students and 17 Veterans Hospital Administration (VHA) providers were recruited and volunteered to take the course. During the scenario, trainees working in teams were confronted with 3 human simulators and 10 actor patients at one time. Unless appropriate performance objectives were met, the simulators 'died' and the team was exposed to 'anthrax.'
Results: Trainees ($n = 27$) included 40% medical students, 28% physicians, 28% nurses, 4% emergency managers, and 4% mental health providers. 47% of the VHA providers reported greater than 17 hours of disaster training per year while 50% of the medical students reported no disaster training per year. The mean (SD) score for the pre-test was 12.7 (4.0), or 53% correct, and after the training, the mean (SD) score was 18.8 (2.2), or 78% ($p < 0.01$). The overall course rating for the course was 96/100. Trainee self assessment of "Overall Skill" increased from 63.3/100 to 83.4/100 and "Overall Knowledge" increased from 60.3/100 to 81.8/100 ($p < 0.01$). 23 of 34 performance objectives were completed by at least half of the teams during their first attempt. All teams (6/6) were able to resuscitate two simulators and nearly all teams (5/6) prevented anthrax exposure to the hospital during their second scenario attempt.

Conclusions: Our 1-day EPT course for novice and experienced patient care providers recreated a multi-actor clinical disaster and enhanced provider knowledge, comfort level and EPT skill. A larger scale study, or multi-center trial, is needed to further study the impact of this curriculum.

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ID 14: Exploring Culture: Audience Predispositions and Consequent Effects on Audience Behaviour in a Mass Gathering Setting

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Background: The purpose of this critical review is to look at the current literature regarding mass gatherings and to create further understanding of this area with a particular focus on what the audience brings with them to the event, particularly in a planned event with a cultural theme or focus. Through an understanding of these predispositions and consequent effects on audience behaviour in a mass gathering setting, a more complete understanding of motivation factors of crowds and audiences can also be found.
Methods: A critical review of mass gathering literature was undertaken by searching various online academic databases. Peer-reviewed scholarly articles relevant to the cultural aspects associated with religious, sporting and music mass gatherings were also analysed.
Results: Results from the review show that the word 'culture' is often used to explain what happens at the event without reflecting how the motivations or behaviours of audiences at an event are influenced by the cultural predispositions of the audience.
Conclusions: By understanding the cultural predispositions of the audience event planners and designers, event risk managers and event safety personnel are able to better understand the motivation of the audience and how this might impact on audience behaviour at the event. Further work needs to be done, however, to investigate the broader range of predispositions. The ultimate aim of developing this understanding is to better inform the health promotion and public health messages that can be developed for a particular type of event based on the likely composition of the audience in attendance.

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ID 18: The Changing Face of Conflict and Humanitarian Assistance

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Currently, the world reports the lowest number of declared wars since the early 20th Century yet the number of people living in conflict is the highest ever. Conventional conflict, where humanitarian assistance is based on protecting populations from the ravages of war crimes committed during declared internal and cross border wars, has changed rapidly with current conflicts being defined more as crime sites where violence is committed mainly over possession, control and sale of scarce resources. Rapid unsustainable urbanization has become a focal point for corruption, weapons trading, and the highest mortality and morbidity rates among the most vulnerable populations. The humanitarian community, being greatly challenged by the changing face of conflict, must redefine how, why, and where they will engage and protect populations at risk and for what aims. This session will document the historical changes, provide recent supportive data, and discuss diplomatic, operational, and health mitigation options available to the humanitarian community.

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ID 19: Nonoperative management for select hemodynamically unstable patients in blunt and penetrating liver injury

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Background: The nonoperative management of hemodynamically unstable hepatic injuries remains controversial. The objective of this study was to evaluate our new protocol for performing nonoperative management more aggressively for selected unstable patients under hypotensive resuscitation.
Methods: This retrospective study included 84 consecutive patients with blunt and penetrating liver injury. They were divided into two groups: those treated before and those treated after the protocol revision. Under the new protocol, we attempted to manage patients nonoperatively, even those whose shock improved with fluid resuscitation and continuous loading, permitting the maintenance of a target systolic blood pressure of 80 mmHg. The demographics, injury scores, type of management, complications, and outcomes of the two groups were collected and compared. We also compared subgroups of patients, focusing on high-grade injury or the performance of angioembolization as an urgent intervention.
Results: Of the 32 patients treated after the protocol revision, five patients undergoing hypotensive resuscitation were managed nonoperatively. Comparing the groups, the urgent and overall laparotomy rates significantly decreased after the revision, although there was no change in the liver-related morbidity and mortality rates. Comparing the subgroups of high-grade injury, the overall laparotomy rate was significantly lower after the protocol revision, but the morbidity and mortality rates were the same between the subgroups.
Conclusions: Select unstable patients were successfully managed nonoperatively after the protocol revision. The decrease in laparotomy rates confirmed the feasibility of our new protocol for select patients with a target blood pressure of 80 mmHg.

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ID 20: Systematic Literature Review to Identify Templates for Reporting Pre-Hospital Major Incident Medical Management

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Background: Pre-hospital major incident medical management may be improved through the collection and analysis of standardized data. Improvements in this field have been advocated in the previous years. This study was designed to identify templates reporting such management.
Methods: A systematic review was conducted according to the PRISMA guidelines. The study protocol was registered in PROSPERO and published in BMJ Open. In the search strategy the first set of entry terms describes major incidents published during the last 20 years. The second set of entry terms describes templates for collecting data from such incidents. Predefined free search phases were combined with the first two sets. A modified search strategy was used for the grey literature. The articles that were included were subjected to quality analysis. Reference lists of included literature were hand searched.
Results: Of 8497 articles identified in the main database search, 8389 were excluded based on their titles and abstracts. Another 96 items were excluded based on full-text articles, as they did not meet the inclusion criteria. The remaining 12 were included. In the grey literature all 107 articles were excluded. Reference lists of the included literature identified five articles. One relevant article was identified by chance after completion of the search. In the total of 18 included articles 10 different templates or sets of data are described; two methodologies for assessing major incident response, three templates intended for reporting from exercises, two guidelines for reporting in medical journals, two analyses of previous disasters, and one Utstein-Style template.
Conclusions: Each of the mentioned templates includes some data regarding the pre-hospital medical management of major incidents. However, none of them were specifically designed for this purpose. In order to allow rapid dissemination of areas for improvement, there is a need for a field-friendly template especially focusing on such management.

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ID 21: Mass Casualty Incidents in the Setting of Mass Gatherings

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Background: Mass gatherings occur commonly, involving large numbers of people. Factors such as site geography (e.g., uneven terrain, crowd density, etc), the unique dynamics of a particular event (e.g., crowd behavior, onsite risks such as motor vehicles, etc), and the effects of climate instability (e.g., high winds and stage collapse) may combine to create risk for attendees/participants. These and other factors can have the effect of creating "a perfect storm" in terms of risk profile for a given event. Mass gatherings, by their very nature, may become the setting for on-site incidents involving large numbers of simultaneous casualties.
In the setting of positive community events involving thousands of people, mass casualty incidents (MCIs) occur not infrequently. The authors review the published and grey literature for the last three decades and analyze the types of MCIs that occur during mass gatherings. "Planned MCIs" encompassing events such as marathons, involving thousands of simultaneous patient encounters at the finish line, are also discussed.
Methods: Literature synthesis of published health care literature and grey literature including media reports. Embase, Medline, and CINAHL, PubMed were searched.
Results: More than 200 reports of MCIs during mass gatherings were reviewed. Organized by event category (e.g., sport-related), by number of casualties generated, and by type of MCI, the results provide some guidance for event planners in the context of specific categories of mass gatherings. Although in most cases little detailed information was available with regard to the contributory factors, some relationships were clearly illuminated *vis a vis* risk to attendees.
Conclusions: There are few high quality reports regarding MCIs during mass gatherings. Understanding the root causes of MCIs in this setting may provide important guidance for event planners and policy makers, as well as members of medical teams operating on-site at a given event.

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ID 22: How Does the Lived Experience of Older People Influence Their Preparedness for Emergency Events

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Background: Anecdotally, older people are considered to be vulnerable to emergency events. However, little research has been undertaken with respect to the factors that influence their preparedness.
This presentation describes current research on how the experience of older people influences their preparedness for emergency events. Drivers for this study include the paucity of research in this area, an ageing world population and forecasts of more severe natural hazard emergency events.
Method: This is a qualitative study, using a phenomenological-hermeneutical method, in which eleven people aged 65 years or over took part in semi structured in-depth interviews. All participants resided in their own homes, in the greater Adelaide area of South Australia, and were in receipt of low-level in-home care, for example shopping or home support.
Research questions explored the variety of experiences that older people have had through their lives and how it may have changed them; the influence of their life experiences on the way they prepare, or perhaps choose not to prepare, for emergency events; and what do older people consider to be emergencies?
Results: It may seem intuitive to assume that prior exposure to an event makes survivors more vigilant and encourages

preparedness for future events. However, the literature review and preliminary data analysis indicate this assumption is simplistic. Prior exposure may lead to complacency purely because the event was survived.
Also, results show that those events that one would assume might encourage future preparedness do not; whereas other life experiences (often not classified as emergencies by the participant) have shaped their preparedness behaviour.
Conclusion: By understanding what influences older people living in the community to prepare, we can establish how best to assist them in their preparedness planning; rather than making assumptions about what this target group wants or needs.

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ID 23: The Path to Professionalization: Standardized, Competency-Based Training for the Humanitarian Sector

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While coordination and control of the humanitarian sector has plagued the response to every major crisis, concerns highlighted by the 2010 Haitian earthquake response further catalyzed and accelerated the need to ensure competency-based professionalization of the humanitarian work force. CCHT is the first Canadian national collaboration of academic institutions, non-governmental and governmental humanitarian organizations to share teaching, research and resources. The CCHT program will provide a path to a globally recognized certificate of competency in humanitarian practice as part of the new "passport initiative".
CCHT will train academics, professionals and humanitarian providers using competency-based, standardized curriculum in the classroom and in the field. The annual course will include a field-based disaster simulation offered each spring in Canada starting in 2013.
Results will include a comprehensive curriculum and evaluation tool linked to a globally recognized competency framework; a national registry/tracking system for CCTH trained researchers and practitioners; professional development opportunities for humanitarian workers from low-income countries and; an expanded network of global health field placements and research projects for students at participating universities. To manage and mitigate the impact of emergencies that are increasing in frequency and magnitude, a cadre of health professionals in this area must be expanded. Equally important is the need for access to updated data, information, and knowledge on health and emergencies. Standardized training would enhance coordination, service delivery and retention of humanitarian workers in addition to providing a platform for the knowledge base required by practitioners. Facilitating open access to new strategies, technical guidance and best practices will impact the way that life saving programs and activities are designed and implemented in the event of an emergency. Ultimately placing skilled trained professionals in a crisis will contribute to reducing associated mortality, disability and morbidity.

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ID 24: Emergency Treatment for Injuries of Floating Crew on Ships of Northern Pool

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In the northern region the extreme conditions that affect the injury rate of floating crew include production activities during the polar night, poor visibility, icy conditions on the ships, work on the ice piers, a long period of adaptation to the polar regions, as well as the combined effects of cold and water, noise and vibration, and hypokinesia.
We analysed 2216 injuries of floating crew of the northern pool, obtained during ship's flight operations. Injury rate was 156.4 cases per 1,000 workers, including transport vessels: 208.1; river: 132.9 and fishing: 67.7; among men: 164.0 and women: 90.2. Risk groups are masters of fish processing, boatswains, captains, skippers, sailors, mechanics, mechanics, canning master chefs, bakers, navigators and bartenders, orderlies when climbing ladders and decks maintain the machinery of the engine room, deck equipment, mooring, loading and unloading by the crew, galley works with hatch covers, trawl. Floating crew have high rates of falling from a height (36.5%), blunt trauma (85.5%) and severe (5.7%) subjects and thermal agent (5.7%). Drunkenness is recorded in 8.1% of the victims.
The main groups of injuries were: fractures (40.2%): contusions (15.7%); wounds (15.5%); traumatic amputation (6.0%); burns (5.6%); brain injuries (4.3%); which required surgical treatment in 31.2% of cases. 32.3% of the victims underwent continued treatment in a surgical hospital. Repeated surgical interventions were performed in 13.7% of patients. The average duration of treatment in the hospital was 29.2 days, the duration of disability - 43.4. Recovery occurred in 83.3% of the victims, have been translated into easy work - 5.0%, set II disability group – 0.8%; III group - 0.7%, resulted in fatal injuries - 10.2%.

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ID 26: The Choice of Anesthesia to Children Suffered in an Earthquakes

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Material and methods: The study deals with anesthesiologist's experience in administering emergency anaesthesia to children suffered in earthquakes (Indonesia 2006 and 2009, Haiti 2010). The work was carried out from 7-10 days till

one month after catastrophe. Most anesthesia (975 (94.2%)) were performed on children with wounds and wound infections, plus skeleton trauma were 52 (5.0%) and neurotrauma – 8 (0.8%).
Results: all children received intravenous infusions before during and after surgery: Darrow solution, Ringer lactate, 5% Dextrose. The choice of anesthesia was determined by the stage of the surgery and patient's age. First stage – preparation of wounds for plastic operations, osteosynthesis of skeletal injures was provided by inhalation mask anesthesia (IMA) – 514 (49.7%), intravenous anesthesia (IVA) – 162 (15.7%), duration 15-30 minutes.
IMA included: Sevoflurane up to 2,5%, Sevoflurane 8,0% (introductory) – Halothane 1,0-1,5% (supporting), Halothane up to 2,0%. IVA provided on spontaneously breathing in combined Propofol (1-2 mg/kg) or Valium (0,2-0,3 mg/kg) with Ketamine (1-2 mg/kg). Spinal anesthesia (SA) was done in 16 (1,5%) children with fractures of bones of lower extremities. Endotracheal anesthesia (ETA) – 245 (23,7%) was done in most of all at the second stage of treatment when wound process became to the phase of regeneration, and also in fractures of long bones and neurosurgical operations. Anesthetics (Sevoflurane, Halothane) were combined with Ketamine in combined anesthesia (CA) – 98 (9,5%). Induction of anesthesia in ETA in children up to 5 years old was done by Sevoflurane (8,0%), and in children older than 5 years – Propofol (2,5-3,0 mg/kg). Myoplegia included Rocuronium bromide (0,6 mg/kg). Sevoflurane and Fentanyl (2-3 mg/kg) maintained anesthesia after intubation.
Conclusion: The choice of anesthesia in catastrophes depend of the child's severity, of the character of injuries, of the duration of wound process and child's age.

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ID 27: Methodological Approaches to Teaching Academic Theme "Fractures" Subject "First Aid for Injuries Suffered During Accidents, Catastrophes and Natural Disasters" for Humanitarian and Technical Universities

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Study questions:
Definition: Fractures is called violating the integrity of the bones under a force, which may be accompanied by damage to the soft tissues.
Classification is given based on: Connections bone injuries to the external environment through a wound of soft tissue and skin at the fracture; Localization fracture of long bones; the Presence of pathological processes; the Presence of displacement of the bone fragments: Its types
Especially in children (infractions, subperiosteal fractures, and epiphysiolysis) relate anatomical and physiological characteristics (high elasticity of the bones)
Tags: *Absolute*: Deformation; Bone shortening; Abnormal mobility; Subcutaneous protrusion of fragments or their presence in the wound; Crepitus (rubbing sound of bone fragments) *Relative*: Swelling; Local tenderness; Pain; Impaired function of a limb or other damaged parts of the body. Fractures can be accompanied by signs *of local and general disorders*: Fever; Violation of the cardiovascular system
Complications: *Early*: Bleeding; Traumatic shock; Fat embolism; Anaerobic infections and sepsis; Osteomyelitis. *Later*: Formation of pseudarthrosis; Wrong accrete fractures
First aid: *For Open fractures*: Temporary stop bleeding; Overlay to the wound aseptic dressings; Pain management; Transport immobilization with improvised means and standard tires. If excessive bleeding imposition of tourniquet. *Closed*: Pain management overlay; Transport immobilization
Splints: *Standard*: Kramer; Dieterich's, Plastic, Air Medical. *Improvised*: sticks, boards, shingles, twigs, strips of cardboard, umbrella, shovel, bayonet
Regulations: Splint must capture two joints adjacent to the site of the fracture, and fracture of humerus and femur - three joints; the length of the splint to measure and model the healthy limbs of the victim; splint, usually applied over the clothes and shoes; With no attendance tires and improvised produce autoimmobilization. First aid persons, who have no experience, limb fixed at the position adopted by trauma.
Limb immobilization standard transport buses and materials at hand
Imposition of standard and improvised **splints bone fractures of the upper extremity, lower extremity, spine and pelvis**
Treatments: Plaster of Paris Bandage; Permanent skeletal traction; Osteosynthesis

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ID 28: Development of a New Prehospital Advanced Triage Model (META) for Multiple Casualties Incidents

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Introducción: Muchos de los sistemas de triage en incidentes de múltiples víctimas (IMV) se basan en parámetros fisiológicos básicos para ser aplicados por personal con conocimientos en soporte vital básico (SVB). En sistemas de emergencias (SEM) basados en unidades de soporte vital avanzado (USVA) sería deseable la aplicación de sistemas de triage basados en el SVA. Hasta la fecha, no existe un método de triage prehospitalario para aplicar en un IMV basado en conocimientos de soporte vital avanzado.
Metodología: Mediante revisión bibliográfica se identificaron variables susceptibles de ser usadas en un modelo de triage en IMV. Posteriormente se diseñó un cuestionario para analizar la

utilidad percibida, por profesionales sanitarios de urgencias y emergencias, que cada variable podría tener para reflejar el riesgo vital del paciente, establecer la prioridad de evacuación y su factibilidad de uso. Un grupo de expertos diseñó un modelo final en base a los datos obtenidos.
Resultados: Se identificaron 19 variables fisiológicas, 9 de mecanismo lesional y 8 anatómicas. Respondieron al cuestionario 68 profesionales (41 médicos y 24 enfermeros). Para estimar el riesgo vital del paciente 18 parámetros fueron considerados significativamente relevantes ($p < 0.05$), 17 para establecer la prioridad en la evacuación y 17 en cuanto a su factibilidad de uso. Los parámetros con puntuaciones más altas están relacionados con los problemas de la vía aérea, la ventilación, el estado circulatorio y el estado neurológico, siguiendo las recomendaciones asistenciales en trauma grave. Con estos resultados y añadiendo criterios de valoración quirúrgica precoz, se diseña el Modelo Extrahospitalario de Triage Avanzado (META), con el objetivo de mejorar la sensibilidad y especificidad del triage prehospitalario en IMV y disminuir los tiempos prehospitalarios de los pacientes quirúrgicos.
Conclusiones: El META es un método de triage flexible cuya aplicabilidad potencial sería en IMV cuya respuesta dependa de SEM medicalizados.

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ID 29: Analysis of Patient Discharge by a Medical Advanced Life Support Unit in Asturias (Spain)

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Introducción: Aunque los Sistemas de Emergencias tienen unos criterios para activación de Unidades de Soporte Vital Avanzado (USVA), en ocasiones atienden a pacientes que no son trasladados al hospital y son dados de alta tras valoración médica. Analizar estos casos nos permitirá implementar estrategias asistenciales para mejorar la eficiencia de los sistemas sanitarios mediante un análisis de los costes asociados a estos tipos de pacientes en función de la asistencia que se les brinde.
Metodología: Durante 2011 se analizaron todas las asistencias sanitarias de una USVA que atiende a una población de unos 150.000 habitantes y tuvo 1431 avisos. La fuente de información fue el sistema informático donde se registran todos los pacientes atendidos, recogiendo datos asistenciales de lugar, tiempo, patología, resolución, técnicas y tratamiento.
Resultados: Se atendieron 1403 pacientes, de los que 158 fueron dados de alta en su domicilio. 72 fueron hombres (45,5%) y 86 mujeres (54%). Las franjas de edad más frecuentes fueron 50-59 años (22%) y 70-79 (18,3%). 126 activaciones (79,7%) fueron por enfermedad común, y solo 12 (7,5%) accidente de tráfico. Las altas son más frecuentes entre las 13 y 16 horas (25,9%) y los viernes (19,6%). Los diagnósticos más frecuentes son síncope (21,5%), hipoglucemia (15,8%) y ansiedad (11,4%). Las técnicas más frecuentes son la toma de tensión arterial (88%), la pulsioximetría (86,7%), la monitorización cardiaca (50%) y el electrocardiograma (41,7%). Los fármacos más utilizados son la glucosa, asociada a la hipoglucemia, y el alprazolam, asociado a la ansiedad. No hay fármacos asociados al síncope.
Conclusiones: El que un determinado número de pacientes atendidos por una USVA sean dados de alta "in situ" es un factor que debe de servir para iniciar estudios de eficiencia sobre el tipo de asistencia proporcionada a determinadas patologías, ya que probablemente el coste de atender a determinadas patologías en el domicilio por una USVA sea menor que su coste de atención a nivel hospitalario.

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ID 30: Emergency Department's Managerial Drill as Preparation for Mass Casualty Incident

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Introduction: Mass Casualty Incident (MCI) preparedness is part of the Rapid Response System (RRS) of The Emergency Department (ED) at Tel Aviv Medical Center (TLVMC)
The rationale: About 25% of the ED nurses are junior staff and have never faced a mass casualty incident.
For them, mass event maybe as fantasy or an imaginary story…
In order to be prepared to evaluate the managerial function of ED in MCI a training program designated and meant to be a preparation for a major drill that was due to be delivered by the Home Front Command (HFC) and the Ministry of Health (MOH).
The program included sudden drill, evaluating the RRS for MCI in the ED during the evening and night shifts; while staff involved in patient's care may have little experience.
Methods: Managerial doctrines were distributed by e mail to all ED in order to meet the required knowledge of MCI managing, and then to discuss it on staff's meeting.
Following the above, a sudden drill was performed almost every other day during a period of a month.
The drill included a sudden notice on MCI and evaluation of the managerial activity in the ED/
An ad-hoc feedback was provided by the evaluators.
Outcome: The reality dictated a real event instead of a drill. Following the training, Israel was involved with an army operation "Cloud Pillar". TASMC faced an MCI.
Junior nurses faced MCI for the first time.
Nurses admitted that the drill made their emotional adjustment and performance easier; they felt more confident and more in control of the situation.
Recommendation: Drills are necessary to control preparation activities, as an assessment tool, and for enhancing collective and accumulative memory. Drills provide us with lessons and conclusions which are implemented later on.

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ID 32: Experience Counts: Quality Improvement Through Disaster Practice

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Background: In Australian Healthcare facilities, Emergency and Disaster Management is quality measured as a mandatory criterion within the accreditation standards of the Australian Council on Health Care (ACHS). The standards require facilities to demonstrate hazard analysis, risk mitigation and planning implementation to reach a minimum pass rating of "Moderate Achievement" (MA). Recognition of advanced preparedness is awarded through Extensive Achievement (EA) and Outstanding Achievement (OA) ratings where process improvement, community integration and organisational leadership are verified.
Methods: The poster presentation demonstrates the Disaster Management accreditation journey of the Royal Brisbane & Women's hospital (RBWH), the largest tertiary hospital in Queensland, Australia from Moderate Achievement to Extensive Achievement. It displays, through a 4-year time line, a correlation between real-time event activations and successful process improvement in organisational systems versus system maintenance where simulation exercises have been the major engagement methodology.
Results: The Extensive Achievement rating achieved in May 2012 and awarded to only 8 facilities across Australia during the 2011/2012 accreditation cycle followed a period that saw three disaster activations in a 41 day period during the summer of 2011. The resultant process change from identified systems gaps was implemented effectively with stakeholder engagement through all levels of the organisation enhanced by the lived experience of those involved.
Conclusion: Observation of the time-line and the resultant enhancements in response systems would indicate that whilst exercising of disaster plans is accepted as a method for procedural familiarity, the driver for system improvement is more powerful when it results from learning during a real event.
The future challenge for the facility is not only to maintain the Extensive Achievement rating awarded in May 2012 but also to enhance and progress its disaster management systems, moving towards an Outstanding Achievement rating in the future.

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ID 33: Flight from the Storm: Decanting a Major Hospital

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Background: Evacuation preparedness of Healthcare facilities centres on planning for the systematic departure from a department, building or in extreme scenarios, the total organization, following a sentinel event impervious to mitigation.
Accounts of Hospital evacuations during Hurricane Katrina demonstrate both the practicalities of implementing an evacuation and the resilience requirements of staff, visitors and patients in ensuring an effective facility departure. There is however, limited literature regarding the experiences of facilities receiving evacuees and the associated challenges of accommodating vulnerable, sick, displaced patients in addition to maintaining core service provision.
Methods: The poster presentation illustrates the challenges encountered by the Royal Brisbane & Women's Hospital (RBWH) following the evacuation of the Cairns Hospitals due to the approach of Tropical Cyclone Yasi, a Category 5 Storm system in February 2011.
Results: 306 patients were transferred from Cairns to Brisbane (1,400 km - equal to the distance from London to Rome) in what has become the largest Hospital evacuation in Australian history. On the 2nd February 2011, the RBWH received 59 In-patients and 101 Outpatients with varying health needs. Whilst surge capacity and emergency management plans were adapted and implemented effectively to expand clinical service requirements a number of undetermined challenges arose. These included:

- Resource request bypass of the Incident Management System;
- Inconsistent transport manifests – "lost" persons;
- Transit separation of mothers and neonates;
- Cultural, Social and emotional challenges; and
- Clinical handover including access to medical records and investigations.

Conclusion: Although the evacuation of patients from the Cairns Hospitals' had a successful outcome facilitated through joint civilian and defence force working practices, the existing focus on preparedness to evacuate with limited planning for reception of evacuees results in a narrow preparedness focus. Whilst established surge capacity and mass casualty management plans can be adapted to evacuee reception there is a need to consider mitigation strategies that address challenges unique to such events.

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ID 34: Impact of Educational Intervention Regarding the Triage Among Nurses in Nepal*

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Background: As the new century has unfolded, there has been a devastating impact from disasters and mass casualty incidents which sadly produce a large number of victims seeking emergency care.
Objectives: To assess the impact of educational intervention on knowledge regarding triage among nurses working in different wards of BPKIHS.
Methods: A pre experimental one group pre-test and post-test design [$0_1 \times 0_1$] was adopted for this study. Fifty nurses were selected from Medicine, Surgical, Orthopedic, Eye, ENT and Paying wards. Non-probability convenience sampling technique was used for the study. Data was collected in two phases before and after the educational intervention by using a self administered semi structure questionnaire. The post test was taken after 6 weeks of pretesting with the same instrument and with the same subjects. The collected data were analyzed by using descriptive and inferential statistics

Result: The study findings showed that the total mean score of the nurses' knowledge on triage was 26.88 in the pre- test and 40.76 in the post test. The mean difference in knowledge between the pre test and the post test was calculated by Z test and was found to be significant ($p < 0.05$). Thus, the findings indicated that there was significant change in knowledge on triage after the educational intervention which indicated that the education intervention was effective. Hence the finding reveals that educational intervention has played an important role in improving the knowledge of the nurses.
Conclusion: It is recommended that educational programme should be conducted at regular interval to enhance the knowledge of nurses regarding triage for categorization of victims according to their priority, which reinforces proper treatment and decreases mortality and morbidity of patients.
Key words: Educational Intervention, Nurses, knowledge, Triage.
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ID 35: The Impact of Educational Intervention on Knowledge and Skills Regarding Basic Life Support among Nurses Working in BP.KIHS, (Tertiary level university in Nepal*)

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Background: Almost half of cardiac deaths occur in the hospital environment and nurses are the first responders. Cardiopulmonary Resuscitation is a critical component of Basic Life Support and the established first line of response to a cardiac arrest
Objective: To find out the change in knowledge and skills regarding Basic Life Support among nurses after an educational intervention.
Design: A pre experimental one group pre-test and post-test design was adopted for this study.
Setting: Forty nurses were selected from Medicine, Surgical, and Orthopedic ward of BP.KIHS.
Sampling: Non-probability convenience sampling technique was used for the study.
Result: The median scores (Inter-quartile range) on knowledge as a whole were calculated to be 13.5 (11.25–15) and 24 (23–25) and on skill as a whole were 35 (31–38) and 49 (48–51) in the pre-test and post-test respectively. The difference in skill as a whole between pre-test and post-test was calculated by using Chi Square test, the difference was found to be highly significant ($p < 0.05$). As a whole the study results reveals that none of the respondents had adequate knowledge, 57.5% had moderate level of knowledge and 42.5% had inadequate level of knowledge in the pre-test. Whereas in the post-test, 95% had adequate level knowledge and 5% had moderate knowledge regarding Basic Life Support. Regarding skill, 22.5% of the respondents had adequate level of skill, 72.5% had moderate level of skill and 5% had inadequate level of skill in the pre-test, whereas, in the post-test all of them had adequate level of skill regarding Basic Life Support.
Keywords: Knowledge Skills, Basic life support, Nurses
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ID 36: Addressing the Need, Ethical Decision Making in Disasters, Who Comes First?

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Introduction: Disasters exhaust resources, complicate care, and force a level of decision-making that is outside the usual framework of medical care providers. A group of experts was convened to discuss and explore the ethical decision-making that takes place during a disaster.
Methods: 37 professionals from the fields of emergency medicine, emergency planning, emergency services, clinical ethics, public health, palliative care and various clinical disciplines were tasked with ethical decision-making in a disaster.
They were divided into three breakout groups and presented with a detailed drill scenario involving mass casualties following an explosion and partial building collapse with several victims presenting simultaneously in the ED with similar severe injuries and were tasked with deciding which patient would be treated first.
Results: The groups considered various principles in establishing the triage approach for the scenario patients which included 'social value', and first come first served but ultimately, they triaged the patients based primarily on their clinical presentations and likely prognosis, followed by age and professional affiliations in the case of similar medical conditions and had similar outcomes. The groups also agreed that the presence of Palliative Care in the setting of disaster, as well as including community leaders in disaster planning would be of critical assistance.
Conclusions: A senior physician should be assigned as a primary decision maker and leader in a mass casualty incident. Participation of a palliative care teams during crisis and disaster situations would expand the options of care and help the family feel more comfortable with difficult decisions regarding limiting care for their loved ones. Community involvement prior to disaster was strongly recommended to help communication and trust between community and practitioners and to also assign point people.
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ID 37: Consent for Research and Research-Like Activities During Human-Made Disasters: Ethical Principles and Practical Challenges

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Background: Informed consent for research is a shared decision making process by which the participant decides on

whether she wants to take part in the proposed study or not. Ideally, the informed consent should be taken from the potential participant who is well-informed, and capable to decide free from undue influences. In practice, the context of human-made disasters poses a set of conditions that makes taking the informed consent challenging.

Methods: The author will explore these challenges from ethical and practical aspects based on his experience in conducting and managing surveys in Darfur, west Sudan (2006-2008). The main challenges that will be addressed are the power imbalance between the researchers usually associated with the aid agencies and the affected community members; the language and cultural barriers when the researchers are international; and the effect of the community structures on achieving the condition of voluntariness in informed consent.

Results: Ethically, informed consent represents the ethical principle of respect of autonomy that has been consistently stated in almost all the international ethical guidelines. Practically, the majority of research and research-like activities conducted in a man-made disaster setting is related to the assessment of the effects of humanitarian crisis or the interventions made to control them. The dual roles of these agencies as surveyors and providers of aids could affect the voluntariness of the participants to make free decisions regarding participation. Moreover, the strong hierarchy structure of the affected communities gives the family or community leaders bigger role, hence they may interfere in the sample selection and/or the decisions of individual subjects. In addition, international researchers may face problems related to communication or interpreting the ethical principles in the affected communities.

Conclusion: The author proposes a framework to minimize the negative effects and facilitate the informed consent taking process.

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ID 38: Creeping Disaster - Austerity's Rapid Rise, Health's Slow Demise

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Imposed austerity measures are the result of cumulative Greek political mismanagement and a European cyclopean vision. As a result, a creeping disaster detrimental to population health has been set in motion with knock-on effects burdensome to an already dysfunctional health sector. The Utstein Template is used as an aid to the conceptualisation of this creeping disaster and as a means of emphasizing the importance of such within the broad classification of disasters. A tentative attempt is made to fit current Greek reality of health decay in to this model, with austerity as a major driving force. A strategy is conceptualized to achieve far-reaching health care reform, attenuate and relieve negative impacts on health from the ongoing crisis and stimulate national development within a European framework. Its action plan includes a down-shift of patient care from hospital to primary, a strengthening of disaster response plans for health and social services, an emphasis on civic protection, public security and societal governance. Goals include the reduction of bureaucratic procedures in the health sector, introduction of new competencies in public health and disaster health management and a restructuring of the Ministry of Health. Political pressures on system function and the embedding of favoured status persons in the health sector must be quickly restricted. Health must become an element in all other policies. Greek prospects might improve if the course of 'natural experiments' are systematically monitored via the inauguration of a European Laboratory, in Greece. One starting point to health care reform is a new culture and a new ethic where public health and disaster management are viewed as an integral part of socio-economic policy and the maintenance of human security. Greek failure to maintain population health and improve health sector performance may well spell trouble for Europe.

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ID 39: Greek-Egyptian Report: Disaster Management Based Public Health

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ID 40: Greek-Egyptian Balanced Score Card: Disaster Management Based Public Health

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Herein, we report on the development of disaster management tools in professional practice and the design of training activities through a regional inter-country program between Greece and Egypt. We suggest that public health should play a greater role in socio-political dialogue relevant to hazard analysis and societal response to risk. We hypothesise that health disturbance will be augmented if baseline population vulnerability grows and that the efficacy of response to disaster will improve with the level of societal development. We have made use of the Utstein Template to guide both disaster analysis and training initiatives as well as to assess the consequences of Greek forest wild fires, 2007. Specific activities undertaken include an examination of the theoretical underpinnings and interrelationships of and between public health and disaster management and the design of disaster management training programs within schools of public health. Tentative assessments have been made of population vulnerability and the potential for health disturbance as a consequence of the ongoing crises in both Greece and Egypt. We argue that public health and

disaster management are confluent basic functions of society. Through their harmonisation, convergence and coalescence in both theory and practice an improved blend can result, which can improve national policy. We suggest that our approach facilitates conceptualization of the disaster problem space, lends itself to better organization and use of information and helps promote regional communication. The inter-country program has provided training in both Greece and Egypt and a signed Memorandum of Understanding on Disaster Management and Public Health between the National School of Public Health, Greece and the National Training Institute, Egypt.

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ID 41: Lecons Apres Un Accident D'autobus de Transports Internationnaux

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Le 11 septembre 2012 un accident a entraîné le renversement d'un autobus à étage sur l'autoroute A36 à Mulhouse en France avec 40 blessés dont 8 urgences absolues sur 68 passagers. Il s'agissait d'une ligne régulière entre la Pologne et le sud de la France avec des passagers Polonais et Ukrainiens. Les autorités ont mis en oeuvre le plan Orsec Nombreuses victimes qui a mobilisé les secours provenant des sapeurs-pompiers, du SAMU, de la Gendarmerie, d'associations de secouristes, quatre hélicoptères médicalisés et de la direction des routes. A l'occasion de cet accident les secours ont pu tester le système de triage START mis en place dans le département avec un outil de triage conçu par le SDIS68. L'usage des couleurs rouge, jaune et vert pour la catégorisation des victimes s'est avérée pertinente en particulier pour le pré tri permettant aux sapeurs-pompiers faisant les extractions, le ramassage et l'évacuation vers le PMA d'identifier les victimes prioritaires. Cet accident a permis également de vérifier la pertinence de la programmation informatique de l'engagement des moyens en cas de plan orsec nombreuses victimes. Il a aussi mis en évidence l'impotance d'un contrôle aérien en cas d'intervention de plusieurs hélicoptères. Enfin les difficultés liées à la gestion de victimes étrangères parlant Polonais et Ukrainien ainsi que leur traçabilité pour l'information de leurs familles et leurs autorités ont été importantes. Elles ont pu être surmontées par le recours à des interprètes tout au long de la chaîne de secours et au déplacement rapide des autorités consulaires sur les lieux. En conclusion il apparaît essentiel aux services de secours de disôser de listes d'interprètes et des coordonnées des services consulaires des différents pays eu égard au développement de plus en plus important des transports internationnaux de passagers par autobus.

Mots clés: Plan Orsec Novi; accident d'autobus; transports internationnaux, triage; START; relations internationales

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ID 42: Assessing Hospital Disaster Preparedness: Comparison of an On-Site Survey with a Self Reported Internet Based Long Distance Table Top Drill

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Background: Methods of defining hospital disaster preparedness are poorly defined in the literature leaving wide discrepancies between a hospital's self reported preparedness and that by an objective reviewer.
Objectives: Prior to the 2010 FIFA World Cup we conducted an internet based long distance table top drill (LDTT) to assess hospital disaster preparedness in nine hospitals in Cape Town, South Africa. Contact persons in charge of disaster planning were used for data collection with the data used to make recommendations for preparedness in the build up to the World Cup. In this study we attempted to validate our LDTT by comparing self reported data from the individual hospitals during the prior drill with data obtained by an on-site survey.
Methods: In this prospective, observational study, previously reported surge capacity data reported by contact persons during the LDTT was compared to data collected by an on-site survey. Surge capacity data (licensed bed capacity + surge capacity beds) was collected for the respiratory intensive care unit (RICU), neonatal intensive care unit (NICU), medical intensive care unit (MICU) and general medical/surgical (med/surg) beds in the individual hospitals.
Results: The contact persons for the individual hospitals from the LDTT underreported their individual hospital's surge capacity in 86% (95% CI 46%-99%) of RICU beds, 100% (95% CI 63%-100%) of MICU beds, 75% (95% CI 40%-94%) of NICU beds, and 71% (95% CI 35%-92%) of med/surg beds compared to the on-site survey.
Conclusions: The contact persons for the LDTT overwhelmingly underreported surge capacity beds compared to the surge capacity determined by the on-site survey.

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ID 43: Respondiendo a las Victimas

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Background: El riesgo en las grandes ciudades y en este momento de la historia avanza mostrando en ocasiones deshumanización y falta de protección al que sufre
Respondemos a lo que investigamos: aumento de las tasa de violencia sexual, ataques a la seguridad, delitos de lesa humanidad, guerra, toma de rehenes, suicidios, accidentes, etc. Administrar lo caótico es gestión y coordinación del personal de Salud somos actores ineludibles a responder con instituciones de referencia

Para ello tenemos que capacitarnos y activar gestiones para disminuir los riesgos en nuestros pares y en la sociedad civil, con servicios de respuesta rápida y eficaz
Implementamos este programa
Método: Manejo de estadísticas reales
Se normatizan circuitos de acción para los intervinientes
Entrenamiento en Atención telefónica las 24 hs, con registro de solicitud de auxilio y respuesta adecuada a cada problemática
Técnicas de debriefing para el personal interviniente, atendiendo su stress laboral y desarrollando técnicas de"escuchatorio" adecuadas junto a primeros Auxilios psicológicos
Resultado: Se organizo este programa para reforzar la atención a las victimas y para asistencia y disminución de los efectos de las tragedias cotidianas
Capacitación e informacion ante poblacion de 14 millones de hab.
Se capacitaron a 2320 agentes de respuesta
Desarrollamos las capacidades y fortalezas con herramientas resolutivas ante en las intervenciones, teniendo en cuenta cada cultura y los grupos etáreos
Conclusión: Las crisis son parte de nuestra cotidianeidad y la violencia, ésta presente en el entorno, hoy somos una sociedad en riesgo, con respuestas ante ello, con capacidad científica y decisión en los profesionales para disminuirlas en conjunto articulando ONG y OG
Ha quedado demostrado en nuestras numerosas experiencias y en este programa que la falta de un saber científico activo en estos casos, produce un desastre y el objetivo es disminuir los riesgos, no aumentarlos

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ID 44: Disaster's Imprint on Balkan Region Health

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Nowhere in Europe, has health and health systems been compromised more than in the Balkans. Regional health has been compromised [1990-2012] as a result of transition [Soviet to Western], economic sanctions [UN], political upheavals, radioactive fallout [Chernobyl], ecological catastrophe [cyanide spill, Romania], wars of ethnic cleansing, socioeconomic disaster [Albanian pyramids], epidemics, earthquakes, floods and deliberate acts of destruction. Towards the end of this decade the region was affected by economic crisis, especially Greece [2008]. Cumulatively, they have left an overall negative impact on the environment, on population health and on the functioning of health and social services. Further analysis is necessary, effective mitigating measures must be deployed, together with well focused projects and smart policies. Herein, we describe some experiences in public health and human security developments and examine the potential for vulnerability reduction of the population to disease and violence. More proactive preparation for additional training in public health are examined and new roles are considered for Schools and Institutes of Public Health and other institutions within the region. We review the exemplary work of Andrija Stampar, the development of regional Schools of Public Health, their current link to ASPHER [Brussels] and EUPHA and the past support of OSI as well as the exemplary work in human security by the ECPD, Belgrade and the newly established Postgraduate Doctoral Program in Biomedicine, Pula, Croatia. We argue that only through α] a greater sense of belonging to the European space and β] the strict application of the European Stability Pact can the Balkans move forward in unity. The application of the Hellenic Plan for the Economic Reconstruction of the Balkans can be useful to social and economic reeingineering of the region and can help to ensure health and nullify disaster. The overall umbrella is the penetration of the UN cultures for human security and peace.

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ID 46: Fellowship Training of Physicians in Tactical Medicine

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An increased incidence of complex law enforcement events, including active shooter situations, multi-casualty situations resulting from acts of intentional harm, and civil unrest has placed conventional emergency medical services in the precarious position of having to render care for those still in harms' way. These situations have demonstrated a need for specialized advanced medical care forward of the traditional "cold zone" in which conventional out-of-hospital resources routinely function, and must be integrated into the existing law enforcement and special operations tactical concept of operations. Commonly referred to as *Tactical Medicine*, these resources and capabilities represent a unique hybrid of several medical specialties including health and wellness of the tactical team, occupational health and preventative medicine, VIP and protective medicine as well as operational mission medical planning. Central to the success of a tactical medical program is a physician medical director with the necessary background and training to provide successful program development and oversight. The training of tactical physicians is beyond the scope of traditional emergency medical services medicine, and different in focus from that of occupational medicine or sports medicine training. This session will provide the attendee with a broad overview of tactical medicine, explain the roles of the tactical medical director and present the core components of a proposed curriculum for the fellowship-level graduate medical training of the future tactical physicians.

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ID 47: Inter-Professional Collaboration Between Nursing and Architecture for Disaster Mitigation

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Background: Following the 2010 Haitian Earthquake, University of Tennessee Colleges of Nursing (CON) and Architecture (CoAD) undertook a joint classroom project to design houses that would reduce infectious disease burden among disaster affected populations. Collaboration aimed to facilitate cross-disciplinary learning, maximize the impact of design on health and inform curriculum.
Methods: A class of sixteen architecture and engineering students was divided into design teams. Students attended an introductory lecture/discussion with nursing faculty on tuberculosis, cholera, and mosquito-borne illnesses. One Global Disaster Nursing graduate student served as an in-class consultant throughout the semester-long project. Upon project completion, students were asked to voluntarily participate in a focus group to share their general impressions, perceived limitations and strengths of the cross-disciplinary instructional method, and suggestions for future collaboration. Transcripts were free coded for themes and analyzed using a phenomenological approach.
Results: Architecture students reported that nursing consultation increased their knowledge of infectious diseases and the potential of the built environment to reduce transmission. Health information from the nursing student enhanced understanding and enabled architecture students to incorporate new design elements into their blueprints: ventilation was prioritized to increase fresh air exchange and counter tuberculosis; home floor elevation was raised to protect against flooding and cholera transmission; multiple measures protected against mosquito infestation; a self contained room was provided for giving care to household members during acute illness. Students suggested the project should continue and expand to include a nursing student consultant for each design team. The nursing student shared these positive impressions and especially valued knowledge gained about structural elements contributing to disaster and interprofessional collaboration critical to disaster response.
Conclusion: Cross-disciplinary partnerships are pathways for knowledge sharing and innovation. The interface between nursing and architecture has reciprocal value for disaster and disease mitigation, and related education, research, and professionalization of the workforce.

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ID 48: Emergency Nursing Education in West Africa: Challenges and Successes

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Background: The World Health Organization (WHO) estimates that while Africa has 1.3% of the world's health workforce, it has 25% of the disease burden (WHO, 2004). Providing effective emergency nursing care is a continuous challenge in Africa; resources are limited in terms of both providers and equipment, while health care facilities are spread across large areas (Wolf, Brysiewicz, LoBue, Heyns, Coetzee, Bell, et al, in press). Addressing critical gaps in emergency nursing education requires an innovative approach as the lack of local emergency nurse experts to teach nurses is a limiting factor. A modern Accident and Emergency Center opened in Kumasi, Ghana in 2009, along with an EM residency program, only the second EM program in sub-Saharan Africa. A strong need existed to advance the skills of emergency nurses working in the department.
Methods: A one-year certificate program that utilizes low-resource modalities to teach critical skills necessary for emergency nurse training was developed. A detailed curriculum, open educational resources, external emergency nursing faculty and a train the trainers modality are all key aspects of implementation. The setting for the program is a large tertiary teaching hospital in Ghana, in collaboration with a local established health sciences university and a well-known U.S. university.
Results: Twenty-five nurses from across Ghana matriculated into the Emergency Nursing education program in November 2012. A baseline pre-test adapted from the Certified Emergency Nurses examination review indicates substantial deficits in emergency nursing knowledge.
Conclusions: A high quality nursing education program will ensure the advancement of emergency nursing program that will help develop the specialty within Ghana. Emergency Nurses trained in Ghana will not only develop advanced skills immediately applicable in an emergency setting, but also serve as leaders in the developing specialty of emergency care in Africa.

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ID 49: The Characteristics of Patient Presentations from Australian Outdoor Music Festivals

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3. Flinders University (Australia)

Introduction: The literature pertaining to patient characteristics from outdoor music festivals is predominantly reported from single descriptive events. These events demonstrate a higher incidence of patient presentations when compared to other types of mass gatherings. Outdoor music festivals rely on on-site care and clinicians to assess and manage patients. However little is known about characteristics of patient presentations across a large number of outdoor music festivals within the Australian context. As such, this research aimed to describe the characteristics of patient presentations from Australian outdoor music festivals.
Method: The setting for this research was 25 outdoor music festivals across four Australian states in 2010. Patient information from these events was obtained from Patient Care Records from St John Ambulance Australia. The patient information from these records was entered into a de-identifiable database using the Ranse and Hutton minimum data set. Data was then analyzed using descriptive and inferential statistics in SPSS.
Results: In total 5,000 patients presented to the 25 events for clinical assessment and management. This research found that

females present in greater numbers to on-site care than males. In addition, it was found that the majority of females present with whereas males presented to on-site care with injuries. The majority of patients transferred to hospital where those who presented with alcohol and/or other drugs related concerns.
Conclusion: This is the first research that explored patient characteristics at multiple outdoor music festivals in Australia. The research has highlighted some key results that may inform public health policy and assist clinical providers and event managers in the planning of health services at future events.
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ID 50: Communication Problems After the Great East Japan Earthquake of 2011

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4. Osaka City University
5. Osaka City University

Background: After a disaster, the communication infrastructure and associated devices are crucial to the collection of information. The objective of this study is to examine the resource utilization of communication devices and the problems encountered when they were used in medical treatment at sites immediately adjacent to the region where the 2011 Great East Japan earthquake and tsunami occurred.
Methods: A retrospective chart review was conducted by the Disaster Medical Assistance Team (DMAT) at the primary site of destruction, following an earthquake and the resulting tsunami. Data such as active period, kind of communication tool, transmission status, and satisfaction with the communication situation were collected.
Results: Charts for 197 DMAT teams were evaluated. In the acute phase after the disaster, DMAT used mobile phones (MP) (30%), satellite phones (SP) (23%), and laptop computers (LC) (21%). The levels of satisfaction with the communication devices were MP (good 15%, poor 85%), SP (good 53%, poor 47%), and LC (good 33%, poor 67%) during the first two weeks after the disaster. In the two subsequent weeks, the poor scores given to each device improved. The reasons given for the poor evaluation are as follow: inability of MPs to connect to the network (84%) and poor reception (74%); inability of SPs to connect to the network (33%) and line instability (26%); inability of LCs to connect to the network (63%) and poor reception (44%).
Conclusions: In the acute phase after the disaster, DMAT used MP, SP, and LC for communication. However, these communication devices were not satisfactory in the early phase after the Japan 2011 disaster. An exclusive communication line and the invention of a new communication device are therefore necessary for effective communication in the aftermath of such disasters. These results may facilitate the allocation of national resources when planning for disasters.
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ID 51: Frequency of Lower Limb Injuries and Their Causes Among Motorcycle Accident Victims Admitted Into a Typical Trauma Center in Iran

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Background: Motor vehicle accidents are a common cause of mortality, morbidity and disability. In most studies, these accidents cause high financial cost and harm to society. The aim of this present study was to investigate the frequency of lower limb injuries among motorcycle accident victims admitted into Imam Hossein hospital.
Materials and Methods: In this study, 766 patients with lower limb injuries referred to the hospital trauma ward of Imam Hossein were evaluated during one year. Questionnaire forms were designed and completed for patients then data from these forms was inserted into a database and finally was analyzed using statistical software SPSS 18.
Results: In this study, Ninety two percent of patients were male and mean age of patients was 25 ± 12 years. Most accidents occur in urban areas between the hours of two pm to 10 pm. The most common fracture were leg (Tibial shaft), foot (Lisfranc), knee (Patella), ankle (Lateral malleolus), femur (Shaft), pelvic (Coccyx and superior pubic ramus), respectively.
Conclusion: Because of the high incidence of lower limb injury in motorcycle accidents, supply and manufacture of efficient protective guards can play an effective role in reducing accidents and consequently reduce the financial burden resulting from this injury.
Keywords: Lower limb trauma, motor vehicle accident, frequency, fracture.
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ID 52: Factors Related to Preventive Behaviors on Home Injury Among Mothers with Pre-School Children in Imam Hossein and Hafte Tir Hospital

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Background: this study aimed to identify factors related to preventive behaviors on home injury among mothers with pre-school children.
Materials and Methods: A cross sectional descriptive study was done between 230 mothers who were selected randomly in emergency department of Imam hossein and Hafte tir hospital in Tehran, Iran. Mothers were asked to complete a questionnaire. There were some questions about demographic factors, knowledge, attitude and preventive behaviors about home injury of pre-school children.
Results: The mothers' age was ranged from 20-38 years. Most of them were under diploma with an average income of 7750000 rials and they averaged 1 pre-school child. 63% of mothers reported home injury within three weeks before the study. 32% of these injuries were types of fall. 13% of mothers had good knowledge and 68% had moderate and 19% of them had poor knowledge. 56% had positive attitude and 44% of them had negative attitude about home injury. 12% of them had good preventive behaviors, 73% fair and 15% poor. There was

significant association between mothers preventive behaviors with income and mothers' knowledge level ($p < 0.05$).
Conclusion: Mothers with low knowledge level, negative attitude, and disadvantaged sociodemographic conditions had poorer preventive behaviors on home injury. Key words: Home injury- preventive behaviors-mothers- pre-school children.
Prehosp Disaster Med 2013;28(Suppl. 1):s16–s17
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ID 53: Firecracker Injuries During Chaharshanbeh Soori festival in Iran, A Case Series Study

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Background: On the last Wednesday of every year Iranians celebrate the sanctity of fire in the annual festival of Chaharshanbeh Soori. Each year many cases of firecracker related injuries (FRI) are reported during this festival. The aim of this study was to assess the pattern of injuries and the frequency of disabilities during this period.
Methods: In 2011 a cross-sectional study was conducted at Emergency Departments (EDs) of three educational hospitals in Tehran to assess the extent and demographics of FRI. The age, sex, type of referral to hospital, type of injury, its region and treatment process were recorded for each patient by the physicians. The data were analyzed by SPSS version 20.
Results: Thirty-five patients suffering from FRI were admitted to the hospitals during the festival. The majority of patients were under 30 years-old and most of them were male (83% men, 17% female). The injuries were mostly lacerations and cuts (n = 17, 49%) and scratches (n = 12, 34%). One patient suffered amputation. The most common site of the injuries were the hands (n = 13, 37%) followed by the face (n = 10, 29%). There were 10 patients (29%) with more than one injury site. Twenty-one patients were hospitalized, 12 patients (34%) received outpatient treatment and two patients were referred to the other hospitals.
Conclusion: There are still many victims during Chaharshanbeh Soori festival despite efforts and legislations by the government. Education and raising awareness among people especially for the younger groups is the most important way to prevent and reduce Red Wednesday injuries.
Keywords: Firecracker, injury, emergency medicine
Prehosp Disaster Med 2013;28(Suppl. 1):s17
doi:10.1017/S1049023X13004020

ID 54: Conducting a Pediatric Hazard Vulnerability Analysis: The Chicago Experience

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Background: It is well described that children are a vulnerable population. Based upon many unique differences, a child will pose challenges during disaster planning. It is paramount to perform appropriate measures during mitigation to identify children and their relationship to various hazards. In many situations, a hazard vulnerability analysis (HVA) is performed by a community. Once completed, the HVA will allow a health care institution to compile a list of potential hazards. These hazards, in turn, will be prioritized and preparedness efforts are approached accordingly. However, children are a unique population, and there is little evidence on how to perform a pediatric hazard vulnerability analysis (PHVA). Of concern is the fact that 25% of the United States population is comprised of children.
Methods: We applied basic HVA principles to develop a PHVA tool using a web-based interface. The PHVA was developed for all hospitals in the city of Chicago. The process details probability and severity of various disaster events associated within a hospital's community with focus upon the pediatric population. Augmented by mitigation data and supplemental information, a web-based interface is used to create a PHVA report. The process will guide a user through the PHVA and when completed, a digital document is produced. Each user profile will allow a user to begin their individual hospital report, save their work, and return for updates and review.
Results: The major finding of this project is that the process of PHVA is improved by using a web-based interface. In addition, other findings include the need to develop a dashboard to review aggregate data, to produce auto complete selections, and to enhance scalability to a regional stage.
Conclusions: The use of a web-based interface is a viable method to perform PHVA and can be expanded beyond the local community.
Prehosp Disaster Med 2013;28(Suppl. 1):s17
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ID 55: Hospitals Safe from the Disaster: Lessons Learned from the Great East Japan Earthquake

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7. Metropolitan Hiro-o Hospital
8. Department of Extreme Events and Health Protection, Health Protection Agency

Background: The Great East Japan Earthquake Disaster (GEJED) that occurred on March 11th 2011 was one of the greatest challenges in disaster management. Despite the huge number of deaths (more than 15,000) and the severe damage to the local hospitals, relatively few cases of secondary disaster casualties have been reported. This research aims at analysing hospital damage, health needs, and healthcare staff response.
Methods: Between March 2011 to September 2012, data was collected on the impacts to hospitals from the earthquake and

tsunami, on the population exposed health needs and to health care staff and their response. The hospital damage in the Miyagi prefecture, the most affected area by the GEJED, was analysed using public data sources and questionnaire-based surveillance. A systematic literature review gathered information on reported health needs. A small survey was conducted targeting hospital staff to determine their response and reactions.
Results: More than 90% of the hospitals were damaged by building, non-structural components, or infrastructure impacts. In spite of this damage, more than 80% of the hospitals continued to function. The health needs of the exposed population demonstrated some acute trauma impacts but also showed the consequences of interrupted care for those with non-communicable diseases. To compensate the damage and the surge in needs for healthcare, healthcare staff showed considerable willingness to expand their jobs and flexibility in decision-making.
Conclusion: This research identified the strengths and weaknesses in the current Japanese disaster health care system and showed that new challenges exist in disaster risk management in a developed society where the population demographics shows significant ageing. Based on this knowledge, further research should be conducted to accumulate evidence-based knowledge and to share these widely.
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ID 56: Rapid Access to Tertiary Care: Barriers Impacting Clinical, Financial, and Operational Outcomes

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Background: Patients experiencing time sensitive conditions require rapid access to tertiary care, and persistent system barriers prevent timeliness of transfer from community hospitals to tertiary care centers, affecting clinical, financial, and operational outcomes.
Methods: systematic review of scholarly literature, followed by an integrative summary, synthesis and translation of the evidence.
Results: 55 articles retained for review. The evidence supports the need for a practice change to address the barriers. Fragmentation of the patient referral structure cultivates an environment that is not supportive of an optimally effective or efficient process. Ad hoc and complex processes that are conducted within a fragmented environment hinder communication, reduce situational awareness and prevent proactive anticipation of potential and actual patient referrals.
Conclusion: The evidence directs the mindful assembling of structure and the aligning of process to produce a patient centered transfer system with standardized and automated communications. Specifically, the co-location of essential functions and key people such as the transfer access line, bed management, and transport team dispatch is identified. Application and leveraging of technology for data aggregation and collaboration from different information systems including transfer request software, bed management software, admission-discharge-transfer software and EMS transport team dispatch software to produce real-time dashboards to communicate situational awareness to the stakeholders across the transfer system. Cooperative authority to make transfer decisions needs to be established and applied at the earliest point in the transfer request process. The cooperative authority may be established through authorized protocols and pathways by way of an interdisciplinary process that includes nursing leadership, specialty care physicians and health system administration. The optimized patient centered transfer system becomes transparent to all stakeholders and allows for continuous monitoring and improvement of clinical, financial, and operational outcomes by reducing barriers that impact rapid access to tertiary care.
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ID 57: Contributions to Consequences Evaluation of a Simulated Earthquake and Its Transboundary Effects on Population and Healthcare System in Romania and Moldova

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Natural and technological disasters put a series of grave problems affecting the health of the population, by interfering negatively with economic development. Removing the consequences of a major disaster consumes material and financial resources, which, especially in the current climate, are generally limited.
Organization of medical aid to disaster is undoubtedly a crucial aspect of the problem. The more quickly relief operations are implemented, the more they will save more lives.
Most disasters, whether natural or caused by man, occur suddenly and severely disrupt the normal functioning of the health system. The importance of adequate preparation of the system, in order to enable to cope with such situations, it becomes very clear as goodwill and solicitude to the victims is not enough. For evaluation purposes we imagine a simulation program that could help us in evaluation of the transboundary consequences of an earthquake in both countries Romania and Moldova.
Key words: earthquake simulation transboundary consequences health system population
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ID 58: A Community Disaster Resilience Scorecard: A Process Tool to Strengthen Community Resilience

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Background: This scorecard supports the Australian National Disaster Resilience Strategy by allowing geopolitical communities (towns, districts, regions) to measure their resilience to all hazards.
Methods: A national Advisory Group and a Working Group composed of academic and practice experts in fields relevant to resilience guided the effort. A review of the resilience literature

led to the development of a definition and model of community disaster resilience; a large candidate list of potential questions within the components of the model was reduced to 22, with scoring criteria for each. If specific criteria were supported by the literature they were used; in other cases, the best judgment of the experts on the Working Group prevailed. The definition, model and scorecard were refined with the help of two communities and the final version was trialled in four communities across Australia.

Results: Four components of community resilience identified are:

1. Connectedness
2. Risk & vulnerability
3. Planning and procedures
4. Resources.

The final score identifies a community as highly resilient, moderately resilient or at risk of being non-resilient.

1. The entire Toolkit included:
2. Community Disaster Resilience Scorecard.
3. Guideline for use.
4. Glossary of Terms.
5. Resource Sheet for locating data sources required.

Conclusion: Communities found the scorecard user friendly and each local Scorecard Working Group found that the discussion proved to be as valuable as the final score itself. Each identified actions that will feed into local quality improvement and resilience building. The tool is now being distributed across Australian through the Emergency Management Knowledge Hub.

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ID 59: Lessons Learned from Haiti Earthquake. MSF Experience

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MSF (France)

Even if initially presents at the earthquake time the 3 major MSF sections faced a huge challenge and performed more than 5000 surgical procedures during the first 3 months.
Description of the surgical burden, mortality, morbidity within MSF France well defined what should be the best profile in terms of Human resources. Timing of intervention and its relation with logistical constraints becomes clearer.

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ID 60: How to Improve Emergency Response Planning for Mass Gatherings: A Multi-Agency Approach

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Background: Each year in August, Pukkelpop attracts thousands of visitors from Flanders and far beyond to the festival site near Hasselt. About 200 acts play on one of the 8 stages during the three-day Pukkelpop Rock festival. A preemptive, multi-agency, rescue force is available on scene 24/7. On Thursday 18th August 2011, the festival and campground of the Rock Festival was struck with a devastating rain and hail storm. The impact took about 15 minutes. All casualties with life threatening injuries (n = 13) were evacuated to Level 1 trauma centers four hours after the impact. Remaining casualties (n = 465) were treated on-site or evacuated with ambulances (n = 60) to surrounding trauma centers (n = 10), within five hours after the impact.

Methods and Aim: We carried out a retrospective and observational study, with Delphi approach. A multi-agency, scientific steering group prepared and guided the project. The project aimed at exploring the following aspects of care: Efficacy of medical treatment by the teams at the site of the festival, Collaboration between multi-agencies at the site of the festival and Communication between multi-agencies, relatives and press.

Results: Five domains for improvement were identified. These include: Medical Infrastructure, Command and Control, Identification and Registration of casualties, Crisis Communication and Social Media. For each of the five domains, three topics with the highest impact were analysed and transformed into actions to be implemented in daily practice.

Conclusion: Establishing and implementing social media strategies prior to an emergency event is a key factor in improving crisis communication afterwards. Furthermore the importance of preparing emergency plans with similar team members as those who are in charge when executing them was emphasized. Preemptive disaster and emergency plans have shown to be an imperative in order to mitigate the impact and to reduce loss of lives when a natural disaster strikes a Rock Festival.

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ID 62: An Opportunity for Service Improvement: Complaint Data Analysis from Emergency Department of a Tertiary Care Hospital in Pakistan

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Introduction: Organizations that are geared for service delivery thrive on customer satisfaction. This becomes even more challenging in the context of health care industry. One of the important customer feedbacks in healthcare industry is patients' complaints. The role of complaint data as a tool for quality improvement has received little attention in the literature.

Objective: To analyze the patient complaints data that can guide strategies to improve quality assurance in terms of patients care and their satisfaction.

Methods: This is retrospective review and analysis of all patients' complaints visiting AKUH- ED from January 2010 until September 2012. Data divided into five major categories: care, attitude, communication, delay and others. Data analyzed on yearly and category basis to see frequencies and trends.

Results: There were total 386 complaints, 145 in year 2010, 146 in 2011 and 95 complaints until 3rd quarter 2012. Majority of the complaints are care related 120 (31%) then delays 89 (23%), communication 80 (21%), attitude 65 (17%) and others (8%) in decreasing order of frequency. Care related complaints showed increasing in numbers; they were 25% of the total in 2010, 32% in 2011and 40% of total in 2012. On the other hand, communications and attitude shows improvement. In 2010 attitude related complaints was 19%, comes down to 18% in 2011 but showed significant improvement to 12% in 2012. Communication related complaints were 21% in 2010, increase to 27% in 2011 but in 2012 only 11% of complaints belong to this category

Conclusion: Complaints are potentially useful quality assurance tools, which can identify important system gaps and areas of improvement. It helps and guide institutions in designing their policy for quality improvement.

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ID 63: Comparing Reality with Perception: Real Time Patient Satisfaction Survey in the Emergency Department

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Objective: To conduct a 'real time patient satisfaction survey' to have an objective assessment of ED's performance in terms of promptness of service and patient satisfaction.

Methods: A structured questionnaire similar to the one in practice by marketing services of hospital was used to capture patient's feedback on service quality in the ED. Patients were requested to respond after verbal consent in terms of strongly agree (5), agree (4), neutral (3), disagree (2) and strongly disagree (1). Respondents were either patients themselves or their relatives. Triage related data of the patients were retrieved from electronic record management system.

Results: Total 226 patients were interviewed, out of which 24% were PI, 35.1% were P II and 41.1% were P III patients. Overall satisfaction of the patients were 87.6% as compared to 71% in real vs. telephonic survey. Overall satisfaction in different triage categories were 87%, 84.8% and 77.4% in PI, PII and PIII respectively, not compared with the telephonic survey because they are not doing it according to triage categories. Time taken to get an ER bed in real time is 91% as compared to 74% in the telephonic survey. Time taken until beginning of treatment after getting an ER bed in real time is 83% versus 78% in the telephonic survey. Time taken to be attended by the triage staff at the counter in real time is 87% versus 90% in the telephonic survey.

Conclusion: Patient satisfaction was found to be better in real time survey than telephonic survey. Overall satisfaction was better in high acuity patients than low acuity. The probable reason could be prompt treatment in critical patient and long waiting time in low acuity patients.

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ID 64: Comparing Triaging Tools for Dengue Fever in the Emergency Department

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Introduction: Dengue fever is a non-specific viral illness with a variable clinical presentation. World Health Organization (WHO) published guidelines for dengue in 1997 with a revision published in 2009.

Objective: This study was performed to compare the two WHO guidelines 1997 and 2009 for Dengue patients.

Methods: All adult patients with a diagnosis of Dengue with a positive dengue IgM serology in Aga Khan University hospital during a three year (Jan 2005-Dec 2007) period were included in the study. Data of Dengue patients were collected from the medical record, later guidelines were applied by a research assistant and correlation among these guidelines was computed.

Results: There were 612 patients found with diagnosis of Dengue but 439 patients had positive IgM. The median age of these 439 patients was 28 (IQR 18) years and majority of them were males 295 (67%). According to 1997 guidelines, 383 (87%) of patients were classified as having dengue (Dengue Fever, Dengue Hemorrhagic Fever or Dengue Shock Syndrome) while 2009 guidelines classified 439 (100%) patients as dengue infection. WHO 1997 had classified 21 (5.5%) cases as dengue shock syndrome while 2009 guideline labeled 88 (20%) cases as severe dengue, with consensus on only 11 severe cases by both the guidelines, showing different results between the two guidelines.

Conclusion: By using 2009 WHO guideline, a physician would classify more dengue patients as having severe disease.

Prehosp Disaster Med 2013;28(Suppl. 1):s20
doi:10.1017/S1049023X13004123

ID 65: Outcome of Cardiopulmonary Resuscitation in the Emergency Department: Data From a Tertiary Care Hospital in a Developing Country

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Introduction: Cardiac arrest is a medical emergency characterized by the cessation of normal circulation due to failure of the heart to contract effectively. Limited data are available on outcome of Cardiopulmonary Resuscitation (CPR) from the low and middle income countries.

Objective: To find out the outcome of cardiac arrest in all patients presenting to Emergency Department of a tertiary care hospital.

Methods: This was a retrospective review of CPR sheets and medical records from Jan 2011-Dec 2012 of all adult patients (more than 16 years) who either arrived in ED with cardiac arrest or had cardiac arrest during their ED stay. CPR was performed

on them as per ACLS guidelines. Data was collected on a structured Utstein style template. Variables were date and time of arrest, whether arrest occurred outside the hospital or in ED, if it occurs in ED the location inside the ED, time code was announced and attended, age and gender of the patient, initial cardiac rhythm, time to definite treatment, treatment received during CPR, time from code to defibrillation, return of spontaneous circulation and associated risk factors.
Results: Total 1057 CPR conducted in the ED. Among them 959 (90.7%) were adult patients. In 205 (21.4%) patients had pulmonary complains, 90 (9.4%) were injured, 70 (7.3%) had problems related to Central Nervous System, 69 (7.2%) had infectious diseases and 52 (5.4%) had cardiac issues. Majority of the patient had Pulseless Electrical Activity (43.7%) and asystole (38.4%) as the initial cardiac rhythm. Eighty two (8.6%) patients presented with brady arrest while 16 (1.7%) had ventricular tachycardia and 9 (0.9%) had ventricular fibrillation. Return of spontaneous circulation was observed in 54% (n = 518) of patients.
Conclusion: Cardiac arrest is an important cause of visiting ED in adults with only half of the patient having initial return of spontaneous circulation.
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doi:10.1017/S1049023X13004135

ID 66: Dead on Arrival Coming to Pakistani Emergency Departments: Results from the Pakistan National Emergency Department Surveillance (Pak-NEDS) Study

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Introduction: Pre-hospital and hospital based emergency care is critical component of any healthcare system. Much of the death and disability can be prevented by early and especially pre-hospital interventions for major diseases. Studies from Pakistan showed poor pre-hospital and facility based care system. We aimed to analyze the frequency and pattern of "dead on arrival" (DOA) patients coming to ED across Pakistan.
Methods: Information on 1,518 dead on arrival patients registered in the surveillance system was included. Five public and two private tertiary care hospitals from all provinces of Pakistan were included in the study. Duration of the study is from December 2010 till March 2011. A data collection tool was developed and approved by all departmental heads. Designated teams collected the data. Data collected on basic demography, presenting complaints, procedures and outcomes.
Results: Majority of the patients were male (63.9%) and most of the patients were more than 40 years of age (58.7%). Interestingly 20% of patients were young adults of 20-29 years, in which the reasons identified were road traffic injuries (51.8%), fall (17.5%) and assault (12%). Only 4.6% patients arrived by the ambulance while 45% was brought by public or private transport. Major presenting complaints were fever (16.8%), injuries (3.1%), chest pain (2.8%), nausea/vomiting/diarrhea (2.2%), abdominal pain (1.2%) and shortness of breath (1.2%).
Conclusion: Majority of DOA patients were more than 40 years of age. In patients with age group 20-29 years the major reasons were un-natural causes like road traffic injuries, falls and assault.
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doi:10.1017/S1049023X13004147

ID 67: Emergency Department's Throughput: Solving a Jigsaw Puzzle

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Objectives: 1) To have an on-line system whereby different reports related to ED throughput can be generated as per need. 2) To take informed decisions pertaining to patient's throughput and thereby facilitate improved patient outcomes.
Methods: While planning for ED throughput metrics causes of delay were considered and the need for a system was identified which would enable multidimensional view of patient's throughput in ED. An ERMS (Emergency Room Management System) has been developed measuring patient flow assessment, ED Turnaround Times Report (TTR) and ED Lag Time Reports (LTR) electronically. This report will give all aspects of patient flow dynamics 24/7. TTR showed details of decision time, admission time, transfer time while LTR identified delays between various processes. ED Diversion, Visits, Length of Stay (LOS), admission time and admission conversion from ED have been taken as outcome measures.
Results: When we compared third quarter of 2011 with first quarter of 2011, ED diversion had decreased from 17% to 12%, ED visits increased by 20%, average LOS for discharged patients decreased from 5.1 hrs to 4.8 hours, average LOS for admitted patients decreased from 8 hours to 7.2 hours. However there was no change found in the Admission Conversion i.e. 37%.
Conclusion: Emergency room management system had a positive impact on ED processes and functionality.
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ID 68: Keeping the Gate Way Clear: Triage Revamp

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Objective: To determine the impact of newly implemented triage system (ESI IV) in emergency department of tertiary care hospital, Pakistan.
Methods: Patient triage is an integral part of Emergency Department (ED), which is the gateway of institution. Effective triage is a time tested method of managing ED overcrowding. Before 2011 we were practicing a 4 level triage system in which P1 was life threatening, P2 critical, P3 urgent and P4 stable/walk in respectively. From Jan 2012 ESI IV was adopted to improve patient triaging and control Left without being seen (LWBS). With the introduction of new triage optimal utilization of resources can be ensured. This means

that life threatening cases (P1&P2) should not wait and will be immediately sent to resuscitation room or critical care area. For the rest of other priorities (PIII/PIV/PV), further management will depend upon the resource utilization. LWBS, Length of Stay, ED visits, triage related complaints and bounce back were outcome measures.
Results: As compared to previous year the LWBS patients decreased from 17% to 12%, average length of stay in ED decreased from 5.1 hrs to 4.8 hrs for discharged patients and from 8 hrs. to 7.2 hrs. For admitted patients. Fast track clinic volume increased from 1% to 3%. ED visits increased by 20%. ED diversion status had decreased by 20%. ED related complaints decreased by 80%. Bounce back dropped from 2% to 0.53%.
Conclusion: ESI IV had a positive impact on improving ED visits and throughput thus reducing LWBS, bounce back patients and thus overcrowding.
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doi:10.1017/S1049023X13004160

ID 69: Left without Being Seen (LWBS): A Looming Challenge for Emergency Department Physicians

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Objective: To study through telephonic surveys the factors associated with the decision to leave the Emergency Department (ED) without being seen.
Methods: This study is a retrospective study of patients, who left the ED after triage without being seen. Emergency Department ERMS system will be used to collect data. The record will be reviewed to assess the demographic and clinical characteristics of patients including, age, sex, triage priority level, presenting complaints, ED diversion status, shift of the day and the day of week. Telephonic survey to the patients after getting informed consent over the telephone was done; surveyor asks questions according to a predesigned questionnaire. All efforts will be made to maintain the patient confidentiality. Descriptive analysis has been done on SPSS19.0.
Results: During the study period 467 (10.4%) left without being seen. Among the calculated sample size of 150 patients so far data on 21 cases have been interviewed. Of these 67% were female and 90.5% were in the P3 triage category. The average age is 37.2 ± 22 years. Most of these patients presented during and evening shifts. The ED was on diversion in all these cases. Around 86% patients left ED because of prolong waiting time. Forty eight percent left within one hour of presentation to the ED. Only 48% of the patients inform the triage staff before leaving the ED. Around 57% of the patients went back home and only 29% of patients went to another ED. Interestingly 90.5% of the patients still prefer to coming to AKU-ED and would also recommend it to other patients.
Conclusion: ED diversion, presentation during evening hours and prolong wait times had been found to be associated with LWBS patients. Most of them were of lower acuity and they had to seek medical attention elsewhere.
Prehosp Disaster Med 2013;28(Suppl. 1):s22
doi:10.1017/S1049023X13004172

ID 70: Acute Bacterial Meningitis in Children – Findings from the Emergency Department of a Tertiary Care Hospital

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Objective: To determine the signs and symptoms of Acute Bacterial Meningitis (ABM) in different age groups of pediatric population presenting to the Emergency Department (ED) of a tertiary care hospital.
Methods: This is a retrospective study of patients admitted from the ED of Aga Khan University Hospital Karachi with the diagnosis of ABM. Case record forms were used to collect data from patient files.
Results: A total of 192 patients were admitted to the ED with ABM. Fever was the presenting complaint in 165 (86%) of patients. Vomiting was present in 93 (48.43%), with 49 (52.68%) of these more than 5 years of age. Irritability was present in 54 (28.12%) with 27 (50%) of these less than 1 year of age. Fits were present in 47 (24.47%) of patients out of which 21 (44.68%) were less than 1 year of age. Neck stiffness, Kerning's sign and Brudzinski's sign were present in 53 (27.60%), 26 (13.54%) and 18 (9.3%) respectively. These signs are more common in children more than 5 years of age i.e. 29 (54.7%), 16 (61.5%) and 11 (61.11%) respectively. Headache on presentation was found in 77 (40.10%) among which 56 (72.72%) were more than 5 year. CT-scan was done in 114 (59.4%) of patients. Positive finding on CT scan were present in 24 (21.0%) which showed cerebral edema in 16 (66.66%), hydrocephalus in 2 (8.3%) and cerebral infarct in 6 (25%) of patients. A majority of patients (151, 78.6%) patients were admitted to medical floor while 40 (20.8%) were admitted to HDU/critical care units. Adverse outcome were observed in 6 (3.12%) of patients.
Conclusion: Younger children with ABM present with nonspecific signs and symptoms. Headache and sign of meningeal irritation are commoner findings in children more than 5 years. CT-scan may have a beneficial role in ABM.
Prehosp Disaster Med 2013;28(Suppl. 1):s22
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ID 72: Characteristics of Children Admitted with Fall Related Injuries: 11 Years Data from a Tertiary Care Hospital in Karachi, Pakistan

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Introduction: Unintentional injuries due to falls are an important cause of hospitalization in children from emergency department in children under 18 years.
Objective: The aim of this study is to report the existing baseline facts on fall related injuries requiring hospital admission.

Methods: This was a retrospective analysis of all children admitted from emergency department with fall related injuries from 2000-2011 at Aga Khan Hospital, Karachi, Pakistan. The data was collected by the Emergency Room Management System of all children under 18 years of age presenting with a history of fall to the emergency departments and required hospital admission.
Results: There were 4649 children admitted with fall related injuries. Of these 3313 (71%) were males with male to female ratio of 2.5. Majority of children (1701, 36.6%) admitted were between 1-5 years. Most common injuries requiring hospital admission were limb injuries (37.3%) followed by head and neck (29%) and facial injuries (19%). In children less than 1 year the most frequent injury was head and neck (53%) while in older children it was limb injuries (35% in 1-5 years, 41% in 6-12 years and 39% in >13 years respectively). Most of the children were admitted for laceration repair (37,8%) with 23% for fracture fixations. The median length of stay was 2 days with abdominal injuries requiring the most prolonged stay with median of 7 days, followed by thoracic injuries (median stay was 5 days). The highest month of admission was July corresponding to vacation.
Conclusion: Fall is a common cause of hospitalization in children with prolonged in hospital length of stay.

Prehosp Disaster Med 2013;28(Suppl. 1):s22–s23
doi:10.1017/S1049023X13004196

ID 73: Cardiopulmonary Resuscitation in Children Presenting to the Emergency Department with Cardiac Arrest

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Introduction: Cardiac arrest in children is an emergency which is characterized by the cessation of normal circulation of the blood due to failure of the heart to contract effectively. Limited data is available on Cardiopulmonary Resuscitation (CPR) in pediatric population especially in the low and middle income countries.
Objective: To study the outcome of cardiac arrest in all pediatric patients presenting to Emergency Department of a tertiary care hospital.
Methods: This was a retrospective review of CPR sheets and medical records from Jan 2011- Dec 2012 of all pediatric patients (less than 16 years) who either arrived in ED with cardiac arrest or had cardiac arrest during their ED stay, CPR was performed as per PALS guidelines. Data was collected on a structured Utstein style template. Variables included were date and time of arrest, whether arrest occurred outside the hospital or in ED, if it occurs in ED the location inside the ED, time code was announced and attended, age and gender of the patient, initial cardiac rhythm, time to definite treatment, treatment received during CPR, time from code to defibrillation and return of spontaneous circulation.
Results: Total 1057 CPR conducted in the ED. Among them pediatric patients were 98 (9.3%). Nineteen patients had pulmonary complains (19.3%), 15 (15.3%) had infectious diseases, 13 (13.3%) had cardiac issues. Thirty patients (30.3%) came to ED in a state of unresponsiveness not attributed to any organ/ system and 4 (4.1%) were dead on arrival. Majority of the patient had asystole (36.7%), brady arrest (31.6%) and Pulseless Electrical Activity (24.5%) as the initial cardiac rhythm. Return of spontaneous circulation was observed in 49% (n = 48) of patients
Conclusion: Cardiac arrest is an important cause of visiting ED in children with less than half of the patient having initial return of spontaneous circulation after resuscitation.

Prehosp Disaster Med 2013;28(Suppl. 1):s23
doi:10.1017/S1049023X13004202

ID 75: Fall Injuries – A Preventable Public Health Issue: Results from a Pilot Surveillance Program in a Developing Country

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Introduction: Unintentional injuries due to fall are a leading cause of emergency department visits in children under 14 years.
Objective: The aim of this study is to report the existing baseline facts on fall related injuries.
Methods: This was a secondary analysis of a childhood unintentional injury surveillance database setup in the emergency department of the Aga Khan Hospital, Karachi, Pakistan for three months. The data was collected by interviewing caretakers of children under 12 years of age presenting with an unintentional injury to the emergency departments of the four major tertiary care hospitals of Karachi, Pakistan.
Results: There were 281 cases of falls injuries. Of these 186 (66.2%) occurred in males giving a male female ratio of 1.95. The majority of falls were seen in the 5–11 years age group (n = 170, 60.5%). Most of these injuries took place at home (n = 238, 84.7%). Main reasons for these injuries were fall from height (n = 147, 52.3%), from stairs/steps (n = 70, 24.9%), playground equipment (n = 28, 10%), from bed (n = 25, 8.9) and attendants' arms (n = 9, 3.2%). The fall injuries were mostly minor (n = 177, 63%) in severity. Around 84% (n = 236) cases were directly discharged from the ED and 20 (7.1%) were admitted to the ward. There were two deaths (case fatality 0.7). Short-term disability was found in 104 cases (37%) and long-term in 47 (16.7%) cases.
Conclusion: Fall is common category of unintentional injuries occurring mostly at home. Strategies at home like installing stair gate or other barriers to heights can reduce the burden of fall related injuries.

Prehosp Disaster Med 2013;28(Suppl. 1):s23
doi:10.1017/S1049023X13004214

ID 76: Fall Related Injuries Presenting in the Emergency Departments: Results from the Pakistan National Emergency Department Surveillance (Pak-NEDS) Study

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Introduction: Fall related injuries pose substantial public health and economic challenges especially in a low income country like Pakistan. We aimed to analyze the frequency and patterns of fall related injuries coming to the emergency departments (ED) across Pakistan.
Methods: Information on 68,390 injury patients registered in the Pak-NEDS surveillance system was included in the analysis. Data were collected from December 2010 to March 2011 in seven major tertiary care centers from all four provinces of Pakistan. These centers included 5 public and 2 private hospitals having a collective annual census of over one million patients. The data collection tool was finalized after consultation with the emergency department heads of all institutions. We analyzed information on basic demography, types, causes and outcomes of injuries, modes of arrival and delays, pre-hospital care and history, investigations, procedures and outcomes.
Results: Fall related injuries account for 17.5% ED visits. Almost 68% of patients were male and most of them belonged to the Pathan ethnicity (40.3%) followed by Punjabi (34%). Most of the patients (72%) were between 15-45 years of age. Mostly patients arrived by themselves (91.4%) and only 7.8% of the cases were brought in via ambulances. Majority of the falls (59.7%) were due to slipping, followed by fall from height (25%). Intentional falls were reported in 34% of patients. Most frequent injuries were of extremities (53.4%) and head and face (24.7%). There were 32 (1.3%) fatalities with 80.2% patients being discharged.
Conclusion: Fall related injuries impose a major burden on the Pakistani healthcare system. An improvement in pre-hospital care and safety measures at home and in workplaces are important steps in reducing this burden.

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ID 79: Patients Who Leave the Emergency Department without Being Seen

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Objective: To Study the demographic and clinical characteristics of patients left without being seen (LWBS) by physician from emergency department of Aga Khan University Hospital.
Methods: A retrospective patient record review was undertaken. All patients presenting to the Aga Khan University Hospital, Karachi, between April to December, 2010 were included. Information was collected on age, sex, presenting complaints, ED capacity, month, time, shift, day of the week, and waiting times in the ED. Basic descriptive analysis was done and rates of LWBS patients were determined. Logistic regression analysis was used to assess the risk factors.
Result: A total of 38,762 patients visited ED during the study period. Among them 5,086 (13%) patients left without being seen. Important predictors for LWBS included; Triage category P4 had an OR of 9.7 (95% CI, 6.8-13.8), Diversion status, OR 1.3 (95% CI 1.2-1.5), night shift, OR 2.6 (95% CI 2.2-3.1), waiting-time of more than 180 minutes, OR 26.7 (95%CI 22.1-32.2) and Pediatric age, OR 0.7 (95%CI 0.6-0.8). Rate of leaving was highest in the night shift (20%) and was twice as high when the ED was on diversion (19.8%) compared to regular periods of operation (9.8%). Mean waiting time before leaving the ED in pediatric patients was 154 minutes while for adults it was 171 minutes. More than 32% of patients had waited for more than 180 minutes before leaving without being seen, compared to the patients who were seen in ED.
Conclusion: Our study describes the characteristics and factors associated with LWBS. Targeted interventions should be designed and implemented to decrease the waiting time to minimize the number of patients leaving the ED without being seen.

Prehosp Disaster Med 2013;28(Suppl. 1):s24
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ID 80: Pattern of Emergency Department Visits by the Elderly: Data from a Tertiary Care Hospital, Karachi

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Objective: To study the visit pattern of elderly patients (>60 years) to the Emergency Department (ED) in comparison to young adults (18-60 years).
Methods: This retrospective study was carried out in the ED of Aga Khan University Hospital.
Results: Almost 24% (13014) of all adults (54588) presenting to the ED were over the age of 60 years. More than 57% (7499) of these belonged to the high priority (P1) triage category compared to 35% in younger patients. The median length of stay in the ER for elderly was 379 minutes in the elderly (252 min in under-60 year patients) and they were more likely to get admitted to in-patient departments compared to younger patients (OR 1.7 CI 1.6-1.8). A high proportion of those admitted (20%) required intensive or special care. This was accompanied by a higher mortality risk in the elderly with an odds ratio of 2.3 (CI 2-2.5).
Conclusion: Our analysis shows an increasing trend in both the number and proportion of elderly patients presenting to the Aga Khan University ED.

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ID 82: Factors Affecting the Decision to Resuscitate: An Audit of Emergency Department Deaths

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Introduction: Emergency department (ED) is the gateway of our health system. ED outcomes such as mortality reflect the severity of presenting illness, underlying disorders as well as quality of the care that has been provided. There is limited knowledge of factors influencing the code decision of the patients who die in the ED especially in the developing countries setting. This study was conducted to provide an

insight about the characteristics of the patients expired in ED and to determine the factors affecting the decision to resuscitate and/or code status.
Methods: This was a retrospective study based on audit of Morbidity and Mortality log of the Department of Emergency Medicine, Aga Khan University Hospital from June 09-June 2011. All patients who died in the ED or brought dead were included. Details about demographics, co-morbidities, primary and associated diagnoses, presence of shock and ED length of stay recorded.
Results: Total ED visits were 95,693 with 1201 deaths during study period. There were 47.1% dead on arrival and 53% were those who expired in ED. The mean age for dead on arrival group was 52 years, 88% were >16 years and 64.5% were females. Of those who expired, 91% were >16 years and 60% were males. Mean age for the latter group was 52.7 years. Only 46% patients were full code and provided with maximum resuscitative efforts. Most common causes of death were sepsis (38%), acute coronary syndrome (14%) and cancer related complications (11%). Presence of shock and/or acute coronary syndrome had a protective effect, however age, comorbidities, severe head injuries were positively associated with a "Do-not-resuscitate" code status.
Conclusion: Age, chronic conditions and severity of the present illness have significant impact in deciding the code status of patients who die in the ED.
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ID 84: Prompt Action Saves Lives: Resuscitation Step Down Unit in the Emergency Department

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Objective: 1) To provide a critical care area within Emergency Department (ED) to any patient who requires respiratory supportive care and invasive monitoring. 2) To provide an intensive care and monitoring area within ED premise when the availability of Intensive Care Unit (ICU) bed cannot be assured.
Methods: To control ED crowding, flexible bed management strategies are needed, so that all patient care areas are optimally utilized. Based on this a high dependency area within ED premise was conceptualized. This area was named as RSD unit and had the following infra-structure details: four monitored beds with 2 registered nurses and 2 emergency physicians (1 senior and 1 junior) providing oversight and coverage to RSD unit. Faculty rounds conducted during the start of each physician shift i.e 12 hourly and as per need as well. Nursing coverage is strengthened by PCC (Patient Care Coordinators).
Results: Total admissions were 839 from Jan -July 2011. Out of these 63% were ventilated and the rest were put on BiPAP. Male was 57% and 43% females. Of the total, 85% of patient belonged to Priority I, and 8% were Priority II category. Average length of stay was 14.57 hours. Mortality rate of RSD unit was 4.4%. Fifty eight percent patients were admitted to ICU while 26% of patients were admitted in areas like Special Care Unit/Step Down Unit/Coronary Care Unit. 4% patients were transferred out from RSD unit. 8.3% patients left RSD unit against medical advice. Most common admitting diagnosis are shortness of breath (n = 148), chest pain (n = 31), road traffic injuries (n = 52), fall (n = 20), drowsiness (n = 48) and fever (n = 19).
Conclusion: Need for RSD unit within ED premise is clearly been established. RSD unit admission is cost effective, safe and is more accessible, especially in situations where ventilated bed is not available and patient's management necessitates immediate intensive care management.
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ID 85: Relevant Clinical Signs to Give Hydroxocobalamin in the Field for Smoke Inhalation Victims

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The objectives of the non- interventional study Risk of Cyanide Poisoning in Smoke Inhalations, Symptoms and Key Signs (RISK) was to document clinical symptoms and blood cyanide concentrations from victims exposed to fires in closed space.
Material and methods: The study was performed in Belgium, France, Germany, Italy and Spain with victims included if they presented with specific signs like single or multiple soot deposits or altered neurological status. The blood samples were collected less than 2 hours after the exposition and the cyanide concentration was performed.
Results: Data from 102 victims of smoke inhalation were included with no blood samples for 2 patients, 25 victims had a cyanide concentration blew the limit of detection of 1,2 micromol/l. Cyanide levels between 1.2 and 10 micromol/l were measured in 54 victims, 7 had values between 10 and 20 micromol/l and 10 were above 40 micromol/l. The study demonstrated positive correlation between the measured cyanide levels and respiratory arrest, dyspnea, need for rescucitation, tracheal intubation, need for respiratory support and respiratory frequency, as well as decreased Glasgow coma scale. The correlation between carbon monoxide and cyanide level was also confirmed. The most important finding was the correlation between the cyanide concentrations and the soot deposits on all four locations, on face, neck, oral cavity and sputum.
Conclusions: Prehospital there is no possibility of determining the blood cyanide level. The study shows clearly that multiple soot deposits on face, neck, oral cavity and sputum are a good risk marker of cyanide poisoning and that the level of severity of the intoxication is higher when associated with a decreased GCS, convulsions and dyspnea. In that situation there is no reason to delay the administration of hydroxocobalamin the selective antidote. Fire department and hospital EMS teams should take with them the antidote in case of intervention for fire victims.
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ID 86: A Rapid Needs Assessment of the Rockaway Peninsula in New York City After Hurricane Sandy and the Relationship of Socioeconomic Status to Recovery: A Cross-sectional Study

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Objective: Hurricane Sandy was a tropical cyclone that hit New York City (NYC) on the 29th of October 2012. It resulted in widespread power outages, flooding, and damage to infrastructure, affecting coastal areas most severely. The purpose of our study was to conduct a rapid needs assessment in the Rockaway Peninsula, one of the most severely affected areas of NYC and to relay this information to the NYC Department of Health and volunteer organizations to direct their efforts. Secondary objectives included assessing relief effort opinions, and the association between socioeconomic status and recovery.
Methods: A rapid needs assessment was undertaken within the Rockaways three weeks after the hurricane made landfall to elicit information regarding basic utilities, access to food, health, relief effort opinions, and socioeconomic status. A modified cluster sampling method was utilized to select households with a goal of seven to ten surveys per cluster.
Results: Many households were without basic utilities including electricity (31%), heat (43%) and telephone services (32%) three weeks after the storm. Half of households surveyed felt that their neighborhoods were unsafe after the hurricane, stating looting as a primary concern. Twenty percent surveyed had upper respiratory conditions following Sandy, and two-thirds suffered from anxiety and sleeplessness. Those from lower income households were four times more likely to worry about food than higher income households ($p = 0.01$, 95% CI 1.43-14.23). There was also a trend among the lower income group towards greater emotional concerns following the storm.
Conclusion: Hurricane Sandy disrupted basic utilities, infrastructure, and access to healthcare throughout the Rockaways. Storm recovery should include restoration of these necessities, access to prescription refills, and information regarding food distribution centers. Lower income individuals may have greater difficulty with access to food and psychological health following natural disaster and recovery efforts may include prioritization of these households.

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ID 87: Disaster Health Consensus Terminology: Creating the Foundations for Evidence Based Practice

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Background: Disaster health terminology has no consensus despite a number of well-established publications that incorporate definitions for disaster health related terms. There is wide variation between definitions in the many existing disaster related glossaries. The aim of this project was to identify existing consensus for disaster health terms and to create the basis for a current, yet dynamic, set of terms. These will provide a stronger foundation for both practice and research, which relies heavily on our ability to compare studies and to undertake systematic reviews of research evidence.
Method: The project relies on textual analysis software to identify the common elements, and concepts, in existing disaster health definitions. A consensus definition for each term was achieved by using software that analyses all definitions for that term. The definitions are drawn from the scientific literature and the common features that occur across the many definitions for a term are identified, thus achieving consensus for each defined term. Over 80 glossaries related to disaster terminology were used to compile a set of current terms. Sources included UNISDR, the Health Disaster Management: Guidelines for Evaluation and Research, and other glossaries that were checked for terms related to disaster health.
Results: Searches of all disaster related glossaries produced a list of approximately 330 disaster health related words that could be candidates for inclusion in a consensus disaster health terminology. A selected number of terms, approximately 20 core terms, related to essential functions will be presented.
Conclusion: The list of disaster health terms developed may be used to inform policy, practice and research efforts. Common definitions for key disaster health data points will enable benchmarking of preparedness and performance and the comparison of one research project with others that have utilised the same data points.

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ID 88: Practical Disaster Nursing Education Using START Triage Exercise and Its Evaluation of Students

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Background: The authors report our practical disaster nursing education using START triage method in Saga University, Japan. After the East Japan Great Earthquake Disaster on March 11, 2011, education of disaster nursing became very important.
Method: The authors had practical disaster nursing education including triage exercise. It is very important that nurses can triage disaster victims. In this education, the triage method was based on the START method. Subjects were 68 nursing students of the 4th grade year in Saga University, Japan. The effectiveness of this education was evaluated by self-administered questionnaire after the education. The period of the education was from October 1 to October 29, 2012.

Results: Effective response rate was 94.1% (64/68). Most students (87.5%) answered that this triage education by START exercise was "very important" and 12.5% students answered that it was "important". They answered START triage method was very simple and practical. Moreover, students willing to participate triage in case of disaster after the education. They also answered that the exercise was very interesting and instructive. After the education, they reported that "Disaster nursing education is very important and it is necessary to train nurses who can work effectively in the disaster area". They were very interested in disaster nursing activities.
Conclusion: Practical disaster nursing education including START triage exercise and training nursing students who will work in disaster areas in the future is very important. Nursing students evaluated that this practical education was very important, instructive, and interesting.
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ID 89: Connecting Mental Health and Reproductive Health Care Among Women in Crisis

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Background: With over 20 million displaced women in the world currently, improving the health of women in crisis is imperative. Countries affected by humanitarian crises rank among the lowest in child and maternal indicators of well being, including health status, contraceptive use, and infant mortality (Women's Refugee Commission, 2009). Women affected by such crises have significant trauma-related mental health concerns (Al Gasseer, et al, 2004; Amowitz, et al, 2004). In fact, refugees experience depression and PTSD at more than double the rate of the US population (Mollica et al., 2004). The purpose of this study is to explore the association of mental health and reproductive health outcomes among women affected by humanitarian crisis.
Methods: A descriptive cross-sectional study design was employed with a sample of 810 Congolese refugee women aged 15-49 living in one of two refugee camps in Northwest Rwanda.
Results: Trauma exposures were high in this sample, 30% of women had experienced physical violence by someone outside of their family, and 18% reported the death of one or more children, as were feelings of unhappiness (36%) and worthlessness (18%). The Emotional Health Index was strongly independently associated with having any STD symptoms. For each unit change indicating decreased emotional health, the odds of having any STD symptoms increased by 1.1 (OR = , $p < .001$). A significant association existed between women who reported feeling unhappy and women who consulted a health care provider about STD-like symptoms, $x2(1, n = 804) = 17.1$, $p < .001$.
Conclusion: Women in this study had significant trauma exposures as well as decreased emotional well-being. Understanding how mental health affects reproductive health care among trauma-exposed women represents an unexplored area of research that may have profound effects on improving women's health as well as meet the globally recognized need for immediate and consistent care in an emergency context.
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ID 90: Impact of ED Volumes on Sepsis Resuscitation Bundle Compliance at an Urban Level I Trauma Center

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The Sepsis Resuscitation Bundles (RB) has been proven to reduce mortality in patients with severe sepsis or septic shock. Universal implementation, has proved elusive, resulting in a preventable loss of life.
The purpose of this study is to examine the potential association between ED patient volumes and Resuscitation Bundle compliance.
Methods:

- Patients ≥18 years old obtained from the database that presented to the ED between July1, 2010 and December 31, 2010 with diagnoses of severe sepsis or septic shock.
- The sepsis database was used to determine if the clinician managing the patient were compliant vs. non compliant in the 5 Sepsis Resuscitation Bundles in 6 hrs.
- Compliance was defined as meeting all of the RB elements versus none.
- Electronic Medical Records and ED tracking system:

ED volume data: Daily and hourly census, CAT1 (highest acuity pod; bed capacity: 16 beds) census, new patient arrivals, patients into resuscitation rooms
Results: During the review period 224 eligible patients presented with 112 in the compliance group and 112 in the Non Compliance Group. Average daily ED census was comparable as was CAT1 daily census. New CAT1 patients and new resuscitation patients during ED LOS stay did not show significant differences.
Discussion:

- Antibiotic administration and CVP & $SCVO_2$ were the most frequent non-compliant elements of the RB.
- Overall bundle compliance is higher than that reported in the literature
- While there was no difference in ED volume between compliance and non-compliance groups, ED census is not the only indication of how "busy" the emergency department and resources are.

Conclusion: This study did not reveal an association between ED volume and complete RB compliance. Given the significant impact on mortality and reductions in health care resource consumption of this intervention, further study is needed to identify the system barriers to RB compliance.
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ID 91: A Novel Tabletop Exercise Format to Teach MPH Candidates the Role and Responsibility of Public Health during a Pandemic

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Background: Pandemic management involves strategic and tactical concepts rarely encountered in other disasters. In order to comprehend the enormity of these tasks and experience the critical decision-making that is required, public health professionals participate in tabletop and functional exercises. However, students in MPH (Master of Public Health) programs rarely experience this educational format. A novel tabletop exercise was created to educate graduate public health students about pandemics.
Methods: Students (n = 26) in an MPH course (Issues in Public Health) were divided into four groups representing four local health departments. During the semester, students completed incident command training, received audio lectures, and audio injects concerning an imminent pandemic. Concurrently, the students, as a "public health department", were encouraged to social media to discuss, develop plans, make decisions, etc. This was their background activity while participating in other unrelated educational topics of the course. The students then participated in two 2.5-hour tabletop pandemic exercises. The first dealt with preparedness and planning measures. The second centered on response well after the pandemic infiltrated their local jurisdictions. Allocation of scarce resources, patient prioritization, and mass fatality management were major issues. A survey was developed to assess their perceptions of the experience.
Results: A significant majority (97.9%) reported the exercise improved their pandemic knowledge. Most students (95%) also felt that the use of this training style was innovative, entertaining, educational, and would recommend it to their colleagues.
Conclusions: MPH candidates believed that delivering a tabletop exercise in this fashion (i.e. semester-long role-playing, intermittent audio-visual injects, and a comprehensive table-top exercise) was both educational and entertaining. It gave the students a better appreciation of the role of public health in managing the complexities associated with pandemics that had not been previously available to them.

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ID 92: Outcome at 2 Years of Patients with Extremity Trauma Following the 2010 Haiti Earthquake

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Background: The medium-term outcome of earthquake survivors with severe limb trauma and their views on their degree of recovery are poorly documented.
Methods: The prospective study SuTra2, assessed the functional and socio-economic status of patients with limb injuries resulting in amputation (A) or surgical limb preservation (LP) 1 year and 2 years after the 2010 Haiti earthquake. Perceived functional status, residual pain, patient treatment preference, housing, employment, quality of life (SF36) and need for additional care, were analyzed.
Results: 305 patients [A: n = 199 (65%), LP: n = 106 (35%)] were evaluated, 282 at 1-year and 235 at 2-years. Patient demographics: 57% female; median age: 31 years; 74% lower limb injuries.
46% had additional severe injuries, 60% had fractures, open or associated with severe soft tissue damage in 67% of cases. At 2-years, 51% of patients were satisfied with their functional outcome (A: 52·5%, LP: 48%, ns). Compared with status at 1 year, there was a worsening of the perceived function and pain, particularly in amputees. All LP, and 79% of A would have chosen a conservative approach if an amputation had been medically avoidable. At 1- and 2-years, 42% and 23.5% respectively were still living in a tent, and 16% and 30% respectively resumed work. At 2-years, SF36 was improved except for the mental domain in amputees and 25·5% of overall patients still needed surgical follow-up.
Conclusion: Two years after the Haiti earthquake, only half the victims with severe limb injuries treated with amputation or limb preservation were satisfied with their functional status. Patients clearly favor limb conservation whenever possible. Therefore, in mass disasters, postponing definitive surgery until adequate human and technical resources are available is recommended, as well as full resourcing of limb salvage efforts. Prolonged care and rehabilitation are crucial to optimize patient recovery.

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ID 94: The US National Disaster Medical System (NDMS) Multispecialty Enhancement Team (MSET)—Rapid Augmentation of Surgical Care During Disasters

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Background: Hurricane Katrina and the Haiti Earthquake demonstrated that the US National Disaster Medical System could not rapidly accept volunteers to expand surgical and specialty services beyond those organic to its three International Medical Surgical Response Teams (IMSuRT). The requirements of membership in the US federal service demand an extensive vetting process that takes at least 180 days to complete.
Methods: An experimental team of surgeons, anesthesiologists, pediatricians, and obstetrician-gynecologists was established to test the concept of a reserve core of specialists who can rapidly augment DMATs, field hospitals, or fixed facilities as needed.
Results: The US Department of Health and Human Services (HHS) has recruited approximately 60 specialists, including trauma, plastic, orthopedic, Ob-Gyn, and neurosurgeons, as

well as anesthesiologists, pediatricians and pediatric intensivists. These fully trained physicians were hired as intermittent US federal employees. They are deployed as needed to National Special Security Events such as the Super Bowl and the Presidential Inauguration. While on short (1-2 week) deployments, team members undergo training in disaster response and orientation to the NDMS. They are simultaneously on standby to provide disaster medical care for the event. As US federal employees, they receive health insurance, liability coverage, and protection of their civilian employment. **Conclusion:** The establishment of the MSET provides NDMS with a flexible response to expand or augment surgical and specialty services during disasters and medical contingencies. The test unit will serve as a model to be refined before scaling up to greater numbers. Funding has been achieved by synchronizing training with deployment to national scale events. This team will provide The US NDMS greater capability during future disasters, both domestic and international.

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ID 95: Spontaneous Liver Laceration

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81 years old male presented to the ED with sudden onset of severe abdominal pain and diaphoresis after eating. Triage VS: HR 67, RR 20, room air sat 98%, BP 73/43.

PHx was significant for a-flutter on Coumadin, HTN controlled on β-blockers, DM, thrombocytopenia, and anemia.

The patient and family denied syncope, falls or traumatic injury. Pertinent PE findings were ill appearing, anxious elderly male with abdominal distention, guarding and no signs of trauma.

During initial assessment, the patient rapidly deteriorated and two large bore IVs, central venous catheter and arterial catheter were placed. Point of care bedside ultrasound identified free intra-abdominal fluid. With the acute decompensation and abdominal distention, multiple crystalloid fluid boluses followed by blood transfusion for a goal MAP of > 65 mmHg and FFP to correct coagulopathy. The surgical team was notified and a formal ultrasound identified the intra-abdominal fluid, normal abdominal aorta and 8 cm hyper echoic liver lesion.

Pertinent laboratory values were: WBC of 13.7 K/uL, Hb11.4 g/dL, platelets 143 K/uL, PT 25.8 sec, INR 2.5, glucose 283 mg/dL, BUN 20 mg/dL, and creatinine 1.67 mg/dL. Blood gas was abnormal for lactate 2.6 mmol/L, HCO3 18.9 mmol/L, and PCO2 33.4 mmHg.

CT scan with IV contrast identified a hematoma on the upper abdomen and acute extravasation from left hepatic lobe. The patient was taken to interventional radiology suite with successful embolization of a branch from the left hepatic artery and transferred to ICU.

Atraumatic hemo-peritoneum generally carries a high mortality particularly from a spontaneous liver laceration on anticoagulation medication. This case highlights the importance of bedside ultrasound in diagnosing spontaneous hemo-peritoneum in critically ill patients. Another highlight involved the aggressive early resuscitation and timely embolization of the spontaneous liver laceration leading to an ICU stay of 6 days and discharge home within 10 days.

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ID 96: Emergency Nursing Beyond the Walls of the Hospital: Plan, Prepare and Respond to a Major Event

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Two emergency nurses, one from the Chicago Fire Department and one from the Chicago Department of Public Health will describe their experiences planning and leading preparation processes for local, regional, and international events in a major metropolitan city in the USA. They will share planning strategies utilized in a multi-disciplinary/multi-agency process; highlighting the extensive planning and preparedness activities needed to host a NATO Summit. The planning process for this and other events utilized accepted and creative preparedness strategies. These strategies included, but were not limited to; the use of healthcare preparedness capabilities as described by the United States Health and Human Services Preparedness Programs. Healthcare preparedness capabilities include Communication and the use of real time situational awareness/information sharing demonstrated, Patient Surge and alternative treatment sites to mitigate hospital Emergency Department surge, the development of Evacuation Plans (adult and pediatric) and Fatality Management plans specific to hospital. These plans included the Emergency Operations Plan (EOP) for this international event that was specific to Health and Medical Response. Lastly, but not exclusively the strategic use of grant funding for exercises, trainings, supplies and equipment will be discussed. Tools to be shared include the outline for the Health and Medical EOP, the Concept of Operations for Health and Medical Response, the areas of responsibility for Health and Medical Agencies, the First Responder Post-Exposure Protocol, and a Syndromic Surveillance Plan. At the conclusion of this presentation, the audience will be able to identify best practices and lessons learned from the healthcare perspective.

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ID 97: Disaster Medical Assistance Team (DMAT) Medical Augmentation Experience at a Special Medical Needs Shelter and Lessons Learned During Hurricane Sandy

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Responding to the ongoing needs of multiple comorbid individuals during a large disaster is a challenge that requires a

sophisticated response. Between October 31st and November 11th, 69 Disaster Medical Assistance Team (DMAT) responders cared for displaced patients from nursing and assisted living facilities due to the power failures following Hurricane Sandy. We faced several challenges that deserve consideration for future responses; the management of chronic and complex illnesses, the lack of pre-incident medical records, acute exacerbation of medical and psychiatric illnesses, and delays in providing maintenance medications. The peak census in this shelter, located in Brooklyn, NY was 586 evacuees. The most significant difficulties encountered and our corresponding responses are detailed below:

1. Consistent with reports from other large-scale incidents, the bulk of patients requiring evaluation experienced exacerbation of chronic illnesses rather than acute injuries sustained during the event. In response, DMAT worked with facility staff to ensure proper patient identification and accurate medical record access whenever possible.
2. The shelter was a large open area with several hundred cots. This meant the mixing of medically and psychiatrically ill patients. Cohorting patients with severe psychiatric issues in a more isolated area with dedicated staff enabled the team to focus resources more efficiently.
3. Lights remained on 24 hours daily during the first 3 days of shelter operation due to safety concerns. Patients' sleep-wake cycles were disrupted, followed by decompensation of several of the most severely ill psychiatric patients. We worked with shelter staff to address safety concerns and facilitated lights-out at night. Following this intervention, we saw significantly improved mental status and behavior among many patients.
4. Many patients were minimally mobile and poor self-advocates, therefore our team incorporated "roving" medical providers that attempted to identify patients with developing or acute medical issues for treatment.

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ID 98: A Framework to Assess Hospital Resilience to Disasters: A Critical Review

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Background: Given the critical role of hospitals, the model of "safe and resilient hospitals" was promoted as a key component of disaster risk reduction planning in the healthcare sector during the 2005 World Conference on Disaster Reduction. However, to date little research has focused on evaluation of hospital resilience. Through reviewing current literatures, this paper aims to describe what is currently known about hospital resilience and build a new framework with potential measurable indicators for evaluating it, with a view to further establish an evaluation instrument.

Methods: Studies published in major electronic databases (from 1981 to October 2012), which focused on the evaluation of hospital in the face of disasters, were identified and synthesized.

Results: Recent hospital disaster studies focused on hospital preparedness, hospital performance, hospital safety and capabilities in disasters. Eleven quantitative and five qualitative studies were included. All the quantitative studies are with an evaluation instrument, but most are with limitations, such as without testing reliability and validity. Based on the definition of 'hospital resilience', this paper selected and synthesized the potential key components from the included studies to form a new framework for evaluation.

Conclusion: To date, there is no specific framework designed for hospital resilience that would be able to be measured and improved. This paper (1) defines hospital resilience; (2) proposes potential key components for hospital resilience; (3) provides a three-level framework with further potential measureable indicators for assessment of hospital resilience, (4) designs a conceptual framework for interpretation. This is an initiation; however experts' advices and hospital empirical studies are needed for further development of this framework. More studies focusing on hospital resilience are also needed.

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ID 100: Communication with Deaf People in Emergency Situations

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Background: The absence of hearing is an obstacle to optimal communication in a predominantly hearing world. Emergency situations harbor challenge for all, especially for vulnerable populations such as deaf and hard of hearing persons. In an emergency, warning is often provided via sound (such as sirens). In these situations, information is crucial and the difficulty to obtain and share it, results in increased dependence on others. The aim of this study is to explore the experience of deaf Israeli citizens during a period of security threat on the civilian population in Southern Israel in 2009.

Methods: A qualitative study included fifteen standardized observation and open-ended interviews with deaf people. The interviewees varied in age, gender, religion, origin and preferred communication method (sign language, speech, lip reading, and reading).

Results: The special needs of deaf people are primarily focused on communication during emergencies (needs for effective communication and transmission of messages, warnings, instructions, etc.). Most participants experienced frustration; problems in obtaining information from the mass media;

increased dependence on others and low availability of professional translators during the emergency period. Many suggested alternatives to the existing warning methods, and other proposals for helping the deaf cope during emergencies.
Conclusion: The inclusion of deaf people when planning for emergencies is recommended. A variety of communication channels are recommended. Raised awareness and training of professionals about communication with deaf people is necessary. Training first responders can help improve the safety of deaf people during emergencies.

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ID 102: Newly Introduced Fundamental Disaster Management (FDM) Course in Japan

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Background: Regarding the intensive care of disaster victims, the uniformity and consistency of medical transit is important. Accordingly, it is necessary to provide a fundamental practice to critically ill patients from pre-hospital through intensive care phase. In Japan, standardization of medical care during a disaster has begun only recently. However, coverage of education for the procedures implemented during hospitalization is insufficient. On the other hand, the Fundamental Disaster Management (FDM) course by the Society of Critical Care Medicine in the United States has provided consistent in-patient care since 2003. Additionally, in 2011 we introduced and held the FDM courses in Japan. The educational effectiveness was analyzed through surveillance questionnaires held after the course.
Methods: Two FDM courses have been held. The program includes a lecture series and skill stations. Evaluation was conducted through surveillance questionnaires to 84 participants. The questionnaires were; A. understanding the concept and B. satisfaction level of the course.
Results: All participants answered the questionnaires. The number of participants who scored more than four points out of five points were as follows; A. was 61 (72.6%) and B. was 59 (70.2%). In general, an evaluation from the participants produced a high percentage rate. As a result, the course is thought to be useful for the assistance of learning disaster management. However, complaints arose concerning the shortage of time and the similarity to other educational courses. Therefore, further consideration for improvement of the course is needed in order to align with the Japanese disaster medical system and with the promotion of self-learning before attending the course.
Conclusion: In Japan, healthcare providers in hospitals also desire to construct a guideline of 'standard approach for critically-ill patients at a disaster'. Namely, the FDM course must be provided periodically in the future.

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ID 103: START-PC & SALT-PC: A Paradigm Shift in Triage

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Background: Triage has inexorably expanded from its main objective to sort patients based upon criticality of condition to also providing some basic medical intervention. START triage allows clearing the airway and staunching hemorrhage as two expeditious field therapies. SALT, the latest triage iteration, extends that to relieving a tension pneumothorax and antidotal therapy. These two precedents allow the exploration of additional medical interventions during field triage as long as they are necessary, expeditious, and easily mastered by the most basic responder. Early pain control using intranasal opiates can be an additional therapeutic intervention in the field during triage under specific guidelines and with structured training. The intranasal technique allows first responders with minimal training in invasive techniques to deliver analgesia quickly.
Methods: A global literature search was undertaken concentrating on the principal terms "triage," "pre-hospital," and "intranasal analgesia." Intranasal opiate therapy was specifically researched due to its lack of bleeding complications. It is also easily reversible with naloxone.
Results: There is no universally established triage system that incorporates intranasal opiates into its algorithm. However, intranasal therapies are an accepted aspect of pre-hospital pain control and seizure management. Intranasal sufentanil, particularly, resonates in disaster triage because of its efficacy in both the adult and pediatric studies and is not cost-prohibitive. Therefore, START and SALT algorithms have been uniquely modified and are presented by the authors to accommodate a pain control (PC) step; Hence, START-PC and SALT-PC.
Conclusion: Disaster triage is an ever-evolving concept integrating the most basic medical intervention with traditional sorting of patients. Intranasal sufentanil appears to be the most efficacious agent due to its proven efficacy and ease of delivery which makes it accessible to the most basic triage responder supported by a modicum of training and within locally-accepted guidelines.

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ID 104: Analysis of Management of Non Invasive Ventilation Support in Pre-Hospital Care for COPD Patients and Short-Term Outcome

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Introduction: Benefits of the use of NIV in the emergency department are well established. Training and available staffs, choice of respiratory machines are essential criteria for success.

Methods: We've conducted an observational, descriptive, retrospective, single-center study, in a 4 months period, with COPD patients with respiratory failure who received pre-hospital NIV. Two groups were compared: COPD patients with NIV and COPD patients without.
Results: 42 patients were included, mean age 68.86 years (±11.98), 57.14% smokers, 64.28% arterial Hypertension, 100% long-term oxygen therapy, 28.57% corticosteroids. 88.09% bronchospasm, 78.26% struggle signs, 28.57% unable to speak, 14.28% sweating. Mean respiratory rate 30.5 cycles/min (±7.17), pulse rate 105.76 (±25.34). Nasal EtCO2 47.75 mmHg (±16.53), pulse oxymetry in air was 85% (±10.94), oxygen flow rate 5.45 l/min (±2.42), temperature 37.14 (±8.15). 20 patients received NIV. 61.90% admitted in Emergency department, 35.71% in ICU, 1 patient was left at home. 1 patient was intubated in the hosting service. Died rate in the 1 month is 13.04%. Significant difference ($p < 0.05$) found for: sweats (30%/0), Respiratory Rate (34 ± 8.23/27 ± 6.11), nasal EtCO2 (55.0 ± 24.4/40.50 ± 9.03), pulse oxymetry in air (80% ± 8.63% ± 13.25/90), pulse oxymetry with oxygen (89.4% ± 4.24/87.90 ± 2.55), beta2-mimetic nebulization (60% ± 0.5/90 ± 0.29%), Emergency room admission (35% ± 0.35% ± 0.48/86), ICU admission (60% ± 0.5/13 ± 0.35%), arterial blood gases on arrival in host service (PaCO2 76.6 ± 18.66/43.93 ± 11.78). No difference for died rater at 1 month.
Conclusions: Non-Invasive Ventilation has improved the management and prognosis of COPD patients. NIV seems to show interest on pre-hospital care, especially in patients with signs of severity, hypercapnia, without fever. Oxygenation and hypercapnia seem to be improved. Also fewer patients are admitted in ICU.

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ID 105: Pre-hospital Management of COPD Patients in Respiratory Failure and Short-term Outcome

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Introduction: Respiratory failure in COPD patients is a frequent call in French emergency dispatching center. We have evaluated the pre-hospital management of COPD patients, severity signs, and analyze outcome in emergency department or ICU.
Methods: We conducted an observational, descriptive, retrospective, single-center during a 4 months period. All COPD patients with respiratory failure and pre-hospital care were included.
Results: 90 patients (77% male, 23% female). Mean age 69 years old (+/−11.88). 55% were smokers, 52% had arterial Hypertension, 39% received long-term oxygen therapy, 18% received antibiotics in the 7 days before, 18% corticosteroids, and 14% were on long term NIV support at home. An Emergency medical ambulance was immediately sent for 86% of patients. 92% have normal consciousness, 78% had bronchospasm, 71% had signs of respiratory struggle, and 12% were unable to speak. The mean respiratory rate was 31.4 cycles/min (+/–8.18), the average cardiac pulse were 103.6 beats per minute (+/–23.14). Nasal EtCO2 44.92 mm Hg (+/–16.38), Pulse oxymetry with air was 83.48% (+/–12.09), the average flow rate of oxygen delivered was 5.69 liters per minute (+/–2.93). None of the patients had fever. 85% were supported in Spontaneous Ventilation, 22% received pre-hospital Non invasive Ventilation, they all showed signs of severity and 3% need Tracheal intubation. 75% of patients received beta2-agonist and anticholinergic nebulization, 45% intravenous corticosteroids. 71% were admitted to the emergency room, 29% in the ICU.
Conclusions: Most of the patients had signs of severity and bronchospasm. The absence of fever and antibiotic allows us to think that the cause of decompensation is not pneumonia. Although most of them were hypoxic and hypercapnic, they seem to be good candidate for NIV support in the pre-hospital care. Very few study report the use of NIV in case of COPD respiratory failure in the first care delivered at home.

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ID 106: Characteristics of Patients Calling the French Emergency Medical Dispatching Center

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Introduction: Characteristics of patients calling French emergency medical dispatching center (15) is not always well known. We wanted to make an inventory of these patients during a 24 hours continuous day, specifying the type, the age of the caller, the location when calling, and the main reasons for the call.
Methods: We conducted a prospective, observational study by collecting all data, recording during a call. Various administrative information was collected.
Results: 877 cases. 97 (12%) medical files have been opened by mistakes either after a fake call or a mistake of phone number. The average prevalence rate of calls was 28per100,000 (±4). The average age 43.5 years (±26.4) as many men than women (49.8%/50.22%, ns). Four age categories were individualized in four peaks of the age pyramid: patients less than 5 years, between 15-30 years, 55-60 years and 80-85 years of age. 67.80% of calls for a patient at home, 15.63% a patient on the public way. In 54.21%, call is made by the subject himself or a family member, and in 19.43% call is made by a witness unrelated to patient. 64.54% dialed directly the 15 (French Emergency Dispatching Centre number) and for 90.54% of them, patient were at home. 41.85% dialed 18 (firemen phone number), 58.74% of them were on a public place.
Conclusions: A lot of files concerned mistake number of fake call. That is a cause of wasting time for others calls coming in the dispatching center, and also a cause of delay to pick up the phone for following emergency calls. People have the reflex to

call firemen when a problem occurs on the public place, and in the other hand, they call more often the emergency dispatching center when the problem occur for themselves (rather than a witness) and at home.

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ID 107: Analysis of Emergency Calls Achieved in French Emergency Dispatching Centre: What Resources for Which Patients

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Introduction: Purpose was to analyze calls arriving at the emergency-dispatching center, define resources for transportation, host hospital department, and analyze the short-term outcome.
Methods: Prospective, observational study, by collecting all data on a continuous 24 hours period. We identified the type of call, various administrative information, purpose of call, resources triggered, medical advice, hospital department admission and clinical evolution.
Results: 877 patients. 67.80% calling from home, 15.63% calling from public place. Firemen ambulances were sent in 38.89%, private ambulance in 24.65% and an emergency medical ambulance (SMUR) in 11.23%. A simple medical advice was given in 13.19%. 22.18% of patients were entrusted to the family. 2.89% refused transportation. 69.94% of triggered firemen ambulances were done by a center 18 call, without any medical regulation by an emergency physician. 68.59% patients were referred to the emergency department, 1.2% in ICU and 1.8% in Cardiac ICU. At the emergency room 50.78% of patients received a simple medical consultation with biological analyses and then returned home. 25.50% of patients were hospitalized in a medical department and 12.42% in the short term hospitalized unit of the emergency department (stay duration <24 hours). 5.10% of patients worsen and were oriented in the ICU. 3.77% of patients to a Cardiac ICU. 73.84% of patients had stay duration less than 6 h in ED, 24.45% less than 24 hours. 40% of patients supported by firemen and 54% supported by private ambulance left the hospital after a single medical consultation.
Conclusions: Nearly 70% of patients calling the French Emergency medical Dispatching center are oriented to a hospital. Two thirds by a private ambulance or firemen ambulance. 1 out of 2 patients received only a simple medical consultation in ED and returned home. This may correspond to the deficiency using general medicine in town. Only 1 patient was hospitalized on 4 more than 24 hours.

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ID 108: Community Paramedics: The Role of Higher Education as an Enabling Factor

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Background: The emergence of more complex professional paramedic roles raises questions related to expectations and whether they can be sustained. One of the aims of this research was to identify enablers related to the implementation of the community paramedic model.
Methods: The study was undertaken in the County of Renfrew, Ontario, Canada where a community paramedic role has emerged in response to demographic changes and broader health system reform. Descriptions of the role were sought from managers, while qualitative data was collected through direct observation of practice, informal discussions, and focus groups.
The innovative component of this research was its use of boundary theory to identify and analyze how community paramedics create and maintain new role boundaries and identities.
Results: The findings provide a rich picture of the working environment of community paramedics and how their roles may develop in an integrated health system. A range of enablers were identified, including the crucial role of education in the effective and sustainable implementation of the community paramedic model.
Traditional paramedic education programs are narrowly focused on emergency response, with limited education in health promotion, aged care and chronic disease management. In many paramedic programs there is a lack of education in the social determinants of health and how the wider health system operates. Paramedic programs aiming to include a wider range of topics face a number of challenges such as an already crowded curricula and convincing predominately young students that community primary care content is relevant to their future practice as a paramedic within an integrated health system.
Conclusion: A closer match between the paramedic curriculum and the emerging roles of paramedics, whether they are community paramedics, extended care paramedics, or as yet unformed roles is urgently needed if paramedics are to become a valued part of a health system.

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ID 110: Effect of Volume of Fluid Therapy to Prevention of ARF in Earthquake Causalities

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Background: Crush syndrome is a common cause of acute renal failure (ARF) after disasters. ARF is a potentially reversible if appropriate fluid therapy is initiated on a timely manner. An earthquake struck Bam City on 26 December 2003. Many people were died and tens of thousands were injured.
Method: A questioner was designed to collect data of fluid therapy to causalities retrospectively. ARF was defined as at least two serum createnine levels of above 1.5 mg/dl in first hospitalization days and rhabdomyolysis as at least one serum createnine phosphokinase (CPK) above 1000 IU/L and /or LDH >1500 IU/L together with AST > 150 IU/L.
Results: Mean of fluid that infused IV (INTRA VENOUS) in the first five days after the earthquake was calculated and patients were classified in three groups accordingly (g 1 = < 2 lit,

g2 = 2-5 lit, and g 3 = >5 lit/24 hrs.) Chi square and Fisher exact tests were performed as appropriate. A total of 2226 patients (1198 male) were studied. In patients with rhabdomyolysis, 75% of those that mean of IV fluid therapy in first five days (IV5) was less than 2 lit/24 hr developed ARF versus only 33% of those with (IV5) between 2-5 lit/24 hr ($p = 0.002$), but this percentage was not different between those with (IV5) of 2-5 lit/24 hr and more than 5 lit/24 hr. IN ARF patients 88.8% of that received 2-5 lit/24 hr. IV fluid eventually required dialysis, as compared to 33% of those received more than 5lit/24 hr (0.002), but was not significantly different in those who received IV fluid <2 and 2-5 lit/24 hr.
Conclusion: At least 2-5 liter /24 hr of IV infusion could decrease the risk of ARF in patients with rhabdomyolysis, whereas more than 5lit /24 hr of IV fluid are required to decrease the risk of dialysis requirement in the patients with ARF.
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ID 111: Preparing For Euro 2012: Developing a Hazard Risk Assessment.

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Background: Risk assessment is a vital step in the disaster preparedness continuum as it is the foundation of subsequent phases including mitigation, response and recovery. We sought to develop a risk assessment tool geared specifically towards the UEFA™ Euro 2012.
Methods: In partnership with the Donetsk National Medical University, Donetsk Research and Development Institute of Traumatology and Orthopedics, Donetsk Regional Public Health Administration and the Ministry of Emergency of Ukraine, we created a table-based tool, which, based on historical evidence, identifies relevant potential threats, evaluates their impacts and likelihoods on graded scales based on previous available data, identifies potential mitigating shortcomings, and recommends further mitigation measures.
Results: This risk assessment tool has been applied in the vulnerability assessment phase of the UEFA™ Euro 2012. 23 sub-types of potential hazards were identified and analyzed. 10 specific hazards were recognized as likely to very likely to occur, including natural disasters, bombing and blast events, road traffic collisions and disorderly conduct. Preventative measures such as increased stadium security and zero tolerance for impaired driving were recommended. Mitigating factors were suggested, including clear, incident-specific preparedness plans and enhanced inter-agency communication.
Conclusion: This hazard risk assessment tool is a simple aid in vulnerability assessment, essential for disaster preparedness and response, and may be broadly applied to future international events.
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ID 115: Physicians' Preparedness to Public Health Emergencies in Egypt

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Background: Public health emergencies have increased dramatically in the last years both man-made and naturally occurring. Developing countries like Egypt are exceptionally affected by consequences. The study is trying to investigate factors that mostly need improving for better response to such emergencies. The study focused on analysis of physicians' level of competency to respond to these types of emergencies while exploring recommendations for improving.
Methods: A Cross-sectional study involving currently practicing physicians in Egypt over six months.
Results: Calculating cronbach's alpha using all variables on the questionnaire excluding demographic questions gave (.424). The total responders are 93 physicians. 84.4% of responders are male and 14.1 female. 10.8% of all the responders are smoker, 80.6 are non-smokers and 8.6 are sometimes smokers. 40.9% responded yes that there is an emergency plan in their facility. 21.5% do not know if there is an emergency plan or not and 37.6% responded no. 33.3% have had postgraduate courses related to emergency preparedness while 66.7 have not. 23.1% never practiced CPR. 4.4% performed triage of the scenario cases correctly while 95.6% gave incorrect classification of one or more of the three cases. 58.7% sees emergency response in the healthcare system in Egypt as fatal. 4.3% sees it very good. 16.3% sees it as good while 20.7% sees it as satisfactory. Education and training improving plus, reforming or changing the healthcare system were the three most frequent recommendations for improving the healthcare system response to public health emergency.
Conclusion: The physicians' competency level as regard to the response and preparedness to public health emergencies is poor and needs a lot of improvement. Education, training, continuous education, reforming the system, communication and sharing resources inside the healthcare system are some of many options to enhance improvement opportunities.
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ID 116: The Role of Armed Forces in context of Civil-Military Collaboration in Turkey

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Civil- military collaboration is defined as, with a wide meaning, in times of peace and war, providing the period of cooperation and coordination between civilian and military sectors. In Turkey, civil military collaboration are understood

as the civil and the military sectors to support each other. This study highlighted the importance of civil-military collaboration. Active and effective civil- military collaboration for the implementation of the recommendations are described. Disasters and economic losses in Turkey are summarized. How to conduct civil-military co-operation should be mentioned that the laws and regulations, especially in Turkey disasters. These laws and regulations are explained the tasks assigned to the Turkish Armed Forces and disaster response skills and capabilities of the Turkish Armed Forces were discussed and given some examples. Also given some examples within Social Peace Support Operations and Search and Rescue Operations. The fields of activity of civil-military collaboration in Turkey, a wide area extending from the central level to the level of local spread. These fields of activity are listed that Civil-Military Collaboration in times of Peace, Civil-Military Cooperation in times of Crisis and War, Civil-Military Cooperation in times of Natural Disasters. This paper described the tasks of TAF in these fields of activity. As a result many problems like natural disasters in the less damage to get rid of, to serve establishment of teams including military and civil defense elements, and natural disasters services to exploit a team including military and civil defence experts should be established. Excellence centers should be created with a capacity of these countries for not only their territory at the same time get benefit from international communities.

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ID 117: NATO Summit Preparedness: Administrative and Educational Priorities and Challenges

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The North Atlantic Treaty Organization (NATO) convened a high-level summit May 20-21, 2012 in Chicago. This was the first time it was held in the United States outside of Washington D.C. Aside from security, much attention was placed on mass gathering of people, which included heads of state/government, their delegations, protestors, and bystanders. This is a review of lessons learned in preparation for the Chicago NATO summit from our institution.

Methods: The Emergency Management Committee at the University of Illinois Hospital coordinated and organized preparedness planning for the medical center following the incident command framework. Participation included representation from all departments within our hospital, regional hospitals, university campus, city of Chicago, and federal agencies. We reviewed all documents, protocols, and communications amongst parties for this event to highlight administrative and educational priorities and challenges.

Results: We had a unique role providing post-exposure care for first responders to the event. While no major mass casualty incident occurred during the summit, we achieved a level of cooperation that had not been attained previously. The focus was on administrative coordination of activities, education, communication, ensuring proper healthcare of victims, and ensuring the safety and security of all people involved. In addition, we were able to mitigate vulnerabilities in our institution that existed prior to the event. Transparency and frequent communication within the medical center about developing activities allowed for an engaged and prepared staff.

Conclusions: Using pre-scheduled events to plan for the unexpected is an effective way to engage healthcare workers in disaster preparedness. Because of the international nature of the summit, we garnered support from an audience that frequently does not heed preparedness plans. It allowed us the opportunity to test existing structures, refine and update gaps. Ultimately, we were able to get personnel to recognize their essential roles in a disaster.

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ID 118: Setting Up Emergency Services for Women Experiencing Gender-Based Violence In Urban Bengaluru, India

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Background: Gender based violence (GBV) is a global health and human rights issue. It is highly prevalent in India, with approximately 40% of a representative sample of women in the reproductive age reporting GBV by their husband (National Family Health Survey 2005-06). Our previous research in Bengaluru showed over two thirds of our study participants reporting experience of some form of GBV. There is an urgent need for emergency crisis services for women experiencing GBV in this high prevalence setting.

Methods: As part of a project to build the capacity of the municipal primary health care system in Bengaluru to respond to GBV, we are establishing an emergency response system. This includes 1) developing an identification and response protocol for health care providers; 2) hiring and training counselors to provide 24 hour helpline services; and 3) encouraging providers to offer information on available support services to women at risk of and experiencing GBV.

Results: Initiation of program activities has resulted in cases being referred to project counselors through the primary health care system. The critical role of identification by health providers and the linkages between GBV and health emerge prominently through our intervention. Intervention among the referred cases included offering one-on-one counseling, provision of detailed information on options available and support to the woman to take and enact decisions.

Conclusion: Primary health care centers are often the first point of contact for women experiencing GBV. Women in crisis situations are able to access these centers easily because of their proximity and because seeking primary health care are routine. Training the health care staff to screen for cases, provide support and ensuring the availability of emergency

response services at these centers can mitigate the adverse outcomes of GBV. Our preliminary experiences substantiate the feasibility and acceptability of such a program.

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ID 119: El Valor Del "Factor Humano"

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Introducción: El desastre deja de ser un momento de disrupción en la cotidianeidad y pasa a ser el instante preciso en que el riesgo se pone en evidencia, mostrando el grado de capacidad de respuesta de los equipos de profesionales
Entendíamos al desastre como producto, dejando afuera del análisis la consideración de la sociedad expuesta al riesgo y el factor humano interviniente. Pensando en la impotencia de unos y la omnipotencia de los otros, impactando en la Salud de ellos y en la eficacia de los resultados
Es entonces cuando vimos que un evento trágico se convierte en un desastre si el factor humano no esta cuidado e informado para dismunir riesgos
Método: Se armaron protocolos monitoreados de respuesta según tipología de victimas
Se dio capacitación en servicio de acuerdo a las actividades ej: debriefing, prensa, etc
Se habilitaron lugares posibles de derivación para las victimas
Organización de la respuesta los RRHH teniendo en cuenta las capacidades por competencias del factor humano
Se puso en consideración el monitoreo a los voluntarios de ONG de respuesta ante desastres, con alto grado de abandono
Resultado: Se observa y se comprueba que especificar la capacitación, protocolizar la tarea según la actividad y la problemática a la cual se dirige, produce mayor eficiencia, menor frustración y vulnerabilidad en el desarrollo de las capacidades y rendimiento del Factor humano
Conclusión: Luego de 25 años de experiencia en la observación directa del comportamiento humano en operaciones de asistencia y prevención mejoramos la capacidad de planificación operativa en base a métodos "científicos" centrados en ellos/mas de 6500 personas
Damos primacía a los preparativos para la respuesta acertada y la protección de las personas y la disminución del impacto de la ansiedad ante los hechos trágicos considerando un Factor fundamental, el ser humano que las gestiona

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ID 120: What Brings You to Here Today? A Qualitative Study Exploring Patients Perceptions and Reasons for Presenting to the Emergency Department with Non-Urgent Complaints

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Background: Emergency department (ED) overcrowding is a mismatch between patient demand and ED provider ability to provide effective emergency medical care. Overcrowding is multifactorial; excessive ED utilization for non-urgent complaints is a contributing factor. Though Veteran Affair (VA) patients have health benefits covering medical expenses for both primary clinics and the ED, the VAED is frequented by non-urgent patients. This study aims to explore reasons why some VA patients choose the ED for their acute, but non-urgent complaints.
Methods: Qualitative research methods were used to study patient utilization of the VA for non-urgent complaints. A structured in-depth interviews and direct observation were conducted in the ED and in primary care clinic. Twenty-two patients and twenty-one providers were recruited and interviewed. Data was transcribed and coded to identify common themes.
Results: ED patients identified the following themes: 1.) Lack of timely access to their primary care providers (PCPs). 2.) Referral to the ED by other VA personnel, specifically tele-health and clinic nurses. 3.) Convenience of using ED over navigating through PCP appointment system. On the contrary, non-urgent patients who utilized their PCPs reported 1.) timely response from the PCPs 2.) Strong personal desire to take ownership of their own health.
Both PCP and ED providers recognized that the presentation of acute non-urgent patients to the ED negatively impacted patient care by slowing overall patients flow, increasing providers' stress, and prolonging waiting time. Providers suggested three solutions: initiating facility such as urgent care clinic, enhancing tele-health service and increasing access to PCP care.
Conclusion: Both patients and providers recognized the need for timely access for acute complaints. Solutions supported by both patient and providers to improve access were developing an urgent care clinic separate from the emergency department, improving tele-health services, and streamlining access to primary care clinics.

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ID 121: Xanthogranulomatous Pyelonephritis: Not Your Usual Pyelonephritis. What Every Emergency Physicians Should Know When Encountering This Diagnosis?

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Background: Xanthogranulomatous Pyelonephritis (XGP) is a chronic inflammation and parenchymal destruction of kidneys. The increasing use of computed tomography (CT) may increase emergency physician's encounter with this diagnosis. We report a case of XGP that presented to our emergency department.
Case report: A 67-year-old woman presented with one day of right-upper-quadrant abdominal pain associated with nausea, vomiting, and anuria. This was preceded by decreased urination over several weeks. On physical examination, she

was tachycardic without fever or tachypnea. There was right-sided abdominal tenderness to deep palpation without rebound or guarding. Laboratory investigation revealed leukocytosis and serum creatinine of 4.5 mg/dL. Urine was not obtainable. Abdominal CT revealed an atrophic left kidney and markedly enlarged and swollen right kidney with staghorn calculus, characterizing XGP. Following urologic consultation, broad-spectrum antibiotics and urologic emergent nephrostomy tube insertion were initiated. Following a protracted course of intravenous antibiotics she underwent percutaneous nephrolithotomy with preservation of her renal function.

Discussion: XGP typically occurs in middle-aged females with nephrolithiasis and recurrent urinary tract infection. They present with chronic fever, malaise, weight loss, flank pain, dysuria, hematuria, or a palpable mass. Leukocytosis, anemia, impaired kidney function, pyuria and positive urine culture with gram-negative bacilli are often noted. XGP can be diagnosed and divided into2 forms. In the diffuse form, CT reveals a diffusely enlarged kidney with parenchymal thinning and replacement by multiple hypo-echoic areas with contrast-enhanced walls and renal calculi frequently presents. In focal XGP, CT demonstrates a hypodense mass which can resemble malignancy. Patients with XGP should be admitted with urology consultation. Traditionally, the standard of care for XGP is nephrectomy. However, in this case, the patient was successfully treated with intravenous antibiotic and nephrostomy tube insertion with subsequent nephrolithotomy

Conclusions: With the increased utilization of imaging, it is important for emergency physicians to promptly consult urologists and admit patients with suspected XGP.

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ID 122: The Gains of Humanitarian Operation Force (Hopefor) Initiative

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HUMANITARIAN OPERATION FORCE (HOPEFOR) is national and international non-intervention in disaster situations, an attempt to join the military aspects. The Republic of Turkey, the State of Qatar and the Dominican Republic have launched the HOPEFOR initiative, which aims to promote civil-military coordination at the international and regional levels and the effective use of military and civil defense assets in disaster response.

After the workshop organized by the three countries and the UN OCHA in June 2011 in New York, the United Nations General Assembly at its 65th session adopted the resolution A/RES/65/307 on 1 July 2011 entitled "improving the effectiveness and coordination of military and civil defense assets for natural disaster response", which, interalia, recognized the importance of the initiative.

The first international conference co-organized by Qatar, Turkey and the Dominican Republic, convened in Doha on 27-29 November 2011. The second Conference, organized by the Prime Ministry's Disaster and Emergency Management Presidency (AFAD) under the auspices of the Presidency of the Republic of Turkey, convened in Antalya on 28-30 November 2012.

Three panels provided the participants with the opportunity to elaborate on the conference objectives, aimed at developing the initiative on practical terms:

- To discuss examples on the operational implementation of civil-military coordination in natural disaster cases, including examples of best practice of operational civil-military cooperation and/or coordination in different disaster cases at the national, regional, and international levels.
- To share different experiences of civil-military coordination at the stages of preparedness and response, including civil-military cooperation and/or coordination in the preparedness phase to natural disasters.
- To explore ways to enhance the civil-military coordination at the regional, sub-regional and international levels, including effective coordination of MCDA at all levels.

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ID 123: British Columbia's Mobile Medical Unit - A Mass Gathering Medicine and Disaster Support Resource

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6. Vancouver Coastal Health
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Background: A self-sufficient hospital on wheels, British Columbia's Mobile Medical Unit (MMU) consists of a hospital vehicle, support vehicle, and auxiliary equipment. The MMU originally provided critical care and emergency surgical capability at the Whistler Athletes' Village during the 2010 Olympic and Paralympic Games in Canada. Subsequently, it was purchased by the Provincial Ministry of Health to improve provincial clinical response capacity.

Methods: A Canadian multi-disciplinary team was assembled and tasked with the design and maintenance of a MMU program that would be integrated with health emergency response, targeted mass gathering events and/or business continuity plans within each of the six provincial health authorities. The core MMU team of five individuals and a Provincial Advisory Committee were tasked with ensuring the MMU was activated on pre-planned deployments throughout the province in its first operational year, while maintaining a state of readiness for emergency deployment. Broad consultation with emergency management and special event stakeholders identified opportunities for deployments with the highest likelihood of benefit to the patient population or community health care infrastructure.

Results: In its first 18 months the MMU deployed to seventeen sites across five health authorities fulfilling five key roles: (i) renovation support, (ii) public health outreach, (iii) mass gathering event support, (iv) emergency/disaster

recovery, and (v) medical education. The first four roles included direct patient care, while the fifth covered a broad range of training exercises, including simulation.
Conclusion: The MMU has demonstrated its ability to deploy as a flexible resource capable of delivering a broad range of patient care and clinical education across BC. Utilizing the MMU throughout the year has provided valuable deployment experience, thus improving preparedness for emergency deployments.

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ID 124: Triage and Discharge Acuity Scale (TAS/DAS): Development of a Tool for Categorizing Patient Acuity During Mass Gathering Events at Presentation and Discharge

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Background: The mass gathering (MG) literature currently contains no standardized triage system for the documentation of clinical presentations. The objective of this study is to develop and validate an acuity scale for use in the mass gathering and special event context.
Methods:
Tool Derivation: The Canadian Triage and Discharge Acuity Scale (TAS/DAS) is based on two previously validated triage systems, the *Simple Triage and Rapid Treatment* scale (four colour) and the *Canadian Triage Acuity Scale* (5 numbers with modifiers). Patients are categorized according to acuity *both* on admission and discharge using a 5-point scale. An up-triage modifier was included to account for medical confounders such as intoxication, severe pain, and time sensitive clinical presentations such as acute coronary syndrome, stroke and sepsis. An additional category was added to capture low acuity, health promotion and "guest services" provided by the medical team that are not consistently recorded when using standard triage tools.
Pre-clinical Validation: An online survey with 30, two-stage scenarios, consisting of adapted MG and mass casualty cases was completed following a standardized, online, teaching presentation. In stage one, respondents were asked to assign a triage acuity level based on a brief description of an initial clinical presentation. In stage two, additional clinical information was provided to respondents who were then asked to assign a discharge acuity level.
Results: Respondent demographics, rating agreement scores, agreement statistics and results from 100 health care providers in four categories (medicine, nursing, pre-hospital, other) will be presented.
Conclusion: Using a common tool to document patient acuity will permit MG researchers to conduct comparisons between events. Retrospective validation of the TAS/DAS is planned to determine whether the tool can accurately be applied to existing medical records by researchers. A prospective clinical validation phase during the 2014 event season is expected.

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ID 125: Development of a Mobile, On-Demand, On-Site Clinical Record and Information System for Mass Gatherings and Event Medicine

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Background: Review of the mass gathering medicine (MGM) and disaster medicine literature confirms a lack of a standardized approach to data collection and reporting in relation to large-scale community events, mass casualty incidents and disasters. In response, Lund et al. (2012) reported on the first two years of a (presently) four-year online MGM Event and Patient Registry. This tool permits recording and reporting of event, team and patient-related variables for MGM, but has several limitations. To increase the Registry's utility and capacity, a mobile electronic Event Medical Record (eEMR) for on-demand, onsite care and collaboration is being developed. The eEMR leverages interactive technologies to track and dispatch responders, permit location-stamped and time-stamped capture of patient encounter data in real time, and import additional other event, team and patient variables.
Methods: Data from the existing Registry will be uploaded to the eEMR. Input by emergency planners from a mass casualty incident or local disaster scenario (March 2013), will be solicited via interviews. These insights will be used in the configuring of eEMR, further linking the eEMR and disaster medicine research communities. The master interface will provide real-time personnel and patient encounter surveillance. Standardized reporting through a real-time "dashboard" will provide timely event data to medical directors and event stakeholders, while customizable fields will track user-defined research factors/variables.
Results: Proof of concept for the eEMR will be demonstrated using historic and newly acquired data.
Conclusion: The outcome will be a model for an operational, platform-independent, web-based eEMR. The eEMR will establish a foundation for consistent data capture across a broad spectrum of MGM events.

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ID 126: Systems Approach to Mass Gathering Medicine/ Health Research

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Introduction: The desire for consistent conceptual models and research templates for the study of mass gathering medicine (MGM) has been discussed for the last decade. Yet MGM literature continues to evolve with little consistency in goals, terminology, or basic research approach.
Methods: The Canadian MGM Interest Group conducted a review of English language literature, categorizing selected articles by research approach, elements of the MGM "system" that were explicitly and implicitly identified, variable names, and definitions. An inductive, thematic analysis produced taxonomy of MGM events and research paradigms, as well as definitions of common terms and variables. An examination of the relationships between these elements was undertaken.
Results: This project takes up Arbon's 2003 challenge to develop a common conceptual framework by proposing a systems-based approach for categorizing MGM research. The Canadian MGM Interest Group has proposed an event-focused structural model for MGM research consisting of four elements: event, health team, patient, and reporting. Other researchers consider broader structural systems or psychosocial aspects. A review of these diverse systems serves as a starting point for situating and examining the relationship of specific articles and studies within the overall body of MGM literature. This presentation offers working definitions for types of MGM systems, elements that make up these systems, and a model for relating the variables to specific systems.
Conclusions: It is tempting to renew Arbon's initial call for consistency. Yet, a closer reading of MGM literature is intriguing. This varied literature represents more than a broad sampling of relatively similar situations – rather, the diversity reflects a breadth and depth of settings, research goals, perspectives, and methods. What is missing, perhaps, is less a consistent approach than an agreed upon perspective from which to approach and analyze, compare and contrast, and seek similarities and differences in MGM literature and practice.

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ID 127: Effect of Individual Days of Extreme Heat on ED Presentations for Chronic Conditions

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Introduction: A number of recent studies have examined the effect of heat waves on Emergency Department (ED) admissions for a range of different diagnoses. These include cardiovascular, renal, respiratory and mental health related conditions. Although ED admissions have been observed to increase during heat wave periods, some studies have failed to observe such increases. One possible reason for this discrepancy is the lack of agreed consensus on what constitutes a heat wave. Whilst some researchers use standard Bureau of Meteorology definitions, others define their own. In addition, the approach of using heat wave periods as a way to examine the effects of extreme heat often excludes individual days of extreme heat. We compared results obtained from examining the effect of temperature on ED admissions for certain health conditions with those from heat wave periods.
Method: Data was collected from four public hospitals in the metropolitan area of South Australia from 2007 to 2009 which included 5 recognized heat wave periods (5 consecutive days or more with maximum temperatures above 35 degrees). Effects of heat wave period were examined using conditional logistic regression whilst effects of maximum daily temperature were explored using non-linear regression. The conditions studied included renal, respiratory, cardiovascular and mental health.
Results: Effects for heat waves were observed for heat-related (OR = 2.82; 95% CI 2.26, 3.52) and renal (OR = 1.13;95% CI 1.06, 1.21) conditions alone. Critical maximum daily temperature effects were clearly observed for heat-related admissions (37.7°C) and renal conditions rose (39.3°C). Mental health related conditions rose steadily with temperature but fell significantly above 37.2°. Similarly, ED admissions for respiratory related conditions fell at 40°C and at 39°C for cardiovascular related conditions.
Conclusions: Studying the effects of individual days of extreme heat may be a more accurate method for determining the effects of extreme heat on health related conditions than relying on effects observed from heat wave periods.

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ID 128: Epidemiology of Moderate and Severe Traumatic Brain Injury in Cairo University Hospital in 2010.

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Background and Objectives: Traumatic Brain Injury (TBI) is a contributing factor to approximately one third of all injury-related deaths in USA annually. Updated statistical records for TBI in Egypt are lacking. The current research is aiming for estimating the prevalence of TBI in Egypt in order to develop a comprehensive TBI prevention program.
Methodology: One-year period (one calendar month every quarter of 2010) descriptive epidemiological study of moderate and severe TBI cases admitted to the emergency department, Cairo main university hospital. The Data collection sheet included personal data (age, sex and residency), incident related data (cause, nature and time of injury) and both; clinical and radiological findings.
Results: The attached table shows the magnitude of the problem with highlighting the leading causes of TBI in Egypt in 2010. Male sex was predominantly affected 79% of cases. Moderate and severe injuries account for 17.2% of all TBI presented cases.
Conclusion: Traumatic brain injury is a serious public health problem in Egypt. Further data interpretation over wider periods of time should be conducted for better understanding of TBI prevalence is highly recommended to develop effective injury prevention program. Inefficient recording should raise the concern to establish an optimal system for data recording and interpreting.

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ID 129: Availability and Quality of Pre-hospital Care on Pakistani Interurban Roads

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Background: Interurban road crashes often result in severe road traffic injuries (RTIs). Pre-hospital emergency care on interurban roads was rarely evaluated in low- and middle-income countries.
Objective: The study highlighted the availability and quality of pre-hospital care facilities on interurban roads in Pakistan.
Methods: The study setting was a 592-km-long National highway in the province of Sindh, Pakistan. Using the questionnaires adapted from the World Health Organization pre-hospital care guidelines (Sasser *et al.*, 2005 & Tachfouti *et al.* 2011) managers of ambulance stations along highways were interviewed regarding process of care, supplies in ambulances, and their experience.
Results: Ambulance stations were either managed by police or the Edhi Foundation (EF), a philanthropic organization. All highway stations were managed by the EF, average distances between highway stations were 48 km (Standard Deviation [SD] = 44). We visited 14 stations, ten on the highway section, and four in cities, including two managed by the police. Most highway centers received one RTI call per day and half of them (N = 5) were inside highway towns, usually near primary or secondary-level healthcare facilities. Average travel time to the nearest tertiary healthcare facility ranged from 30-70 minutes; it was more than 30 minutes in case of eight stations (53%). Most stations did not triage RTI (86%), informed hospitals (64%), or recorded response times (57%). All ambulances (N = 12) had stretchers but only 58% had oxygen cylinders. Average school training of ambulance staff (N = 13) was 6 years (SD = 4), and paramedic training 4 days (SD = 6).
Conclusion: Observed shortcomings in pre-hospital care could be improved by public-private partnerships focusing on paramedic training, making available medical supplies, and linking ambulance stations with designated healthcare facilities for appropriate RTI triage

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ID 130: Disaster Frameworks: A Methodology for Navigating Disaster and Global Health in Crisis Literature

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Introduction: 'Disasters' and 'global health-in-crises' research has dramatically grown, but large volumes of literature also reflect the field's multidisciplinary evolution. Researchers, policy makers, and practitioners now face a new challenge - an explosion of literature resulting in unmanageable disaster and crisis information. A method is needed to retrieve relevant articles. This manuscript presents both a framework and workable process for users to navigate the growing peer-reviewed and grey disaster and global health in crises literature.
Methods: Disaster terms were used to design a framework of thematic clusters and subject matter 'nodes'. Terms were organized within nodes to reflect disaster and global health in crisis topics. Terms were crossed with one another and the term 'disaster' and formatted into tables and matrices creating a roadmap that was applied to search the PubMed database from 2005-2011. A complementary process was applied to Google Scholar using the same framework.
Results: A framework of four thematic clusters, and twelve subject matter nodes organized 84 disaster and global health crisis search terms. The search process was applied to both PubMed and Google Scholar from 2005-2011 with 18,660 articles found in the PubMed search when searching only [disaster] and 7,736 articles with search limits. When using the framework results provide a smaller and more manageable set of returns. Matrices also identified gaps in current literature including mental health and elderly care. The same framework applied to Google Scholar retrieved peer-reviewed articles not identified in PubMed and relevant grey literature.
Conclusions: The proposed framework and methodology using clusters, nodes and a matrix and table process unlocks opportunities to better navigate the disaster and global crises literature. This approach will assist researchers and practitioners in future research, report on the overall evolution of the field, and further guide disaster management.

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ID 132: Health Impact of 2012 Flood in Rural Minority Community in Liangshan Yi Prefecture, Sichuan China

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Introduction: A major flood occurred in Liangshan Autonomous Prefecture on 31st August 2012. The disaster has caused massive damage to the local community. Liangshan Prefecture has the largest population of Yi minority in China, and ethnic minority groups like Yi generally attain lower educational and economical status than the Han counterparts. Limited is known in regarding its health impact and post disaster response, this paper described and examined the impact and the community preparedness in the recent forgotten disaster.
Methodology: A cross sectional household survey was conducted three months post flood. Other supplementary information was collected from key informants interviews and focus group discussions. The household survey assesses the general characteristics and health status, health service availability, utilization of healthcare, political context and existing as well as projected resources of target communities.
Results: 53 household surveys were completed and two gender specific focus groups were conducted. In Hongyan Village, about

84% (183/217) households had structural damages. Most of the crop was swept away, causing serious stress on villagers' livelihood in the forthcoming year. gastrointestinal symptoms were the most typical self-reported medical complaints post disaster in the village. Chronic diseases (e.g. diabetes, heart disease and back and shoulder pain) were typical self-reported medical concerns for men, whereas gynecological complaints such as menstrual problems and pain were considered as the major female illness.
Conclusions: Lessons learnt and issues related to the application support future policy and research in community-based disaster resilience building, particularly for programs implementing in remote, extreme poor, and flood prone ethnic minority communities in Asia.

Prehosp Disaster Med 2013;28(Suppl. 1):s40–s41
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ID 133: Role of Mobile Surgical Team in Treating Children with Serious Injuries After the Earthquakes. Difficulties in Organizing the Mission

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Background: This study demonstrates the experience of mobile surgical team in treatment 197 children suffering in earthquakes in Pakistan (2005), Indonesia (2006, 2009) and Haiti (2010). The effectiveness of the team proved by saved extremities from amputation and rapid recovery of seriously injured children (up to 4 weeks). Also explained problems are growing up in the organization of the teamwork.
Materials and methods: The mobile team consists of highly experienced specialists (anesthesiologists, plastic surgeons, traumatologists and neurosurgeons) and sponsored by the International Charitable Fund for Children in Disasters. After extensive consultation (more than 1000 patients in local hospitals) and triage the children were transferred and admitted to the organized centers to provide a specialized surgical care. These centers were established on undamaged local hospitals. The most common injuries were: open fractures, infected wounds, and deep infection of the amputation stump and crush syndrome.
Results: For initiation of the team work must overcome a significant number of difficulties presented by the following: contact with the local health authorities, international organizations (UN, Red Cross and others) in order to obtain information about the number of victims and obtain permission to enter and location in the undamaged hospital. Each time, it takes up to 7 days. During this time, the children underwent surgery by inexperienced surgeons, leading to complications, including unnecessary amputation and infection of soft tissue. Specialized surgical care in organized centers included: radical wound debridement, intensive therapy, local wound treatment with multicomponent ointments, external osteosynthesis (include Ilizarov method) and early reconstructive and plastic surgeries. Healing with primary intension was seen in 90,3% cases. All damaged limbs planned to amputations by local surgeons were saved.
Conclusions: Specialized surgical care to children with serious open injuries after the earthquake must be carried out by highly experienced teams at hospitals.

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ID 134: Debridement in Children During the Stage of Specialized Surgical Aid

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Background: In connection with a growing number of road accidents, new extreme sports, the problem of open wounds has remained actual up to the present. A surgical infection, aggravating the course of wound process, increases the size of struck tissues and it's the ultimate obstacle to provide different types of reconstructive operations. The success in cure and prevention of wound contamination is in direct relationship to quality of debridement and the correct choice of treatment tactics.
Materials and methods: The present study is based on experience in treatment of 140 children with wounds (27,2%), open fractures of long bones (12,6%), traumatic amputations of extremities (6,4%), infected wounds (46,4%), pressure ulcers (7,4%), who underwent treatment in the Children's clinical and research institute of emergency surgery and trauma from 2005 to 2011. The age of patients ranged from one month to eighteen years old. The area of wound surface varied between 5 and 30 cm^2. The patient treatment was provided according to the principles of active surgical wound healing method, included: 1) radical debridement; 2) additional treatment of wound with different physical methods; 3) local wound treatment; 4) primary or early immobilization; 5) early plastic and reconstructive surgery.
Results: Debridement was carried out with the anatomical features of affected segment. Hydrosurgical system "Versajet" (54 patients), ultrasound cavitation of wound (70 patients), wound treatment with defocused ray of plasmic scalpel (35 patients), VAC- therapy (68 patients) were used during the surgery in order to facilitate the surgical treatment and improve results. Hydrosurgical wound treatment was carried out simultaneously with plasty in 24,3%.
Conclusion: Combined use of traditional and up-to-date methods of wound treatment has allowed to bring the course of complicated wound process to not complicated one, reduced the number of repeated debridement and allowed to prepare wound surface for further plastic closure.

Prehosp Disaster Med 2013;28(Suppl. 1):s41
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ID 135: The Innovative Strategy with the Use of Smartphone and IC Card for the Management of Patient Information in a Disaster:3spiders Project (Smartphone Supports Patients and Select Priority in Disaster Site)

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Introduction: The information management is important to rescue the greater number of patients in a disaster. However it is difficult to collect and analyze the patient information under the complicated situation. We have developed a new system using ICtag and Smartphone to record and collect the clinical condition and triage categories of the patients. The purpose of this study is to evaluate the usefulness of our new system in a disaster mass casualty exercise held in our hospital.
Methods: The contactless IC card (FeliCa®) with nonvolatile memory capacity of 6 K bytes is used for a triage tag. To write and read the data in it, we selected commercialized NFC capable Android® Smartphone or tablet. The own personal information such as a clinical data including triage category is recorded in our application installed on the Smartphone after a unique ID for a victim assigned. Then we touch the Smartphone on the IC card to record the personal information in it and also transmit the data simultaneously to the data server via wireless LAN. Any medical commanders can view the constantly updated patient list and analyze latest information on the Windows® PC or Android® tablet connected to the network. The feasibility of 3SPiders was evaluated in the exercise used 100 victims. The questionnaires were performed after exercise to the participants.
Results: In 90-minutes, patient information were updated in 1201 times accurately.
90% of participants responded "new system was effective"
Discussion: Since most of participants responded effective in the questionnaires, we found that participants could entered the patients information into the IC card by using Smartphone easily and medical commanders could see the constantly updated patient list and analyze latest information clearly.
Conclusion: 3SPiders might be feasible system in a disaster.

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ID 137: Performing a Pediatric Hazard Vulnerability Using a Web-based Interface

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Background: It is well described that children are a vulnerable population. Based upon many unique differences, a child will pose challenges during disaster planning. It is paramount to perform appropriate measures during mitigation to identify children and their relationship to various hazards. In many situations, a hazard vulnerability analysis (HVA) is performed by a community. Once completed, the HVA will allow a health care institution to compile a list of potential hazards. These hazards, in turn, will be prioritized and preparedness efforts are approached accordingly. However, children are a unique population, and there is little evidence on how to perform a pediatric hazard vulnerability analysis (PHVA). Of concern is the fact that 25% of the United States population is comprised of children.
Methods: We applied basic HVA principles to develop a PHVA tool using a web-based interface. The PHVA was developed for all hospitals in the city of Chicago. The process details probability and severity of various disaster events associated within a hospital's community with focus upon the pediatric population. Augmented by mitigation data and supplemental information, a web-based interface is used to create a PHVA report. The process will guide a user through the PHVA and when completed, a digital document is produced. Each user profile will allow a user to begin their individual hospital report, save their work, and return for updates and review.
Results: The major finding of this project is that the process of PHVA is improved by using a web-based interface. In addition, other findings include the need to develop a dashboard to review aggregate data, to produce auto complete selections, and to enhance scalability to a regional stage.
Conclusions: The use of a web-based interface is a viable method to perform PHVA and can be expanded beyond the local community.

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ID 138: Beyond Parkland - A New Paradigm for Emergency Burn Resuscitation in Mass Casualty Events

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Background: In 2002 terrorist bombings in Bali resulted in multiple burns victims. Despite very limited fluid resuscitation in the first 24 hours, the survival rate in the 65 patients evacuated to Australia was above that predicted.
In 2009 a fire/explosion occurred aboard a vessel in remote waters off the northwest coast of Australia.
Methods: In 2009 initial treatment and evacuation to a burns center posed major challenges due to the remote location. The 31 worst patients were evacuated to a bare base at Truscott Airfield. A military medical evacuation response landed at Truscott as the second and final wave of casualties arrived. There were 18 severely burnt patients (mean BSA 27%) with 5 having face/airway burns. The challenge was how to evacuate all patients in the available aircraft – one C130 and one B200C.
During the 2002 Bali bombings, limited fluid resuscitation pre- and during transport occurred perforce. Full resuscitation on arrival in Darwin was associated with marked swelling, emergent intubations and escharotomies.
In 2009 due to the limited space a plan was made to transport all patients, with the potential escharotomy and intubation patients being managed with limited fluid resuscitation as per the Bali experience.
Results: Two patients went to Darwin on the B200C. The remaining 16 were successfully transported to Perth (5+ hours flying) in the single C130. One patient was intubated

pre-flight and one in flight. None of the 7 potentially threatened limbs required escharotomy. As with the Bali response, after "usual" fluid volumes in Perth a number of patients developed oedema requiring intubation and escharotomies. Long-term outcomes were good.
Conclusion: The novel treatment of withholding standard fluid resuscitation bought time to transport these patients to Perth with no apparent adverse effects. This has important military and civilian implications.
Prehosp Disaster Med 2013;28(Suppl. 1):s42–s43
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ID 139: Integrating Academic Mental Health Into a Community Public Health System Post-3/11 Japan: Baseline Data

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Background: This presentation describes a mental health screening and intervention program designed and implemented in a community affected by the combined disasters of March 11, 2011. Kita Ibaraki City (pop. 45,000), 100 km south of Fukushima sustained massive building damage but limited casualties (an estimated five persons were killed). Although infrastructural recovery has progressed, ocean-borne radiation has disrupted the fishing industry in the area, an important economic resource. Kita-Ibaraki itself lies outside the evacuation area.
Methods: A two-year longitudinal research project was launched in December 2011 on two areas of the city (pop. 7000). The project aims to: 1) Assess the long-term mental health impacts of this continuing disaster, and 2) examine if intervention programs can mitigate stress. Adult volunteer subjects underwent health screening (GHQ-12) and were screened for symptoms of depression (CES-D), PTSD (IES-R), alcoholism (CAGE), and stress (Visual Analogue Scale). Volunteers were offered choice of an intervention program: psychiatric counseling, nutritional advice, exercise classes, or job retraining (word processing). The project is ongoing and aims to examine 1000 subjects overall.
Results: For the first round of testing 466 subjects (351 female) volunteered. Of this group 60% had depressive symptoms (CES-D $>$ 10.9). Clinical concern for PTSD appears moderate (IES-R $>$ 16.1) and likelihood for alcohol abuse appears low (CAGE $>$ .4)
Conclusion: The mental health of participants will be evaluated periodically and compared with non-participants in other regions of the city and with participants opting out of the intervention programs. If effective, this project could be a model for future community-based interventions by academic institutions integrated into the public health system.
Support: Funding provided by the Japan Ministry of Health to the Department of Psychiatry, University of Tsukuba
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ID 142: Can We Improve Pain Management in Children with Burns and Scalds by Introducing a Compulsory Burns Protocol in Paediatric Emergency Departments?

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Objective: To assess whether use of a burns protocol in all children attending a dedicated pediatric emergency department (PED) with burns and scalds increase documentation of pain score & administration of analgesia.
Methodology: The case notes of all children who attended the PED with burns & scalds over a 3-month period were reviewed, after introduction of a pediatric burns protocol. This process assessed the usage of protocol, scoring of severity of pain, administration & usage of analgesia and documentation.
Results: 89 case notes were reviewed. The protocol was used in half of the patients.
In 38% of children where the protocol was used, there was a documented pain score. This was only 7%, when the protocol was not used.
In the protocol used group, 74% had analgesia, of which 31% had intranasal Diamorphine with or without Paracetamol & Ibuprofen.
When the protocol was not used, analgesia was administered only to 43% of children, of whom only 11% had Diamorphine.
Conclusion: Documentation of severity of pain & administration of analgesia for children with burns and scalds in a busy PED can be improved by using a compulsory burns protocol.
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ID 143: A Competency-Based Evaluation Tool of Humanitarian Professionals During a Humanitarian Crisis Simulation Exercise

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As the world experiences larger, more frequent and less predictable emergencies due to changing demographics, climate change and urbanization, there is an increasing demand for humanitarian action and a greater need for trained and experienced providers who possess both the professional skills and competencies required of a humanitarian worker. Global staffing levels are rapidly rising, most field-based humanitarian workers are national staff from countries in which the humanitarian emergencies occur, yet there are very few training or professional development courses that target them. Furthermore, the delivery of emergency assistance

demands greater accountability, quality control, oversight and coordination and there is a call for an international registry of deployable provider organizations and their providers. Essential to this process of professionalization are clearly defined competencies used as benchmarks for humanitarian aid workers. During a World Health Organization (WHO) field-based exercise, an effective competency-based evaluation tool was demonstrated for professional humanitarian providers.

The Consortium of British Humanitarian Academy (CBHA) competency framework- based tool was applied to 31 humanitarian professionals, during a three-day simulation. Twelve facilitators scored individuals and teams across six competencies using a 5-point Likert scale.

Sixty-one percent of participants were WHO-based and 39% were from non-governmental humanitarian agencies. The average number of scores per individual per competency was 12.4. Using generated graphs from individual and overall class performance, facilitators gave personalized feedback during the simulation, including qualitative comments. Additionally, facilitators gave recommendations to WHO leadership ranging from 'immediately deployable' to 'recommend further instruction'.

A CBHA competency-based evaluation tool was created to measure participant performance during a simulated humanitarian exercise. Assessments were standardized, dynamic, immediate and incorporated into facilitator decision-making at the individual level. In doing so, this evaluation process provides an additional but critical level of personal and organizational accountability not attained by educational training and simulation exercise instruction alone.

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ID 144: Can Introduction of a Burns Protocoli Paediatric Emergency Departments Increase Application of Delayed Active First Aid Cooling for Thermal Burns?

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To assess whether introduction of a flowchart for delayed cooling in to the burns protocol increases detection of thermal burns which would benefit from delayed tap water cooling and application of this first aid measure in PED.

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 3 hours since burn & were suitable for delayed cooling. 29% of these suitable patients had documented active tap water cooling for 20 minutes in PED. On the other hand, in the remaining half of the patients, where the protocol was not used, the time since burn was identified only in 29% of cases. Furthermore, none had received documented active cooling in PED, even though 75% of that 29% were deemed suitable for delayed cooling. Out of the total number of patients, in whom the time since burn was identified, 82% presented within 3 hours (49% within the first hour & 33% within 1 to 3 hours) where delayed active cooling would have been useful.

Conclusions: Delayed active cooling with tap water for 20 minutes 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.

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ID 145: Can We Improve Detection of Possible NAI in Children with Burns and Scalds by Introducing a Compulsory Burns Protocol in Paediatric Emergency Departments?

Farooq Pasha
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To assess whether use of a burns protocol in all children attending a dedicated paediatric emergency department (PED) with burns and scalds increases detection of cause for concern for non-accidental injury (NAI), improve case note documentation and management of cases.

Methods: The case notes of all children who attended the PED with burns & scalds over a 3-month period were reviewed, after introduction of a paediatric burns protocol. This process assessed the usage of protocol, identification & documentation of cause for concern for NAI, paediatric medical referral for further investigation and pain management.

Results: 89 case notes were reviewed. The protocol was used in half of the patients. In 86% of children, where the protocol was used, there was documented presence or absence of cause for concern for NAI. This was only 46%, when the protocol was not used. In the protocol used group, 53% had confirmed "no cause for concern" in writing after reviewing a list of indicators for possible NAI. When the protocol was not used, this confirmation was reached only in 18% and 54% had no documentation of presence or absence of cause for concern. However, 11% (of this 54%) still needed paediatric medical referral without any documented concerns for NAI. 33% had positively identified indicators for possible NAI when the protocol was used and 82% of these children were referred for further investigation. On the other hand, in the 'off-protocol' group, this positive identification was seen only in 28% and 86% of them were referred.

Conclusion: Identification & documentation of burns in children with possibility of NAI in a busy PED can be improved by using a compulsory burns protocol along with an increase in emergency medicine seniors' contribution and an improvement in referrals to child protection team for further assessment.

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ID 146: Impact of Prolonged Electrical Power Failure on Hospital Function by a Disaster

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Background: In a catastrophic disaster, unanticipated sudden absence of lifelines is the greatest reason for hospital crisis that can endanger patients. The present study was done to assess the impact of prolonged electrical power failure on hospital function and to examine disaster management strategies to avoid hospital disruption.
Methods: A questionnaire was administrated to 648 disaster base hospitals in Japan.
Results: Valid responses obtained from 185 hospitals (mean number of beds: 556, mean maximum demand of electricity: 1,953 kW, mean annual consumption of electricity: 7,941 MWh) were analyzed (sensitivity: 6%, reliability: 95%). In 118 (64%) hospitals, electricity was the most critical lifeline in case of sudden absence, mainly because life-supporting instruments had no other alternative energy sources except for electricity. Although there were emergency backup generator systems with mean power of 1,416 kW in 183 (99%) hospitals, they would not last 24 hrs in 43 (24%) hospitals and not last 72 hrs in 117 (66%) hospitals. Availability of all equipment at each section was evaluated under no external supply of electrical power with/without backup of emergency generators. Emergency generators covered air-conditioning in general wards in 8 (4%) hospitals and boiler systems in 47 (26%) hospitals, which could seriously affect inpatients' life and operative procedures. After emergency generators made a halt, almost all the equipment including instruments related with other kinds of lifelines would become unavailable. In disaster management strategies for sudden absence of lifelines, 89 (50%) hospitals had prepared for a planning manual, but 124 (68%) hospitals had never practiced a simulated incident.
Conclusion: This study revealed the duration and coverage of emergency generator systems in hospitals and preparedness for sudden absence of lifelines by a disaster to be crucial.

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ID 147: Head Injuries Coming to the Emergency Departments: Results from the Pakistan National Emergency Department Surveillance (Pak-NEDS) Study

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Background: Head injury is a common cause of death and disability in young people. We aimed to analyze the frequency of head injuries coming to Emergency Departments (ED) across Pakistan for interventions aimed to improve quality of healthcare.
Methods: Information on 10,749 head injury patients registered in the Pak-NEDS surveillance system was included in the analysis. Data were collected from December 2010 to March 2011 from all four provinces of Pakistan in seven (5 public and 2 private) major tertiary care centers. The data collection tool was finalized after consultation with the ED heads of institutions. We analyzed information on basic demography, mode of arrival, cause of injuries, triaging, examination and outcomes.
Results: About 72% were male. Most (66%) of these patients were 16-45 years of age. Only 12% were brought in via ambulances. Major causes included Road traffic injuries (RTI) (60%), assault (23%) and falls (18%). Only 20% of the patient underwent triaging and 4% had Glasgow Coma Scale checked (mild traumatic brain injury [TBI] 50%, moderate TBI 29%, and severe TBI 21%). Majority of the patients were seen by medical officers/house officers. A total of 10.6% patients were admitted and 1.3% expired.
Conclusion: Head injuries are a major burden for Pakistani healthcare system. Policies should focus on pre-hospital emergency care services and prevention of RTI. Advanced Trauma Life Support/ Primary Trauma Care guidelines should be made compulsory for the management of trauma patients.

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ID 149: Trends of Natural Disasters and Morbidities in Uganda

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Background: The concepts of natural disasters and complex emergencies are quite distinct, with different strategies for mitigation and response. However, natural disasters and epidemics occur concurrently in the same geographic location.
Methods: Natural disasters, complex emergencies and epidemics that met the inclusion criteria were included.
Results: The study revealed that 63% of the complex emergencies had ≥1 epidemic compared with 23% of the natural disasters. 27% of the largest natural disasters occurred in areas with ≥1 ongoing complex emergencies while 87% of the largest complex emergencies had ≥1 natural disaster.
Conclusion: Epidemics commonly occur during complex emergencies. The data presented in this article do not support the often-repeated assertion that epidemics, especially large-scale epidemics, commonly occur following large-scale natural

disasters. This observation has important policy and programmatic implications when preparing and responding to epidemics. There is an important and previously unrecognized overlap between natural disasters and complex emergencies. Training and tools are needed to help bridge the gap between the different type of organizations and professionals who respond to natural disasters and complex emergencies to ensure an integrated and coordinated response.

Keywords: Trends, Natural Disasters and Morbidities

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ID 150: A Prospective Assessment of "Focused Assessment with Sonography for Trauma" Done by Emergency Nurses and Its Comparative Analysis with Radiologists Performance

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Objective: To determine the accuracy of emergency nurses in detecting free fluid in abdomen when compared to radiologist during primary survey of trauma victims by focused assessment with Sonography for trauma [FAST] scan in the emergency Department [ED].

Methods: It was prospective study done during primary survey of resuscitation of non-consecutive patients in the resuscitation bay. The duration of study was from January to September 2012. The study subjects included emergency Nurses (EN) who underwent training at 3-day workshop on emergency sonography and performed 10 supervised positive and negative scans for free fluid. The FAST scans were first performed by the EN's and then by radiology resident (RR). Both were blinded to each other's sonography findings. CT scan and laparotomy findings were used as gold standard whichever was feasible. Results were compared between both groups.

Results: 196 scans performed each by EN and RR was analyzed. Mean age of the patients was 30 [1–85] years. Out of 35 true positive patients 29 underwent CT scan and exploratory laparotomy was done in 18 patients. Sensitivity of FAST done by EN and RR was 90%. Specificity of FAST done by EN was 94.6%Vs. RR. Positive predictive value and negative predictive values were 81.8% and 97.2% respectively.

Limitation: Inter-observer variability was not noted

Conclusion: FAST scan performed by EN who is trained in short course of ultrasonography can be reliable and accurate when comparable to qualified radiologist.

Keywords: Focused assessment with sonography in trauma, Emergency Nurses, Radiologist.

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ID 151: Feasibility of Bedside Lung Ultrasound in Diagnosis of Pneumonia Done by Nurses in Neurosurgical Follow-up Patients Presenting to the Emergency Department

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Background: Post operated neurosurgical follow-up patient's presents to the emergency department (ED) with varied clinical presentation and pneumonia is common in this subset of patients. Early institution of empirical antibiotic therapy is key for management in ED. Getting a chest X-ray is commonly time consuming in busy ED. The use of lung ultrasound in the evaluation of pneumonia is growing rapidly and is highly accurate and available bedside and avoids radiation.

Methods: Prospective observational study done between February to June 2012. All high risk post operated-neurosurgical follow up patients with or without respiratory complain presenting to Emergency department of JPN Apex Trauma center were recruited. Four trained emergency nurses (ENs) performed the lung scan. After clinical evaluation patients underwent for lung scan by nurses first. By using high frequency (6-13 MHz) linear array probe followed by low frequency (2-5 MHz) curvilinear probe they examined all zones of bilateral hemithorax and looked for Pleural Shred sign, B-lines, Tissular pattern, Dynamic bronchogram with or without Para pneumonic pleural fluid. The images /videos were stored and later on evaluated by trained emergency physician (EP). These patients had standard chest X-ray reviewed by a blinded emergency physician. Level of agreement between ENs and EPs for different USG finding and conclusion were noted.

Results: Total 30 patients, 76.6% (23) male and 23.3% (7) female with average age of 35.8 years (15-76) underwent lung ultrasound scan. Scan revealed shred sign (absent 22, present-8), B-lines (absent-19, present-11), tissular pattern (absent-18, present-12), dynamic bronchogram (absent-23, present-7), para pneumonic pleural fluid (absent-18, present-12), USG diagnosis of pneumonia (absent-18, present-12). The level of agreement between ENs and EPs were 100% in all findings except for dynamic bronchogram, which was 77.7%.

Conclusion: Bedside lung ultrasound in diagnosis of pneumonia done by nurses in high-risk post operated neurosurgical follow-up patients presenting to the emergency department is feasible.

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ID 153: Interprofessional Disaster Education among Medical and Healthcare Students in Tokyo, Japan: A Qualitative Pilot Study

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Background: Disaster education for medical and healthcare students is vital to building a health-system capable of responding to future mass-casualty events. Responding to disasters demands intense inter-professional collaboration, which could be addressed by delivering aspects of disaster education inter-professionally. Japan experiences a relatively high frequency of disasters, and in light of this we visited Tokyo during the summer of 2012, to gain insight into the educational experiences of a selection of medical and healthcare students to disaster medicine.
Methods: Over one week we enrolled 14 participants (4 medical students, 4 junior doctors, 1 senior emergency physician, 4 physiotherapy students and 1 nursing student) from one of three different healthcare Universities in Tokyo. Participants underwent short focused-interview (9) or completed a semi-structured questionnaire (5); thematic analysis of the data was conducted.
Results: All participants in this study attached great importance to disaster education. Inter-professional education had been encountered by medical students but did not cover disasters or emergencies. Medical students felt education regarding disasters would be best delivered inter-professionally, in order to strengthen teamwork capabilities required in practice. Senior and junior doctors also acknowledged the importance of inter-professional education, pointing to manikin simulation training in hospitals as one option available to facilitate this. Physiotherapy students expressed a sense of exclusion from disaster medicine altogether.
Conclusions: Study participants expressed a desire for more disaster education in their medical and healthcare curricula, and recognized a number of benefits to delivering this inter-professionally. This desire has been reflected by calls from international medical student representative organisations for greater disaster education in medical curricula, which could in part be facilitated by national inte-rprofessional organisations. Inter-professional disaster education could equip the next generation of medical and healthcare professionals with skills to respond effectively as a team when disaster strikes, and lead cross-discipline advancements in disaster medicine.

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ID 155: Historic Review of Pandemic Flue in Isolated Japan

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Background: As an island country, Japan was mostly isolated geographically and diplomatically from other countries in its history but there have been several pandemics of influenza in Japan. Since Japanese of the past days thought all pandemic diseases were transmitted by air, they called every "fever-cough-sputa" disease as "kaze" which meant "evil wind". Purpose of this study is to analyze recognition of pandemic flue and patterns of transmission in the early modern of Japan.
Methods: The author, being not a historian, used secondary source to review medical records and information.
Results: The word "influenza" was written for the first time in a literature translated from a German textbook in 1835 but older Japanese recognized such characteristic pandemic disease with many deaths even in the middle of ninth century. The 17th and the 18th century were chilly period in Japan. There were many pandemics, which took a heavy toll of lives in combination with famine and starvation. The worst one killed more than 330 thousands. They feared it but on the other hand they released themselves from fear by giving flue a nickname like modern people do to hurricanes/typhoons. They knew that dangerous "kaze" was transmitted by movement of people and quarantine was an effective method to protect the society. They knew that mass transport by ship, long-distant mail delivery, visit of foreigners and travelers carried this disease. It is most interesting that transmission speed of 1832s flue between Kyoto and Tokyo is the same as walking speed of man and transmission from Tokyo to a local city Aomori that is 750 km distant is much slower. It is speculated the speed of transmission depends on the frequency of transport and number of travelers.
Conclusion: Speeds, frequencies, and quantity of moving in modern society may cause pandemic flue more hazardous.

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ID 157: Psychosocial Care for Children Affected in Tsunami

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Children are most vulnerable for the negative impacts of disaster due to lack of experience and maturity to comprehend what has happened to them (Sekar et al., 2007). Tsunami that struck the southern coasts of India affected children the most, where in 39% of total death were children below 14 years and 1.5 million children lost their parents. The sudden and unexpected disaster disrupts the sense of well being of children that causes anxiety, fear and sense of insecurity among them. Psychosocial interventions are essential to help the children recover and bring them back to normalcy.
Psychosocial assessment conducted among 1120 children affected by Tsunami in Kanniyakumari and Nagapattinam districts showed that 13.57% of children who had an impact showed probable mental health problem, 1.07% of impacted children were behaviorally disturbed and 1% of impacted children were definitely behaviorally disturbed and showed probable mental health problem behavior. Psychosocial interventions module was developed and the community level workers were trained to reach out to the children in their respective villages. Psychosocial care was provided for these

children through play by using mediums and Life Skills Education focusing on the preventive, promotive and curative aspects of mental health.
Post assessment conducted in two phases at an interval of 6 months to assess the results of intervention. The results of the assessment after 18 months showed that the stress due to the impact of event reported by the 97.1% of affected children reduced to 2.9%, behavioral problems reported by 60% of the children who had impact had reduced to 37.1% and probable mental health problem reported by 1005 of children who had impact reduced to 40%.
From the results of the intervention it can be concluded that the psychosocial intervention provided for children was effective in reducing the stress among the children due tsunami.

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ID 158: Relationship of Locus of Control, Psychological Distress and Extent of Trauma Exposure in Groups Impacted by Intense Political Conflict in Egypt

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Background: The aim of this study was to compare the relationship between personal perceptions of control over the events happening in one's life (locus of control) and psychological distress in groups who varied in the experience of intense political unrest and turmoil in the region where they resided. Views on the support of the State were also assessed.
Methods: The sample consisted of 120 participants who resided in the Cairo epicenter and 120 matched controls from rural areas of Egypt. The Brown Locus of Control Scale, SCL 90-R, and a semi-structured interview were administered approximately 3 months after the January 2011 start of the demonstrations, internal chaos, and subsequent overthrow of the government.
Results: The Cairo group scored significantly higher than the Control group on the SCL 90-R Global Severity Index (GSI) and Positive Symptom Total (PST). For both groups, statistically significant positive correlations were found between external locus of control and SCL 90-R distress indices, indicating a relationship between perceived helplessness in controlling one's life and psychological distress. Perceptions of State support for the population was low; overall, 78% viewed the State as having little or no interest in them.
Conclusion: Differences in findings from populations experiencing political chaos compared to other kinds of disasters will be discussed.

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ID 159: Proposed New Protocol for Children's Tracking System in Disasters

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Background: Our hospital is children's disaster hub hospital connected to the adult's hospital. To assure the security of children, children's tracking protocol was made referred to the guideline published from New York City, Children in Disaster 3rd edition. At the entrance each patients received primary triage, and Disaster ID, DID. Then pediatric patients were sent to children's tracking registration section. The registration included collecting personal information, issuing the Child Tracking ID, CTID, making list of collected information, putting the wrist band with CTID, name, age, and gender, on to each child and to the guardian. For children without parent or guardian, the hospital staff took part as temporal guardian until safely admitted into hospital or to pediatric safe area. The temporal guardians were told to report the final destination of the patient to the registration section.
Methods: We conducted a disaster drill to examine the efficiency of the protocol. There were 111 simulated patients including 21 pediatric patients.
Results: 18 pediatric patients went through the children's tracking registration. All of them were able to track although destination had to be collected from various places because no guardian reported the final destination. Also the name and CTID on the wristband and the registration list did not fully match.
Conclusion: To improve the system, we invented a new simple registration sheet with preset wristband and destination reporting paper. Also Polaroid photograph were added for its' inaccuracy of the personal information collected from children. The new wristband only had CTID to avoid the confusion between CTID and DID, and wrong names. To emphasize the responsibility of temporal guardians, the destination reporting paper were attached to the registration sheet to hand it out to the temporal guardians.

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ID 160: Emergency Medicine: Advocating for Ethical Standards in International Medical Care

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Background: As increasing numbers of Emergency Physicians (EPs) practice in the international arena, they will encounter ethical dilemmas that they may not be prepared for through their training or experiences in their home countries. The purpose of this paper is to identify which ethical issues internationally practicing EPs deem of highest priority to guide future research, policy and guideline implementation.

Methods: Participants were EPs with experience in International Emergency Medicine (IEM) and experts in international medical ethics and were asked to describe situations they felt represented ethical priorities. Responses were collated into a list of 45 neutral statements. These statements were then converted into a survey that was redistributed to participants who were then asked to score each statement on how much they felt it was an ethical priority. Responses were evaluated for frequency of agreement between participants.
Results: The statement "Physicians' awareness of the rights of the patient in general, particularly as they apply to emergent situations," received the highest score (10) with the greatest frequency (30.95%). "Informing and educating patients regarding their diagnosis, management prognosis," also received the highest score (10) but with less frequency than the first (27.07%). The survey question, "Addressing the possibility of patient deference to the provider for medical decision making," and "The relationship between health care and religion - particularly the effects of delivering," both received the lowest score (1). They experienced similar respondent agreement; 6.82% and 7.32% of respondents reporting the lowest score (1), respectively.
Conclusions: While the survey is limited by small sample size the results provide insight into what ethical issues may benefit from further exploration and guidance. These statements can be used to inform future research agendas or to assist in ethical guideline development for groups or organizations with a focus on IEM.

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ID 161: The EMDM Triage Game: Use of Victimbase Standardised Simulation Victims in Medical Disaster Education and Training

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3. E-Semble

Background: A couple of years ago the Emergency Management and Disaster Medicine Academy (EMDM Academy) identified a need for a universal open source database for standardised simulation victims for Medical disaster education and training. Many organisations were creating their own victims for (training) exercises, which could not be shared with the community. The EMDM Academy decided to create an online platform where health care professionals could create and share these profiles, as to generate a large database with victims for every type of disaster training.
Methods: The Victim Base was created and the authors from participating institutions started generating content and Victim base was implemented into several training and education tools. The Victim base victims are used in real live exercises, 2D and 3D simulation computer training and in the Online EMDM Academy Triage game as developed in the autumn of 2012.
Results: The EMDM Triage game is a game that can be used to educate and train responders to Mass Casualty Incidents (MCI) to perform triage following the SIEVE algorithm. The Game does this by using reverse triage. The game presents the student with 4 victims of a different triage category (Red, Yellow, Green and Black) and through asking the questions of SIEVE the student can eliminate the triage categories not applicable to the answer. Once the correct triage category is identified the student passes on to the next round, until the 5 minutes game time is over. Completing more rounds in the 5 minutes will enable the student to acquire more points and thus achieve a higher ranking, both individually and for the group (s)he is in.
Conclusions: Victim base profiles are used in multiple medical disaster education and training modalities, and specifically in the EMDM Academy Triage game, a novel approach to triage skill training.

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ID 162: Health and Law Enforcement Workshop

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The European Commission and the WHO have both outlined the importance of collaboration between health service organisations and law enforcement agencies. Disease investigation may occur in the presence of a parallel investigation by national or international law enforcement agencies, a deliberate event response is more likely to involve inter-agency cooperation and joint training should be encouraged.
A resource pack to run a workshop has been developed by the Health Protection Agency (HPA) with the aim being:
'To enable joint working between health and law enforcement agencies to encourage collaboration'.
The workshop resource pack includes:

1. Briefing documents:

- Facilitator briefing document including timetable, instructions and requirements for running the workshop
- Delegate document

2. Presentations:

- Introduction – including three short scenarios to illustrate the necessity for collaboration and joint working
- Public Health for Law Enforcement agencies
- Law Enforcement investigations for Public Health

3. **Case studies:**

1) Chemical – sodium nitrate contamination of sorbitol (sweetener) used in a private clinic intolerance test
2) Radiological – poisoning of a dissident by radiological substance with subsequent contamination
3) Biological – anthrax contaminated drums used in a workshop

All case studies are fictitious but are based on real events.
All case studies have been designed as if occurring in the country conducting the workshop.

The workshop should be delivered by two senior level facilitators (one from the health sector and one from law enforcement) who will work together to lead the scenario discussions and deliver the introductory first sessions. The workshop should be attended by those personnel likely to be engaged in responding to an incident involving biological, chemical or radiological material. The facilitators should then capture recommendations for further collaboration.
A memorandum of understanding between the health and law enforcement sectors would be the ideal final outcome.

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ID 163: Civil-Military Collaboration on Disaster Medicine in Peacetime - A Report on Pacific Partnership 2012 from the Perspective of NGO

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2. Office of Surgeon General and Director of Medicine, Maritime Staff Office
3. Yotsukaido Tokushukai Medical Center
4. Nara Medical University

Background: The Pacific Partnership began as a humanitarian response to the Indian Ocean Tsunami Disaster 2004. With the participation of US Navy, military forces and NGOs from approximately 20 countries, the Pacific Partnership 2012 (PP12) provided humanitarian aid mainly for the developing countries in the Pacific Rim. The Japan Self-Defense Forces (JSDF) and Japanese NGOs have participated in this activity from 2010.
Method: The author had a chance to participate in the PP12 in Vietnam as a member of an NGO, IEMS-Japan (International Emergency Medicine and Health Support, Japan). This report of PP12 is from the perspective of the NGO.
Result: There were twelve civilian participants from Japan for PP12 in Vietnam, namely medical doctors, dentists, nurses and dental assistants. The mission in Vietnam was for 14 days from July 10th to 23rd and included various activities such as medical treatment, medical education, and cultural exchange. During this PP12 activity, 12,135 patients received medical treatment. With reference to the Japanese involvement, JSDF and NGO treated 262 and 443 patients respectively.
Discussion and Conclusion: Under the initiative of US Navy, JSDF and the Japanese NGO worked jointly for this activity. The JSDF was in charge of the coordination with the US Navy, whilst the NGO performed its activities under the command of JSDF. Consequently the NGO was not able to sufficiently show advantages such as rapid mobility or flexibility. However, this opportunity to participate in PP12 helped the NGO to establish a cooperative relation with the US Armed Forces in case of possible transnational disaster and also to build the close linkage with the JSDF in the relief activities for domestic disasters. Such beneficial relationships improve the level of disaster relief activities.

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ID 164: Methods for Induction of Therapeutic Hypothermia After Cardiac Arrest

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2. Faculdade de Enfermagem do Hospital Israelita Albert Einstein

Introduction: Induced hypothermia is the controlled decrease in temperature of a patient to 32°C–35°C. It is frequently used in patients after cardiac arrest as a method to prevent or mitigate various types of neurological injuries. Cooling methods have been described each with advantages and disadvantages, differing in efficacy, controllability, cost and invasion.
Objective: To describe the methods used in the induction of therapeutic hypothermia.
Methods: This is a descriptive, exploratory narrative review of the literature. The search was conducted in the literary databases: PubMed, MedLine and Sinahl and keywords used were "induced hypothermia", "cardiac arrest", "nursing care". The limits were established as Portuguese, English and Spanish abstracts in the years 2005–2012.
Results: We found 11 articles describing methods to induced hypothermia, between the years 2005 to 2011. Of these articles, six described non-invasive techniques for cooling and five described invasive techniques. All articles are found in the English language.
Conclusion: Several studies and various methods have been described with increasing practicality, efficacy and safety for neuroprotection in patients after cardiac arrest.

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doi:10.1017/S1049023X13004913

ID 165: Public Health and Primary Health Care, Re-developing and Preparation for Coming Mega-disaster in Japan: Training of DPAT (Disaster Public Health Assistant Team) and PCAT (Primary Care for All Team)

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National Institute of Public Health (Japan)

Background: In the 2011 Great East Japan Earthquake, when compared to the excellent training, work and system of DMAT "Disaster Medical Assistant Team" the official Japanese government disaster medical team for the acute phase of disasters, poor performance of public health and primary health care during the sub-acute phase to chronic phase has been not well known. Management of evacuation camps lacked the idea of the "SPHERE Standard". The lack of concept of "Cluster Approach" led to further damage for victims, especially the elderly population, the biggest vulnerable group in Japan. Accepting the facts, the public health and primary health care sectors have been considered, strengthening and reinforcing each subject. For reinforcement of public health sectors, DPAT "Disaster Public Health Assistant Team" is planned to be established and the National Institute of Public Health Japan (NIPHJ) is in charge of establishment of its training system. For the primary health care sector, PCAT established by Japan Primary Care Association (JPCA) is continually and eagerly working for

the victims and affected areas in this disaster, and is actively involved in this process.
Methods: Descriptive study: Describe the on-going process of establishment of training modules of both NIPHJ & JPCA activities. Compare the contents and concepts of training of both parties.
Results: The Concepts of "Cluster Approach", multidisciplinary cooperation, "Sphere Standard" and a human-rights based approach is necessary in training of both parties. However, it is necessary to adjust to each context and cultural and societal context.
Conclusion: Seamless and borderless cooperation is necessary for preparation for incoming mega-disaster. Japan has one of the ageing societies in the globe and the lessons learnt from the tragedy in Japan, should be applied across the globe.
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ID 166: EC Project EUNAD: European Network for Psychosocial Crisis Management – Assisting Disabled in Case of Disaster

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3. German Federal Office of Civil Protection and Disaster Assistance
4. Israel Trauma Coalition
5. University of Southern Denmark
6. Norwegian Centre for Violence and Traumatic Stress Studies
7. SEPET+D
8. Charles University in Prague
9. Charles University in Prague

The EUNAD project is supported by the European Commission, DG Humanitarian Aid and Civil Protection.
The fields of the project: preparedness, civil protection, psychosocial support and crisis management in disasters, disabled target groups (blinds and deafs).
Project partners:
Germany, Center for Psychotraumatology, Alexianer, Krefeld (coordinator)
Czech Republic, Charles University, Prague
Denmark, University of Southern Denmark
Germany, Federal office of civil protection and disaster assistance, Bonn
Norway, Norwegian Center of Violance and Traumatic Stress Studies, Oslo
Supporting organisations are: German Association for Rehabilitation, Israel Trauma Coalition, Ministry of Interior of the Czech Republic, Spanish Society of Psychotraumatology, Traumatic Stress and Dissociation and University of Oslo - Medical Faculty.
Starting date: 01.01.2013, duration: 24 months.
Objectives: The EUNAD project aims toward the implementation and preparation of EU human rights related Assistance Programmes for disabled survivors of disasters on the basis of EUTOPA project products. (Guidelines, Intervention Program, Pan-European network in psychosocial care etc.)

The specific objectives of the EUNAD project:

1. Evaluation: Networks of associations for disabled; analysis of literature on research about disabled in psychotraumatology; analysis of EU projects on disaster disability management.
2. Research: Qualitative studies on the blind and deaf in general psychotraumatology.
3. Workshops: Extension of the European network for psychosocial crisis management via inclusion of associations for handicapped in local and international workshops.
4. EUNAD recommendations and Task Force: Recommendations on Psychosocial support of deafs and blinds after disaster. Creation of a EUNAD taskforce.
5. Trainings: Training of different vocational groups in EUNAD recommendations (uniformed services - EMS, police, FRS, social workers and mental health professionals.

The results will be published: www.eutopa-info.eu
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doi:10.1017/S1049023X13004937

ID 167: Rescue Workers in Mass Traffic Accident – Research of Risk and Protective Factors

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1) On 8 August 2008, the international express train EuroCity 108 crashed into part of a falling bridge at a speed of 90 km/hour when the train travelled through the small town Studenka, Czech Republic. 420 passengers were travelling on this train (8 died, 70 injured). Many rescuers from the integrated rescue system intervened at the scene. The psychosocial support to rescuers was organized by Police, FRS, and EMS.
2) Methodology: qualitative research - structured questionnaire, semi-structured interview, document analysis.
3) Research on the intervening rescuers was performed two weeks later. The sample contained 120 people. The follow up research was aimed to find out their needs and endurance, and to propose areas for improvement on its basis. This first phase of the research identified a number of protective factors and perceived benefits (both professional and personal) among the rescuers. The second phase of the research (54 months later) verifies detected results and deals with the field of coping and resiliency in some rescuers from the same sample.
4) Recommendations include training, preventative measure in the urgent phase, organized peer support system etc.
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doi:10.1017/S1049023X13004949

ID 168: Implementation of Psychological First Aid to the Great East Japan Earthquake Disaster Responders

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Background: Psychological First Aid (PFA) is a program based on the IASC Guideline on Mental Health and Psychosocial Support (MHPSS) in Emergency Settings and

was designed to increase knowledge and skill acquisition about MHPSS in humanitarian crisis responders. During the 2011 Great East Japan Earthquake and Tsunami Disaster numerous medical and non-medical responders participated in disaster relief. However few responders knew the principles of MHPSS during the disaster, resulting in numerous anecdotal reports of anxiety and frustration related to their overall experience and communication skills. A disaster response team launched PFA session in response to their needs and in respect of the "do no harm" principle. This presentation aims to report improvements of MHPSS knowledge and skills among participants.
Methods: Quantitatively and qualitatively describe effectiveness and feasibility of PFA implemented to both medical and non-medical responders in Japan. 17 sessions were held between November 2011 and December 2012. All participants (n = 254) were requested to complete a pre-post test and a program evaluation. The pre-post test comprised 28 true or false questions whilst the evaluation consisted of three questions using a 5-point Likert scale and two open-ended questions. The result from pre-post test was analyzed by t-test. Qualitative data were grouped to extract core meanings.
Results: More than 90% of the participants reported the program helpful in various settings (Mean 4.4/5.0 SD = 0.8). Qualitative data indicated that participants learned three principles: non nocere, the IASC pyramid of needs, and self care.
Conclusion: It is suggested that the PFA provides a learning opportunity about principles of MHPSS for both medical and non-medical responders. To respond to ongoing crises across the globe, consolidate experiences and scientific analyses are required.
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ID 169: Requirements for Foreign Medical Team Support in a Developed Country from the Experience of the Great East Japan Earthquake

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Background: On 11 March 2011, Japan was struck by a 9.0 magnitude earthquake and massive tsunami that caused widespread damage to the country's eastern coastal region. Over 18,000 people died or are missing, whilst 450,000 people were evacuated. Only 4 from more than 30 international offers of medical support were accepted through the Ministry of Foreign Affairs. This research clarifies the requirements for foreign medical teams to perform disaster medical support in a developed country.
Method: Interviews were conducted with people belonging to medical teams, counterparts and embassies in Japan about the process and difficulty of aid work. In addition, collected information from the Ministry of Foreign Affairs and Cabinet Office in Japan were analyzed.
Results: According to the Cabinet Office, there were few requests from the affected area for international medical support because the medical needs in affected areas were satisfied with domestic resources. In addition, many local municipalities were hesitant to request international medical teams, because of differences in medical culture from local residents. There were some examples of international medical teams, from the Philippines and Thailand, who carried out support activities for their own nationals living in Japan. Groups with local counterparts and interpreters were able to carry out support for Japanese people.
Conclusion: In Asian countries that use primarily their own language, interpreters are required. Additionally it is impossible to carry out aid work for local people without a local counterpart. Policies where medical teams engage only in counseling or consultation and are not involved in medical procedures can increase acceptance of international teams. International guidelines for foreign medical teams with standard classification might facilitate acceptance of medical support for an affected country. It is necessary to make a national mechanism for acceptance of international relief, especially in disaster prone countries.
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ID 170: DMAT Activity in Great East Japan Earthquake

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Background: On 11th March 2011, the Great East Japan earthquake occurred during which the Japanese Disaster Medical Assistance Team (DMAT) was involved in much activity. We investigate DMAT activity for this disaster and indicate the problems.
Method and result: After the great earthquake, 383 teams and 1852 members of DMATs quickly gathered and worked together. The active period was for 12 days of 11th to 22nd March. The main activities were headquarters management, hospital support, regional medical transportation, wide area medical transportation, and hospital inpatient evacuation.
As headquarters activity, adjustment headquarters was established in management of the DMAT secretariat, and also each prefectural office, activity base headquarters, SCU headquarters, and extra territorial base headquarters were established in the gathering base, and it worked.
In Iwate Prefecture, regional transportation of the 224 patients was carried out in 188 persons and Miyagi Prefecture on March 12th to 15th. As wide area medical transportation, 19 patients were transported by five Self-Defense-Forces transport planes. As hospital evacuation, 180 patients were transported in Sendai from the hospitals in the Ishinomaki area.
To the neighboring prefecture in Fukushima Prefecture, 508 inpatients were transported from the hospital within 30-km radius of the first nuclear power plant of Fukushima.
Discussion: During this disaster the staff of DMAT, who surpass 1800 persons, gathered quickly to work. The chain of order from a country and a prefectural office to the spot was established. Furthermore, the information system of the acute period was operated. Wide area medical transportation was carried out. These can be said to be being the fruits.
On the other hand, there were was little need of trauma care in acute phase. However, there were needs of hospital inpatient evacuation. For these needs, DMAT has contributed taking advantage of that organizing ability.
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ID 172: Impact of the Disasters in the Health Care Sector in Latin American and Caribbean

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2. Cayetano Heredia University (Peru)
3. Consultant

Background: Between 1972 and 2011, the Economic Commission for Latin American and Caribbean (ECLAC) assessed the socio-economic impact of 85 disasters caused by natural hazards and two sanitary emergencies in LAC using a methodology to estimate the damage and losses in the different productive and social sectors including the health sector.
Methods: Systematic review of the database of all available impact assessments of the countries affected by natural hazards. The revision focused on the estimation of damage and losses in the health sector and the determination on this sector proportion as part of the total socio-economic impact.
Results: As a result of 87 disasters in LAC occurring in the last 41 years, 292,866 people died, 948,299 were injured and 19,268,921 affected. The impact on the health sector was US$ 3,812 million (in constant dollars 2011) which represent 3.4% of the total impact. The impact is divided into US$ 2,479 million of damage (65%) and US$ 1,333 million of losses (35%). The major losses were related to vaccination, vector control and health preventive measures as well as emergency treatment. The major impact was produced by eleven earthquakes with a value of US$ 2,332 million (62% of total impact) followed by the impact of forty-one hurricanes. The two sanitary emergencies including the Pandemic (H1N1) 2009 in Mexico produced 22% of the total losses, a value close to the estimation of the losses generated by all forty-one hurricanes.
Conclusions: The methodology is a useful tool to measure the impact and to identify the most affected areas and priority areas for recovery. Sanitary emergencies can cause bigger economic impact than natural hazards. The impact of disasters on the health sector goes way beyond the infrastructure damage and has a long term negative effect on the wellbeing of the affected population.

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ID 173: What Do Service Users Value About the Emergency Ambulance Service?

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Introduction: Response times have been used as a key quality indicator for emergency ambulance services in the United Kingdom, but criticised for their narrow focus. Consequently, there is a need to consider wider measures of quality. The patient perspective is becoming an increasingly important dimension in pre-hospital outcomes research. To that end, we aimed to investigate patients' experiences of the 999 ambulance service to understand the processes and outcomes important to them.
Methods: We employed a qualitative design, using semi-structured interviews with a purposive sample of people who had recently used a 999 ambulance in the East Midlands region of the UK. We recruited patients of different age, sex, geographical location, and ambulance service response including 'hear and treat', 'see and treat' and 'see and convey'.
Results: We interviewed 20 service users. Eleven men and nine women participated and twelve were aged 65 years and over. Users valued a quick response when they perceived the call to be an emergency. This was of less value to those who did not perceive their situation as an emergency and irrelevant to 'hear and treat' users. All users valued the professional approach and information and advice given by call handlers, crew and first responders, which provided them with reassurance in a worrying situation. 'See and convey' users valued a seamless handover to secondary care.
Conclusions: Aspects other than response times were important to patients, particularly in situations perceived by patients to be non-emergency. We found it challenging to engage participants to consider quality indicators beyond response times because these were considered to be abstract in comparison with their concrete experiences. The results will be combined with issues identified from systematic reviews and used in a Delphi study to identify candidates for new outcome measures for emergency ambulance services.

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ID 174: Resuscitation and Emergency Medical Vehicle at a Portuguese District Hospital - A Fifteen Months Experience

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6. Hospital de Vila Franca de Xira

Background: In Portugal, the Integrated Emergency Medical Service uses 4 types of mobile units: Basic Life Support, Immediate Life Support Ambulances; Resuscitation and Emergency Medical Vehicles (VMER) and Helicopters. The VMER are hospital-based, composed of a doctor and a nurse working in 8h shifts, they proceed to an event directed by a National Command Centre (CODU) that evaluates the emergency and decides which type of unit to activate.
Methods: We conducted a 15 month study of our VMER activity, from September 2011 to December 2012. We collected data on demographics, diagnosis, time spent and patient outcome.
Results: Serving an area of 250.000 inhabitants, we were involved in 1941 events: 95.4% inside our jurisdiction and 4.6% supporting other VMER teams. 54.8% male patients; an average age of 60.3 years with 80.7% non-trauma nature. Diseases of the circulatory system were the first cause of activation, followed by pulmonary diseases with respiratory

failure. We verified 274 deaths, mostly related to prolonged cardio-respiratory arrest. Vehicle deactivation was reported in 5% of the events. Average time to reach an event was 25 minutes and average time spent on stabilization and transportation was 1h17. A total of 1578 patients survived and were successfully delivered to a hospital, 9.6% under invasive mechanical ventilation.
Conclusion: A wide range of studies support improved outcome associated with doctors on board emergency transportation and with faster pre-hospital times. Advanced field stabilization philosophy seems to be a coherent approach for our reality. However, in the future, we would like to continue our study by establishing if there is a relationship between that type of early stabilization and patient outcome after Hospital discharge.

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ID 175: Estimación de la Capacidad de Respuesta Hospitalaria del Sector Público Ante Un Gran Sismo en la Ciudad de Lima - Perú

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Antecedente: Lima, la capital del Perú, ha sido afectada por grandes, el último de ellos ocurrió en 1940 seguido por otros menores en 1970 y 1974. Estudios realizados por la Defensa Civil estiman que en caso de un sismo 8,0 Mw a 33 km de profundidad frente a la costa central del país, se podrían registrar más de 43 mil fallecidos y cerca de 600 mil heridos en la ciudad de Lima. Con base en la información de los modelos existentes, se diseñó un estudio para determinar la capacidad y las necesidades no cubiertas de unidades de sangre y de camas hospitalarias para la atención de los pacientes críticos, código rojo, en las primeras 48 horas post sismo.
Métodos: Se utilizó un modelo estocástico diseñado en Excel que incluyo información de 15 hospitales del Ministerio de Salud excluyéndose a los hospitales especializados. Las variables probabilísticas fueron la cobertura de atención por municipalidad, cantidad de víctimas código rojo que requieren atención en las primeras 48 horas, proporción de estas víctimas que requieren unidades de sangre y la cantidad de estas necesarias por cada víctima.
Resultados: Se estima que existe una brecha de 2550 ± 374 camas para atender víctimas graves o código rojo, siendo su rango de variación de 1974 a 3194, así como un déficit de 9945 ± 3189 unidades de sangre con una variación de 4559 a 15210, para un 90% de confianza. Las brechas identificadas podrían ser mayores debido a que 7 de los 15 hospitales estudiados tienen calificación C (inseguros) según el Índice de Seguridad Hospitalaria.
Conclusión: La capacidad hospitalaria existente y las estrategias actuales para ampliación de esta en cuanto a camas y stock de unidades de sangre, son insuficientes para enfrentar la demanda adicional generada por la emergencia dentro de las primeras 48 horas.

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ID 176: Optimal Time to Debridement of Open Fractures of the Extremities

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Background: Debridement of open fractures is generally performed in the operating room within 6 h after injury. However, this practice lacks sufficient supporting evidence[1]. The aim of this study was to investigate the effect of delayed debridement on the prognosis of patients with open fractures of the extremities.
Methods: The study was a single-center retrospective cohort investigation of patients who had open fractures of the extremities and were admitted to our hospital between October 2009 and September 2012. Patients with multiple traumatic injuries were excluded from this study. We investigated patient attributes, time to surgery, presence of infection, Gustilo classification, time to initial administration of antibiotics, and outcome.
Results: 18 patients (66.7% male; mean age, 41.4 years) met inclusion criteria, 11 of whom underwent surgery in <6 h (mean time, 251 min) after injury and 7 of whom underwent surgery after >6 h (mean time, 660 min). There was no significant difference between the 2 groups in terms of rate of ICU admission, duration of hospitalization, infection rate and mortality. Moreover, there was no difference in the severity on Gustilo grade, or time to initial administration of antibiotics. A comparison of the 2 groups in terms of presence of infection showed that the severity on Gustilo grade tended to be higher among patients with infection ($p = 0.06$).
Conclusion: Although the time elapsed between injury and surgery may be important in determining the treatment strategy for an open fracture, 6 h may not be an appropriate standard time. Further large-scale studies are required to investigate which factors are important in determining treatment strategy as well as the optimal time to surgery.
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ID 177: Business Impact Analysis to Prioritize Operations Using Water in a Hospital Based on Experiences of the Great East Japan Earthquake

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Introduction: The Great East Japan Earthquake brought our hospital to a crisis because disruption of water supply had occurred for six days. Based on our experience, this study was designed to analyze the usage of water and the priority of water consumption at each section in a hospital by applying a Business Impact Analysis (BIA), and to identify minimum amount of water necessary for continuing operations for patient care in emergencies.
Method: Our hospital is a Japanese university affiliate with 653 beds, and usually consumes approximately 500 tons of water a day. The operations using water at each section were examined employing a BIA questionnaire. The contents included the priority of operations, possibility of water-saving, substitute ways, and estimated daily usage of water. According to priority, operations ranks were classified into three phases (A;indispensable, B;preferential, C;interruptible,). Actual usage of water and efficiency of performed substitute ways during the water-disrupted periods were verified in each operation.
Results: The operations using water had 23 contents in total, and the estimated demand of water in our hospital was 300 tons a day; 60 tons (20%) for rank A operations, 125 tons (42%) for rank B, and 115 tons (38%) for rank C, respectively, which accounted for approximately 60% of usual consumption before the disaster. During the water-disrupted periods, the available amount of water had decreased to 130 tons a day, which accounted for approximately 70% of the estimated demand for crucial operations (rank A and B). To compensate for the shortage of water, 17 of 21 (81%) estimated substitute ways for crucial operations had been actually performed.
Conclusion: Water is indispensable for continuing hospital operations. It should be important to understand the priority of water operations and to prepare for unexpected situation such as a major disaster.

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ID 178: Business Impact Analysis to prioritize operations Using Water in a Hospital Based on Experiences of the Great East Japan Earthquake

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2. Juntendo University Urayasu Hospital

Background: The Great East Japan Earthquake brought our hospital to a crisis because disruption of water supply had occurred for six days. Based on our experience, this study was designed to analyze the usage of water and the priority of water consumption at each section in a hospital by applying a Business Impact Analysis (BIA), and to identify minimum amount of water necessary for continuing operations for patients care in emergency.
Method: Our hospital is a Japanese university affiliate with 653 beds, and usually consumes approximately 500 tons of water a day. The operations using water at each section were examined employing a BIA questionnaire. The contents included the priority of operations, possibility of water-saving, substitute ways, and estimated daily usage of water. According to priority, operations ranks were classified into three phases (A; indispensable, B; preferential, C; interruptible,). Actual usage of water and efficiency of performed substitute ways during the water-disrupted periods were verified in each operation.
Results: The operations using water had 23 contents in total, and the estimated demand of water in our hospital was 300 tons a day; 60 tons (20%) for rank A operations, 125 tons (42%) for rank B, and 115 tons (38%) for rank C, respectively, which accounted for approximately 60% of usual consumption before the disaster. During the water-disrupted periods, the available amount of water had decreased to 130 tons a day, which accounted for approximately 70% of the estimated demand for crucial operations (rank A and B). To compensate for the shortage of water, 17 of 21 (81%) estimated substitute ways for crucial operations had been actually performed.
Conclusion: Water is indispensable for continuing hospital operations. It should be important to understand the priority of water operations and to prepare for unexpected situation such as a major disaster.

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ID 179: Hospital Preparedness Crisis in the Face Southern of Iran

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Background: During and after disasters hospitals play the main role of providing health services to people; therefore they should have their own planning and preparedness to present their services on time and without any interruption.
Methods: This research is a cross-sectional and descriptive study which surveyed the preparedness situation of 9 educational hospitals at Shiraz University of Medical Science in disasters in Iran.
The results addressed 6 fundamental objectives:

1-determine if there is an educational plan against disasters
2-determine if there is a plan and guidelines for help, rescue and facilities regarding emergency services
3-determine if there is a committee of crisis management
4-determine if there is fire fighting system
5-determine if there is an appropriate evacuation plan
6-determine how resist are building structures and maintenance against disasters

Conclusions: Hospitals need to mitigate the hazards threaten by natural and manmade disasters (internal or external) and prepare themselves to respond well in these disasters.

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ID 180: The Effects and Future Challenges of the Triage Education of Japanese Association for Disaster Medical Seminar

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2. Kanto Rosai Hospital
3. Japanese Red Cross Musashino Hospital

4. JA-LP gas information center
5. Tachikawa Medical Center
6. Normeca Asia

Background: The Japanese Association for Disaster Medicine has been holding annual two-day seminars since 1997. It was decided to hold the seminars twice a year from 2006, and five times a year from 2012. The seminars mainly are for beginners in disaster medicine who may be involved in this field, and they include lectures and triage simulations.
Aims and methods: To evaluate the current situation and explore issues based on triage simulation evaluation.
Results: Primary triage was evaluated based on the details stated on triage tags. Items included (1) the name, affiliation and other information, (2) triage category, and (3) the time of triage. The results were that the proportion of participants who appropriately filled out the above items was 91.7% for (1), 82.8% for (2), and 70.7% for (3).
The evaluation items in secondary triage were (1) reading background information, (2) physiological evaluation, (3) anatomical evaluation, and (4) checking injury outcomes. Evaluation items for secondary triage used a 4-point scale in the same way as in primary triage. The same patients as those in primary triage were assumed in the secondary triage, and participants were requested to carry out triage 2 times in total - before and after treatment. It was assumed that vital signs changed due to the simulated treatment. Evaluation points increased in the secondary compared to the primary triage for all items.
Discussion and conclusion: There are various opinions on setting targets for triage education because of multiple trainee factors such as the occupation, years of experience, and department of experience. Although the results of the investigation in the evaluation table showed that participants' scores improved as they continued training, their skills may not be sufficient. Training needs further improvement, but we also need to find which objective indices are appropriate for training effects.

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ID 181: Cholera Epidemic in Haiti: A Multidisciplinary Experience

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Cholera is an acute intestinal infection caused by *Vibrio cholerae*, a bacterium capable of producing an enter toxin that causes diarrhea. *Vibrio cholerae* is mainly transmitted through ingestion of contaminated food or water. In most cases, the infection is asymptomatic for over than 90% of people. In some people may develop profuse watery diarrhea of sudden onset, potentially fatal, with rapid development (hours) for severe dehydration and marked decrease in blood pressure.
The *V. cholerae* enters the human body through ingestion of contaminated water or food (fecal-oral transmission). An infected person eliminates *V. cholerae* in his faeces on average of between 7 to 14 days.
In the last 100 years, no reports of this bacterium in Haiti have been notified, however after the earthquake that devastated Port au Prince in January 2010, the poor sanitary conditions contributed to more than 1.3 million cases, particularly around Port au Prince, where sanitation is deficient and the total absence of clean spring water contributes to the epidemic reaches alarming numbers.
More than 587.319 Haitians were infected by the disease and 7.519 died after being infected.
The main objective was educating the population concerning self health-care.
A group of 3 health professionals- a Physiotherapist, a Nurse and a Doctor- have used tools of communication including educational journal, Creole music and theatre.
We have educated 9500 families, including children, and received positive feedback from professionals from the orphanages, schools and the Brazilian Embassy, about changing behavior of the population in relation to hygiene and health care after our intervention. We have received e-mails from community leaders reporting the improvement of hygiene conditions.
We conclude that concerning the epidemic of cholera it is very important to work in catastrophe- victim projects but there is a great and real importance related to education of the population by preventing this and other diseases by poor hygiene and sanitation.

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ID 182: What Do Australian Public Health Nurses Know About Disasters and Their Related Roles

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3. Flinders University (Australia)

Background: Australia's disaster preparedness and the surge capacity of local and national health systems have been significantly challenged as heat-waves, bush fires, cyclones, floods and more, have impacted the Australian landscape.
Disaster events challenge nurses, as the largest group of health care providers, to consider their roles within disaster preparedness and response. Understanding the roles of nurses in disasters outside the acute hospital setting, and public health nurses' disaster knowledge and perceptions of their role in a disaster event can be significant in assuring a good response.
Method: This presentation will discuss a review of the literature, regarding what Australian public health nurses perceive their actual and potential role to be in disaster preparedness and response, and their level of disaster knowledge, with a specific focus on nurses who work within State and Territory public health units and the skills they bring to disaster preparedness. Literature was sourced from government websites and the data bases: CINAHL, ProQuest Central, Medline, PUBMED, Informit, Factiva and Google Scholar.
Results: Although public health nurses are considered the backbone of community nursing following a disaster in many other countries, the literature review suggests that this role has neither been articulated, nor developed, for public health

nurses within Australia. Reports describe a hospital centric workforce, disaster education as ad-hoc and fragmented, and occupying a minimal presence within the Australian curricula. Specifically named public health nurses are few in number relative to their acute sector counterparts, and lack visibility in the historical nursing literature.
Conclusion: Australia should identify what public health nurses know regarding disasters and their disaster role, and use this knowledge to formulate recommendations regarding disaster education and preparedness and skill planning for future disaster events.

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ID 183: Lesson and Learn from Two Tsunamis in Japan

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Background: Japan has been attacked twice in the past 20 years by big tsunamis. We have a chance to study these two tsunamis. This presentation compared two big tsunamis to learn how to decrease the mortality.
Method: Okushiri Island earthquake occurred on July 12, 1993 and Great East Japan earthquake occurred on March 11, 2011. These tsunamis were compared on the basis of prevention and decreased mortality.
Results: Okushiri Island earthquake damaged local areas with tsunami, fire and landslide and 230 people died by drowning. Tomari nuclear power station was located near Okushiri Island but fortunately the damage of tsunami was minimal. Helicopter transportation was used to carry the patients. The Self-defense force was first worked with their doctors. Great East Japan Earthquake attacked a very wide area. This was a complex disaster, which included an earthquake, tsunami, compacted with damage to Fukushima nuclear power plant. Over 19,000 people died by drowning and fear of radioactivity continues. DMAT (Disaster Medical Assistance Team) worked actively with air ambulance service. Most people of Okushiri Island and East Japan know the fear of tsunami based on the past experiences, but some people forgot and did not know the past tragedy. Continuous education of tsunami is important from the childhood.
Conclusion: We have to avoid death from the tsunami and learn how to escape. Education of tsunami is important for preparedness. The establishment of DMAT team and proper work of transportation system are also important.

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ID 184: Comparison of the Analgesic Efficacy of Dexketoprofen Trometamol and Meperidine HCl in the Relief of Renal Colic

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Background: In this study, the analgesic effects of Dexketoprofen Trometamol and Meperidine Hydrochloride were compared on patients diagnosed with renal colic.
Methods: This study was a prospective, randomized, double-blind study. 52 patients, between the ages of 18-70 who were diagnosed with renal colic, were enrolled in the study following ethics committee approval. Before drug injection, Dexketoprofen Trometamol and Meperidine Hydrochloride were placed in closed envelopes, and patients were randomly given a single dose of intravenous infusion for 20 minute. Severity of pain and symptoms were evaluated with Numerical Rating Scale (NRS) and Renal Colic Symptom Score (RCSS) for each patient immediately before administration of drugs and 30 minutes after the end of the application. At the same time systolic arterial blood pressure (SBP) and diastolic arterial pressure (DAP), respiratory rate (RR), heart rate (HR), nausea, vomiting, and reactions due to drug administration were recorded before and after drug administration.
Results: In both groups, a significant decrease was found in NRS values measured after 30 minutes from drug administration, but the decline in Dexketoprofen Trometamol group ($p = 0.02$) was found to be more. Although a significant decrease was found in RCSS ($p < 0.001$) values measured after drug administration in Dexketoprofen Trometamol group, no significant decrease was found in Meperidine HCl ($p = 0.058$) group. After drug administration, a statistically significant decrease was found in SBP, HR and RR in both groups. Also a statistically significant decrease was found in DAP in Meperidine group. But these changes in vital findings were not serious enough to disrupt patients' clinical status.
Conclusion: With this study, we concluded that Dexketoprofen Trometamol, from NSAID group, can be within the primary treatment options for renal colic because of better analgesic efficacy, being well tolerated by patients compared to Meperidine hydrochloride.

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ID 185: Panama Medical Readiness Training Exercise (MEDRETE)

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The military has played a significant role in providing humanitarian assistance around the world. Military members possess the skills needed to adapt to new environments in order to provide culturally competent medical care to populations in need. From the post World War I era to the

recent devastation caused by the earthquake in Haiti, military troops have provided humanitarian assistance.
In August 2012, I deployed to Panama for United States Air Force (USAF) Panama MEDRETE, a humanitarian and civic assistance mission. In a nine day period over 9,000 local citizens received medical, optometry, dental care, women's health and immunization. The Panama Ministry of Health, Panama National Police, and local civilians worked collaboratively with more than fifty U.S. Air Force and Air National Guard personnel during this operation. The success of this mission was due to the collaborative efforts of all members of the mission team.
My primary role was one of the clinical nurse and as International Health Specialist (IHS). As a clinical nurse, deployment provided numerous opportunities to share up-to-date Nursing and Infection Prevention and Control information with local nurses, health care workers, school children, teachers, and the general public. As an IHS, I engaged in building global health partnership and established a relationship with the host nation. While fulfilling my primary mission responsibilities I remained flexible and I was tasked as required to support the mission in other capacities.
The purpose of this presentation is to share my experiences and lessons learned. Resources will be provided for healthcare providers and international colleagues who want to pursue the opportunity to participate in a humanitarian mission.

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ID 186: Acute-Phase Reactants and Cytokines in Ischemic Stroke: Do They Have Any Relationship with Short-Term Mortality?

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Background: Many unknown risk factors play a role in the etiopathogenesis of stroke. The appearance of inflammatory cells within the damaged tissue after cerebral ischemia suggests that an inflammatory response may play a role in stroke pathogenesis. In our study, we examined whether an association exists between the acute-phase reactants and the levels of cytokines, the volume and diameter of the stroke, and short-term mortality in patients who were diagnosed as acute ischemic a stroke after admission to the Emergency Department.
Methods: A total of 50 consecutive patients who applied to the Emergency Service with acute ischemic stroke were enrolled in the study. Their stroke volume was calculated and serum samples were obtained as soon as they arrived into the Emergency Service. The patients were evaluated according to the Glasgow Coma Scale (GCS) and National Institutes of Health Stroke Scale (NIHSS).
Results: There were no significant correlations between stroke volume and levels of cytokine and acute-phase reactants between the dead patient group and living patient group. A correlation and statistical significance was found between stroke volume and hospital stay time in the living patient group. In addition, GCS and NIHSS scores were correlated with stroke volume and were statistically significant.
Conclusions: Scales such as GKS and NIHHS, which evaluate the functional state of patients, are the best indicators for defining prognosis in our daily practices. In addition, we found a positive correlation between levels of CRP (C Reactive Protein) and prognosis. However, we did not observe a statistically significant correlation between prognosis and other acute-phase reactants such as TNF-alpha, IL-6, IL-8, IL-10, fibrinogen, and leukocytes.

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ID 187: An Unusual Cause of Unintentional Poisoning: Gliphosate

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Glyphosate is a non-selective organophosphate herbicide which has a wide spectrum and systemic effects and used widely in many countries including Turkey. This results in the inhibition of aromatic aminoacid, hydroxyphenolic compounds and chlorophyll synthesis and consequently a reduction occurs in protein synthesis and growing, and cell deaths are seen.
In humans, Glyphosate leads to gastrointestinal irritation; hepatic and renal dysfunction; cardiovascular instability; and pulmonary insufficiency. This is due to the reduction of

protein synthesis leading to cell death by inhibition of some enzyme systems. Whilst it causes death in rats in very low doses, death occurs in humans only in very high doses (330 ± 42 ml).

In this paper, we discuss a group of poisoning cases admitted to the emergency department with complaints of nausea after noticing that they had mistakenly added glyphosate containing herbicide in the meal instead of oil, and who developed thrombocytopenia and elevation in renal function tests.

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ID 188: The Relationship Between Blood lactate, Carboxy-Hemoglobin and Clinical Status in CO Poisoning

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Background: We aimed to determine the relationship between blood lactate, carboxy-hemoglobin (COHb) levels and the severity of clinical findings in patients with CO poisoning.

Methods: Patients over 18 years old and of both genders who were admitted to the emergency department with the diagnosis of CO poisoning between 10.02.2008 and 17.03.20011 were enrolled in this study. Detailed physical examination of each patient was performed. Patients and their relatives were informed about the study and written consents were noted. The levels of consciousness, physical examination findings, electrocardiographic findings, Glasgow Coma Scale (GCS) scores, laboratory results (lactate, COHb, CK-MB, Troponin-I levels) and applied treatments (normobaric oxygen therapy (NBOT), hyperbaric oxygen therapy (HBOT)) were recorded on standard data entry forms for each patient. "SPSS for Windows version 18" package program was used for statistical analysis of the data. According to the results, p-value <0.05 was considered statistically significant.

Results: 201 patients were included in this study. Thirty five patients (17.4%) received HBOT and lactate, COHb, CKMB, Troponin-I levels of this group were higher than the other patients. Lactate and COHb levels were statistically significantly higher in patients with GCS < 15 than the ones with GCS $= 15$ ($p < 0.01$). The patients whose both Troponin-I and CK-MB levels increased have higher lactate levels ($p = 0.038$), but COHb levels of these patients did not change ($p = 0.495$).

Conclusions: According to our study, blood lactate and COHb levels were both correlated with the changes of consciousness in CO poisoning. Blood lactate levels together with COHb in defining indications for HBO treatment might be suggested.

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doi:10.1017/S1049023X13005141

ID 189: Effectiveness of Therapeutic Plasma Exchange in Patients with Intermediate Syndrome Due to Organophosphate Intoxication

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Background: We aimed to determine effectiveness of therapeutic plasma exchange (TPE) in patients with intermediate syndrome (IMS) due to organophosphate intoxication.

Methods: Patients diagnosed with IMS due to organophosphate intoxication were included in this prospective study. TPE procedure was performed with fresh frozen plasma as a replacement fluid via Fresenius-AS-TEC 204 device by Therapeutic Apheresis Unit to patients who developed IMS during follow up. Samples were taken from patient's blood and waste plasma collected in the device before and after TPE procedure to be studied in laboratory for detection of organic phosphate and pseudocholinesterase (PChE) levels. In this study, SPSS 18.0 software package was used for statistical analysis of the data obtained. Level of statistical significance was taken as $p < 0.05$ for all tests.

Results: Of all 17 patients, 4 (23.5%) were female and 13 (76.5%) were male. A statistically significant decrease was detected in organic phosphate levels in the plasma of patients after TPE procedure ($p = 0.012$). A statistically significant increase was detected in PChE levels in the plasma of patients after TPE procedure ($p = 0.014$). Of 17 patients included in the study, 13 patients showed clinical improvement and were discharged after the TPE process.

Conclusion: In our study, it was observed that a significant decrease in the level of blood plasma organophosphate and a significant increase in the level of PChE were achieved with TPE process in the early period of IMS due to organophosphate poisoning. This study indicates that TPE is one of the effective treatment options for IMS due to organophosphate intoxication.

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ID 190: Epidemiological Analysis of the Cases Admitted to the Emergency Department with Pharmaceutical Poisoning

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Background: This study considers epidemiological analysis of patients diagnosed with pharmaceutical poisoning in the Emergency Department.
Methods: Patients 18 years and over, diagnosed with pharmaceutical poisoning in our Emergency Service between December, 1 2009 and December, 31 2010 were included in this study. Patient data was obtained from hospital computer system records, patient examination cards and hospital admission files.
Results: A total of 1507 patients were included to this study, 70.3% of them were female. Statistically significantly, spring and summer months were determined to be associated with higher number of cases ($p = 0.02$). Poisonings have been determined to occur more frequently with multiple pharmaceutical intakes (649 patients, 43.1%) and for suicidal intent (1408 patients, 93%). The mean duration of arrival at emergency department was found as 2.28 ± 2.2 hours. While 1277 (84.7%) patients directly applied to the emergency services, 230 (15.2%) patients were referred from another medical institution. 94% of the patients were conscious at admission and oral intake was the most common way of intake in poisoning cases. While 57% of the patients were treated and discharged from emergency service, 647 (43%) patients were admitted to the emergency critical care unit. The mean length of hospital stay in the admitted patients was 1.65 ± 1.44 days. 627 (96.91%) of these patients discharged from the hospital after the termination of their treatment, 18 of them were referred to another health institution and only 1 patient was dead on arrival in the emergency department, whilst no patients died in Emergency Department due to poisoning.
Conclusion: Our study determined that the patients were mostly female, admitted to the Emergency Department due to multiple pharmaceutical intake for suicidal intend in spring and summer. Almost all of them were discharged from the Emergency Department after their treatment and observation.

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ID 191: Analysis of Adult Trauma Patients Admitted to Emergency Department

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Background: We aimed to determine demographic characteristics, etiology, morbidity and mortality rates and prognosis of adult trauma patients admitted to emergency medicine department.
Methods: Patients over the age of 18, admitted to the emergency medicine department with "General Body Trauma" (GBT), between 1 March 2011 to 31 August 2011 were included in this study. Demographic data, data regarding etiological factors causing trauma, outcome of the patients in the emergency department, departments to which patients are hospitalized and outcome of patients in those departments were recorded in the standard data entry form. SPSS 16.0 package program was used for statistical analysis of data.
Results: During the study period, 12.29% of 110.495 patients, admitted to the emergency department, had GBT. Simple extremity injury ranked first among etiological factors (38.28%) and falls was in second place (31.7%). Extremity trauma was observed mostly (55.58%). Glasgow coma scales (GCS) scores were between 13-15 in 99.71% of the patients. 9.6% of patients with GBT had a CT scan and 84.5% of CT scans were evaluated as normal and cranial CT was the most requested one. Only 6% of the patients were hospitalized. 0.9% of all GBT patients died.
Conclusions: The general body traumas often consist of simple injuries. These patients can be discharged with a complete medical history and careful physical examination. The time and labor allocated to patients with severe and multiple traumas can be increased by reducing rate of unnecessary medical tests and waste of time.

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doi:10.1017/S1049023X13005177

ID 192: The Relationship Between Inferior Vena Cava Diameter Measured by Bedside Ultrasonography and Central Venous Pressure Value

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Background: We aimed to present IVC diameter as a guiding method for detection of relationship between inferior vena cava (IVC) diameter measured noninvasively with the help of ultrasonography (USG) and central venous pressure (CVP) and evaluation of patient's intravascular volume status.
Methods: Patients over the age of 18, to whom a central venous catheter was inserted to their subclavian vein or internal jugular vein were included in our prospective, randomized study. IVC diameter measurements were recorded in millimeters following measurement by the same clinician with the help of USG both at the end-inspiratory and end-expiratory phase. CVP measurements were viewed on the monitor by means of piezoelectric transducer and recorded in mmHg. SPSS 18.0 package program was used for statistical analysis of data.
Results: Forty five patients were included in the study. 11 patients (24.4%) required mechanical ventilation while 34 (75.6%) patients had spontaneous respiration. In patients with spontaneous respiration, a significant relationship was found between IVC diameters measured by ultrasonography at the end of expiratory and inspiratory phases and measured CVP values at the same phases (for expiratory $p = 0.002$, for inspiratory $p = 0.001$). There was no statistically significant association between IVC diameters measured by ultrasonography at the end of expiration and inspiration and measured CVP values at the same phases in mechanically ventilated patients.
Conclusions: IVC diameter measured by bedside ultrasonography at the end of expiration and inspiration was found able to be used for determination of the intravascular volume status.

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ID 193: Tumor Necrosis Factor Beta A329G Gene Polymorphism and the Association Between Patients with Acute Myocardial Infarction

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Background: In this study, we aim to evaluate the efficacy of the tumor necrosis factor-beta A329G gene polymorphism in patients admitted to emergency department with chest pain complaint and diagnosed acute myocardial infarction.
Methods: This study was planned as a prospective, randomized, controlled study and we started the study after the approval of Cukurova University Ethics Committee. DNA was extracted by High Pure PCR Template Preparation kit (High Pure PCR Template Preparation kit, Roche Diagnostic, Germany). TNF-β gene polymorphism A329G mutations were determined by using the Light Cycler instrument detection kit (Roche diagnostic, GmbH, Mannheim, Germany) in Light Cycler Real Time PCR. Statistical analysis of data was performed with SPSS 11.5 software package. The statistical significance level of $p < 0.05$ was taken for all tests.
Results: 90 patients (78 men, 12 females) with myocardial infarction and 78 healthy controls (28 men, 50 females) were included to this study. Tumor necrosis factor-beta A329G gene polymorphism was not significantly associated with myocardial infarction. 42.2% of subjects had AG genotype and 6.7% of subjects had GG genotype in patients with myocardial infarction. LDL levels in patients with MI were significantly higher than the control group ($p = 0.021$) and HDL levels were significantly lower in patients with MI ($p = < 0.001$).
Conclusions: It was observed that there has not been any relationship between tumor necrosis factor-beta A329G gene polymorphism and myocardial infarction. High LDL and low HDL levels were found to be the risk factors for MI. This study is important because it is the first study try to determine the relationship between MI and TNF-β A329G polymorphism of the gene for the Turkish community in our country. This study could lighten other studies, other polymorphisms of tumor necrosis factor can be investigated and the potential possible significant findings can be obtained.

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ID 194: The Relationship Between Minor Head Trauma and Post-Traumatic Headache

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Background: In this study, we aimed to investigate the relationship between minor head injury and post-traumatic headache (PTH) in patients admitted to the emergency department due to minor head trauma.
Methods: Patients admitted to Emergency Medicine Department with minor head trauma between 01.01.2009–31.12.2010 were planned to be taken to this prospective study. Demographic characteristics, detailed risk factors, type of trauma, duration of amnesia, brief history of headaches, psychiatric diseases, history of drug use, findings of the physical and neurological examinations made after admission, before discharged and after 3 months, X-ray

and CT findings of all patients with and without PTH were recorded in the standard data entry form.
Results: In our study, the most common reasons of minor head trauma were inside motor vehicle traffic accidents (36.1%) and outside motor vehicle traffic accidents (32.8%) in a total of 119 patients. PTH was detected in 87% of patients with isolated head trauma, 88.4% of patients with head+cervical trauma, 93.3% of patients with head+cervical+whiplash trauma. History of drug use related to psychiatric diseases ($p = 0.019$), post-traumatic photophobia ($p = 0.037$), vomiting ($p = 0.029$), dizziness ($p = 0.019$), sleep disturbance ($p = <0.001$), depression ($p = 0.001$), decrease in sexual desire ($p = 0.038$), anxiety ($p = <0.001$), outbursts of anger ($p = 0.002$) and post-traumatic alcohol consumption ($p = 0.042$) of the patients with and without PTH were compared and a statistically significant increases were determined. A statistically significant reduction in frequency and the duration of headache was detected after third month control examination of the 106 patients with PTH ($p = 0.02$).
Conclusions: History of psychiatric illness prior to the existence of minor head trauma increased the development of PTBA. Increased alcohol consumption and symptoms of post-traumatic syndrome were found to be more prevalent in patients with PTH.

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ID 195: The Relationship Between Inflammatory Reagents and Mortality in Old Patients Hospitalised to Internal Medicine Intensive Care Unit from Emergency Service

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Background: In this study, we tried to determine the relationship between inflammatory reagents, acute phase reactants, GKS, APACHE-II, SAPS -II scores and mortality of old patients hospitalised to internal medicine intensive care unit.
Methods: This study was planned as a prospective, randomized study and the patients hospitalized to intensive care unit from emergency medicine department were enrolled in this study following ethics committee approval. A standard data collection form was used. 48 (% 65,8) male, 25 (% 34,2) woman and a total 73 patients were included in the study. Blood samples were taken from each patient and WBC (white blood cell), hemoglobin, CRP (c-reactive protein), IL-1 (IL-1), IL-6 (interleukin-6), IL-10 (interleukin-10), TNF-alpha (tumor necrosis factor-alpha), PTZ (prothrombin time), aPTT (activated partial thromboplastin time), albumin, ferritin levels were studied in our laboratory. Glasgow Coma Scale, SAPS-II and APACHE-II scores were calculated for each patient. "SPSS for Windows version 18" package program was used for statistical analysis of the data. Chi square test was used to compare categorical measures between the groups. Mann-Whitney U test and T-test were used to compare quantitative measurements between the groups.
Results: Between patients who died and those who survived, there was no statistically significant difference in mean age. Mean duration of hospitalization in dead patient group was less than survived patients group but there was no statistically significant difference between groups. A significant relationship was found between mortality and increased ferritin levels, aPTT, SAPS-II and reduced albumin levels and GCS. No significant relationship was found between mortality and leukocyte count, haemoglobin, PTZ, CRP, TNF-alpha, IL-1, IL-6, IL-10, APACHE-II score.
Conclusions: SAPS-II, GCS, ferritin, albumin, aPTT measurements were determined to be used in the mortality estimation of the patients hospitalised to intensive care unit.

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ID 196: The Relationship Between the Thyroid Hormone Levels and Mortality in Old Patients Hospitalised to Internal Medicine Intensive Care Unit from Emergency Service

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Background: In our study, our purpose was to determine the relationship between thyroid hormones, serum albumin and mortality of the patients over the age of 55 hospitalised to intensive care unit from emergency service.
Methods: This study was planned as a prospective, randomized study and the patients hospitalized to intensive care unit from emergency medicine department were enrolled in this study following ethics committee approval. Standard data collection form was formed to collect the data in a standard way. After the confirmation of the patients and their relatives, we included 48 (% 65,8) male, 25 (% 34,2) woman and totally 73 patients to our study. Blood samples were taken from each patient, thyroid hormones and albumin levels were studied in

our laboratory. "SPSS for Windows version 18" package program was used for statistical analysis of the data. The Log-Rank test was performed under Kaplan-Meier Survival Analysis to determine the relationship between the estimated life time and the free T_3 (fT_3)-free T_4 (fT_4)-thyroid stimulating hormone (TSH).
Results: There was no statistically significant difference in mean ages and genders of patients who died and survived. Mean duration of hospitalization in died patient group was lesser than survived patients group but there was no statistically significant difference between groups. There was a statistically significant association between mortality and the low albumin. According to the Kaplan-Meier Survival Analysis of the patients with low or high levels of fT_3 were found to be shorter median life expectancy. No significant relationship was found between mortality and fT_4, TSH.
Conclusions: According to the low albumin levels and the Kaplan-Meier Survival Analysis of the patients with low or high levels of fT_3 were found to be shorter median life expectancy. Albumin and free T_3 measurements were determined to be used in the mortality estimation of the patients hospitalised to intensive care unit.

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ID 197: Retrospective Analysis of Pediatric Trauma Cases Admitted to Emergency Medicine Department

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Background: The purpose of this study is to determine the prognosis of the demographic characteristics, etiology, morbidity and mortality rates of the pediatric trauma patients admitted to the emergency department of a training and research hospital.
Methods: Pediatric patients brought to the emergency department because of trauma have been included to this study. The demographic data of the patients and the etiologic factors that cause to trauma has been analyzed statistically.
Results: Of the 18936 patient 12096 were boys and 6840 were girls have been included to this study. The mean was as 8,11 ± 5,19 in boys and 6,89 ± 5,04 in girls. The most common age for trauma was 7-14 (% 36.15) it has been stated that the pediatric trauma cases have been mostly admitted in spring and summer months. Extremity injuries (% 42,40) and falls (% 40,67) were stated as the most etiologic causes. 815 of the patients have been hospitalized. 353 cases (% 43,31) received surgical invention while 462 (% 56,69) cases received only medical treatment. The pediatric trauma patients were exitus by the following reasons: 10 (% 47,62) of them due to traffic accidents, 5 (% 23,81) of them due to falls, 5 (% 23,81) of them due to burns and 1 (% 4,76) due to drowning. It has been stated that 13 (% 61,90) cases were male and 8 (% 38,10) patients were girls of a total 21 cases resulting in death.
Conclusions: Most of the pediatric traumas become due to falls or simple extremity injuries. Traumas are mostly seen between the 7-14 age range during primary school. The most common etiological factor in hospital admissions are falls. The most common etiological cause of death in pediatric trauma are traffic accidents.

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ID 198: Evaluation of Head Trauma Cases in the Emergency Department

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Background: In this study, we aimed to determine the epidemiological characteristics, morbidity and mortality rates of patients admitted to the emergency department with head trauma.
Methods: In this study, ambulatory and hospitalized patients over the age of 18 brought to the Emergency Department because of head trauma were analyzed.
Results: 5200 patients were included in this study. The average age of the patients was 39.97 ± 16.66 years. 4682 patients (90%) were discharged from the emergency department. The most common reason for admission to the emergency department was falls (41.81%) in the discharged patients. 518 (10%) patients were hospitalized. Gender of these patients were 110 females (21:24%) and 408 males (78.76%). 256 patients (48.35%) were injured as a result of a traffic accident. 201 (38.8%) of the cerebral CT were reported as normal and 89 (17.2%) of the cerebral CT were reported as traumatic subarachnoid hemorrhage (SAH) in hospitalized patients. The fracture of lumbar spine (12%) was detected as an additional pathological disease in patients. 75 patients hospitalized because of head trauma (14.5%) had died (1.44% of all patients). Cervical spine fracture was the most common (14 patients, 18.68%) additional pathology in patients who died. Thoracic trauma was detected as the second most common (13 patients, 17.33%) additional pathology.
Conclusions: Most of the patients admitted to the emergency department with head injury had a minor trauma. Most head injury patients admitted to our hospital were male. The most

common reason of the patients with head injury admitted to hospital was traffic accident. The most common finding of cerebral CT was SAH. Even though traffic accidents are the most common causes of death, gunshot wounds have higher death rate. This study will help emergency physicians to approach with head trauma patients and contribute to their clinical experiences. Our country-specific emergency trauma protocols can be created after more detailed studies.

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ID 199: Analysis of Judicial Cases at Emergency Department

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Background: In this study, we aimed to analyze the demographic and epidemiological features, life-threatening nature of the forensic reports, the status of simple medical intervention and outcomes of judicial cases admitted to emergency department.
Methods: Judicial cases, admitted to the emergency department between 01.12.2009–31.12.2010 were included in the study. Patients were evaluated from the patient cards retrospectively.
Results: Of the 5870 judicial cases, 63.78% were male. Mean age of patients were 33.75 ± 12.4 years. Traffic accident (27.3%), intoxication (24.3%) and to be beaten (17.6%) were the first three judicial events. Traffic accidents were seen in males between 26-33 ages mostly and intoxications were seen in females between 18-25 ages commonly. The commonest injuries were limb injuries with 2404 cases. 73.3% of patients were discharged and 26.3% of patients were hospitalized. 0.3% of forensic cases (19 patients) died in the emergency department, 0.1% (4 patients) died before hospital admission. Death was mostly seen as traffic accidents and fall from height. When forensic reports were evaluated, 28.8% of males and 11.3% of females were not resolved with simple medical intervention. Only 3336 (56.8%) forensic reports of all forensic cases were stated in a life-threatening situation. 21.1% of the patients with a life-threatening situation of the current was life-threatening.
Conclusion: Forensic cases require hospitalization rate as high as 26.3%, although the danger of life in 21% percent, the mortality rate is 0.3% in emergency department.

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ID 200: Relationship Between Mortality and Acute Inflammatory Markers, Erythrocyte Cholinesterase, Serum Cholinesterase Levels in the Acute Organic Phosphorus Intoxication

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Background: In our study, we aimed to investigate the relationship between the mortality and acute inflammatory markers, serum - erythrocyte cholinesterase levels in patients with organophosphorus poisoning.
Methods: We planned to take patients who administered to emergency department with organic phosphorus poisoning prospectively for 2 years. A total of 39 patients were included in the study. Blood samples were taken from all of the patients included in the study for use in study after diagnosis. White blood cell (WBC) and platelet counts, fibrinogen, ferritin, C-reactive protein (CRP), tumor necrosis factor-alpha (TNF-α), interleukin-1 (IL-1), interleukin 6 (IL-6), interleukin 10 (IL-10), erythrocyte and serum cholinesterase levels were determined from blood samples.
Results: The laboratory data of patients who died due to organophosphorus poisoning were compared with the patients discharged; the mean serum cholinesterase levels of the patients who died were statistically low ($p = 0.006$), platelet counts were low ($p = 0.031$), fibrinogen levels were high ($p = 0.011$). However, there was no statistically significant differences between erythrocyte cholinesterase ($p = 0.984$), IL-1 ($p = 0.139$), IL-6 ($p = 0.513$), IL-10 ($p = 0.089$), TNF-α ($p = 0.074$), CRP ($p = 0.081$), ferritin ($p = 0.275$), WBC ($p = 0.272$) levels of the patients who died or discharged. There was a statistically significant relationship between fibrinogen levels and erythrocyte cholinesterase ($p = 0.013$), serum cholinesterase ($p = 0.029$) levels of the patients who discharged or died.
Conclusions: Low serum cholinesterase levels, low platelet count and high fibrinogen levels were found to be important factors for the high mortality rate of organic phosphorus poisoning. This study will be useful for emergency physicians to be able to predict mortality of organic phosphorus poisoning and contribute to more clinical experiences. These laboratory tests can be used as prognostic markers after more detailed studies.

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ID 201: The Relationship Between Electrocardiographic Changes, Cholinesterase Levels and Mortality in Acute Organophosphate Poisoning

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Background: In our study we aimed to investigate the relationship between electrocardiographic (ECG) changes, cholinesterase levels and mortality due to acute organophosphate poisoning.
Methods: We planned to take patients who administered to emergency department with organic phosphorus poisoning randomized and prospectively for 2 years between 01.08.2009 – 31.08.2011 after approval by the Ethics Committee. The electrocardiograms of the patients were taken after admission to the emergency department, before the treatment (atropine and pralidoxime application). Blood samples were taken and serum - erythrocyte cholinesterase levels were studied in the laboratory of our hospital. ECG findings, cholinesterase values and the final situation of the patients were recorded at the standard data entry form. SPSS 18.0 package program was used for statistical analysis of data. The statistical significance level of all tests was $p < 0.05$.
Results: The five of thirty nine patients (12.8%) included in the study have died during the treatment. The electrocardiographic findings seen in patients in order of frequency; sinus tachycardia (48.7%), prolonged QT interval (20.5%), and right bundle branch block (20.5%), ST-T wave changes (12.8%), atrial fibrillation (7.7%), right axis deviation (5.1%), prolonged PR (2.5%). There was no statistically significant difference between the ECG findings of the patient groups who died or discharged ($p \geq 0.05$). The mean serum cholinesterase levels of the patients who died were statistically lower than the discharged patients ($p = 0.006$).
Conclusions: There is not a significant relationship between ECG findings and the severity of organophosphate poisoning. There is a statistically significant relationship between mortality and low levels of serum cholinesterase due to severe poisoning. ECG findings and their effects to the mortality in organophosphate poisoning can give an opinion to the emergency physicians and contribute to their clinical experiences. However, more detailed studies are needed in this matter.

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ID 202: How to Teach International Health and Nursing for Rearing Medical Staff Working in the International Field

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Background: Rearing medical staff who can work in the international field is very important. How to teach international health and nursing (IHN) in the nursing college is not established in Japan. The authors examined the effective way of teaching IHN in Saga University, Japan.
Method: Subjects were 68 nursing students of 4th grade in Saga University. They had 15 hours of lectures concerning INH during Oct 1-29, 2012. After the lectures, self-administered questionnaire were distributed for the survey of effective IHN education. All students answered the questionnaire (collection rate: 100%, and effective response rate was 94.1% (64/68)). The questionnaire included INH education method and evaluation by the students.
Result: Most answers for "What is your image of IHN?" was "Nursing education in developing countries (100%)" and "Nursing skills and system of western countries (9.3%)." The answers for "Was learning from the teacher's experience of practical IHN effective?" was "Very effective" (78.1%). After the 15 hours lectures, 93.6% of the students answered that they were interested in IHN activities. Furthermore, 10.9% of the students wanted to participate in practical IHN activities in the future, and 54.6% of them answered that they wanted to participate IHN if they had chance. They also answered that necessary knowledge for IHN was "Infections disease", "Public health", and "Culture, custom and religion of the field."
Conclusion: In the education of IHN, teaching teacher's practical experience of IHN was considered very effective and important. Many nursing students wanted to participate in IHN activities in the near future after the lectures. Rearing medical staff for IHN will support rearing staff of international disaster relief operations and disaster nursing field.

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ID 203: Decision and Reasons for Calling an Ambulance: Patients' Perspective

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Background: Demand for pre-hospital emergency care is increasing in Australia as in many other countries. Using post-hoc criteria such as triage, diagnosis and admission status, some authors view a considerable number of these as "inappropriate". Yet, calling an ambulance at the time of emergency is rarely studied from the patients' or their carers' perspective. This study interviewed patients about the

decision, circumstances surrounding and reasons for calling an ambulance in Queensland, Australia.
Methods: A cross-sectional survey of patients attending a sample of eight public hospital emergency departments in Queensland was undertaken between March and May 2011. In total, 911 questionnaires were collected (response rate: 67%), of whom 226 (24.8%) had arrived by ambulance.
Results: In 35.6% of ambulance arrivals, the decision to request an ambulance was made by the patient; 25% by a doctor; 20% by a family member, friend or carer. Other callers included nurse, people at work or school, and passers-by.
Reasons to request an ambulance included urgency (87%) and severity (84%) of the condition. Other reasons included requiring special care (76%), getting higher priority at the emergency department (34%), not having a car (34%), and financial concerns (17%).
Decision to request an ambulance varied significantly according to the time of illness onset (e.g. on the day, week before), location (e.g. home, outside) and
Conclusion: The decision to call an ambulance is made mostly by non-medical professionals in a perceived emergency situation. They call the ambulance for different reasons but mainly take into account the patient's welfare and safety. Better understanding of these reasons will affect the direction and effectiveness of demand management strategies.

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ID 204: Heat Stroke Triage for a Mass Gathering Festival In Japan

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We evaluated the effectiveness of a heat stroke triage method during the Kishiwada Danjiri Festival (Osaka, Japan, in September).
Background: Kishiwada Danjiri Festival has been held for two days every September for over 300 years. About 0.5 million people gather in a small area to attend or watch the festival events. Because of high temperature and long distance running, many heat stroke patients are transported to the district hospitals within a couple of hours. We have introduced a triage method for heat stroke patients during the festival periods and evaluated its effectiveness.
Methods and results: During the festival period, we accepted 888 ambulances and used the heat stroke triage for 147 cases. The severity of heat stroke was divided to three categories (A: admission not needed, B: to be re-examined on the next day, C: to be admitted) according to clinical findings, CPK and serum creatinine level. Among 147 cases, only 4 were admitted. 19 cases showed high CPK (>5000 IU/L), 23 cases high creatinine (>1.5 mg/dl), and none were dead.
Conclusion: Although the quantity and timing of the festival were well estimated and planed, we needed a triage system for the heat stroke casualties of the festival. No patients were under-triaged and we were also able to accept and treat many other patients of heat stroke.

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ID 205: The Operating Room Under Severe Earthquake: Lessons From the 2011 Off the Pacific Coast of Tohoku Earthquake

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Background: An earthquake of a moment magnitude of nine occurred just off the coast of east Japan on March 11, 2011. This earthquake produced serious, wide damage in North and East Japan.
To clarify damages in operation and operating rooms after the earthquake, a questionnaire survey to hospitals in Tohoku and east Kanto area was conducted.
Methods: We sent questionnaires to 415 acute care hospitals in Tohoku and east Kanto area. The questionnaires consisted of questions including the number of perioperative patients when an earthquake hit the hospital, obstacles to continue surgery, structural and non-structural damage of the OR and the influence on routine surgery after the earthquake.
Result: Questionnaires were sent back from 213 hospitals (51%). Total of 474 patients were undergoing any kind of operation during the earthquake. Five hospitals felt seismic intensity 7, whilst 75 hospitals felt seismic intensity 6. 102 of all hospitals answered that there was disorder for operative continuation. Multivariable analysis identified shaking and electric power cut (OD: 87.0 and 62.7; $p < 0.01$) as an independent risk factor for disorder to surgery continuation. 154 of all hospitals answered that there were some difficulties for the operation on the next day and later of the earthquake. Damages of the infrastructure in the operating room and seismic intensity (OD: 0.71 and 0.59; $p < 0.05$) were significant obstacles for management of operation after the earthquake. Hospitals in remote area from logistic hub experienced deficiency of medical product supply, even though they were remote from epicenter.
Conclusions: The severity of shaking, electric power cut and sense of fear of operating room staff were important factors to discontinue operations. Nonstructural damage, including electric power cut, water supply, affected management of the operating rooms. Hospital logistics is important problem to achieve activity as disaster responders.

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ID 206: Rapid Extrication of Entrapped Victims of Motor Vehicle Accidents: Feasibility Study

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Background: Prompt and safe extrication of motor vehicle accident patients is essential to allow efficient transport to hospital. A rapid extrication technique was developed in the Oslo-Akershus Emergency Medical Services (EMS) and fire service in 1999. The Norwegian Air Ambulance Foundation trains fire fighters, police and EMS personnel in this technique. This study investigated how well the technique can be learned by rescue personnel and the extent of its implementation. A previous study indicates that rapid extrication is a more efficient alternative than previously existing techniques (1).
Method: Extrication times by teams interested and trained in the method were recorded during the Norwegian National Championship in Rapid Extrication. A questionnaire study was conducted after the contest. Answers were given on a Likert scale ranging from one to seven. A cross-sectional study to investigate to which extent fire-fighting services have implemented the method is on-going.
Results: The mean time from start to end of exercise was 13 minutes 56 seconds (range: 12 minutes 25 seconds to 19 minutes). They trained the technique in teams on average 2,7 times a year (range 0-4). Self-reported security of crew scored 6,7 (4-7), patient safety 6,7 (5-7), communication between personnel 6,6 (3-7), teamwork 6,7 (5-7), and how well the technique functioned 6,7 (5-7).
Discussion and conclusion: Participants were satisfied with security, communication, teamwork and how the technique functioned. Time expenditure was good; all teams had the patient in the ambulance within 20 minutes. These are critical factors to prevent sustained hypoxia, uncontrolled bleeding, hypothermia and for overall survival of the seriously injured trauma patient.
References:
1. Wik L, Hansen TB, Kjensli K, Steen PA. Rapid extrication from a car wreck. Injury. 2004;35(8):739-45.
Prehosp Disaster Med 2013;28(Suppl. 1):s67
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ID 207: Dispositifs Préventifs, Analyse Statistique des Cas Rencontrés et Établissement d'une Typologie des Manifestations

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Introduction: L'encadrement médical des manifestations publiques anticipe les moyens pour une prise en charge de type collective. Il était important d'étudier la pertinence de ces moyens.
Méthode: La Croix-Rouge de Belgique a développé un outil informatique permettant l'encodage en temps réel des données. Ce travail reprend ainsi l'analyse de 5393 patients répartis sur 40 manifestations.
Résultats: On peut comparer le nombre de patients évacués et triés au Poste Médical Avancé (PMA). Ces valeurs, fort proches pour les concerts, les fêtes nationales et le football, soit environ 4,7%, sont plus importantes pour les 24 heures vélo, soit 5,7%, tandis que la fréquence est moindre dans le cas de l'athlétisme, 1,94%. Les dispositifs préventifs sont efficaces puisque seules 3,97% des patients sont évacués.
Si la présence de tels dispositifs est utile dans le cas des concerts (1708 patients triés), de l'athlétisme (1802 patients triés), dans une mesure plus réduite pour les 24 heures de vélo (877 patients triés) et les fêtes nationales (858 patients), on peut se poser la question de la pertinence de moyens préventifs importants lors de matchs de football pendant lesquels 148 patients ont été triés mais dont 144 étaient des U3.
On peut aussi comparer la répartition des U1, U2 et U3, à l'entrée du PMA et à la sortie lorsque les patients sont dirigés vers les hôpitaux. Ces chiffres, respectivement de 1,19%, 5,34%, 93,47% et l'entrée du poste médical avancé et de 3,27%, 11,68% et 85,05% montrent donc une répartition assez similaire.
Conclusion : L'utilisation d'un outil informatique d'encodage des patients à l'entrée du PMA permet d'étudier le nombre de patients passant par le PMA, la cinétique d'admission, la répartition des pathologies et le nombre de patients évacués vers les hôpitaux. Cet outil permet de juger de l'adéquation des moyens préventifs mis en œuvre et permet de modéliser les moyens à anticiper en fonction des manifestations envisagées.
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ID 208: General Knowledge in the Field of BLS Among People without Any Medical Education

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Aim: The evaluation included knowledge of rules and ability of conducting BLS procedures by people from outside of the medical personnel, depending on their level of education and courses taken in this area.
Materials and methods: The research had a form of survey and was conducted among 100 randomly chosen people from Warsaw. It was in a test form test with 24 multiple choice questions. The statistical analysis was created on the basis of ANOVA Rang Kruskala-Wallis test and U-Mann-Whitney test.

Results: The difference of knowledge of BLS in dependency of education level was observed. People with primary education showed a statistically lower standard of knowledge of BLS than those with secondary and higher education. (adequately: 6,4 +/- 3,1 vs 8,7 ± 2,3; $p < 0.01$ i 6,4 ± 3,1 vs 10,5 ± 2,9; $p < 0.001$). There are distinctions in level of BLS knowledge and the number of first aid trainings. People repeatedly trained have shown considerably higher level of knowledge than those trained once or not trained at all. (adequately: 10,9 ± 3 vs 8,4 ± 2,6; $p < 0.01$ i 10,9 +/- 3 vs 5,3 ± 2,7; $p < 0.001$). It was also proven that people trained once have considerably higher knowledge than those not trained at all. (8,4 ± 2,6 vs 5,3 ± 2,7; $p < 0.001$).
Conclusions: Knowledge of BLS correlates with level of education and the number of courses taken. There is a necessity of continuing education of general public in the area of BLS. Keywords: BLS, ALS, Cardiac Arrest

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ID 209: Rational Prevention Methods Against Possible Crush Injuries Due to Collapsing Buildings. Suggestions to Reduce Morbidity and Mortality V

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Background: In 1999, two big consecutive earthquakes that shook Northwestern Turkey within a short period of 3 months resulted in approximately 20,000 deaths and 100,000 casualties. There were several other deadly earthquakes around the world in the same year.
Methods: The main factors that affect survival in the post-disaster period include not only prevention of injuries but also detection of the location of survivors and the rescued. The environmental circumstances and human factors which resulted in loss of lives, severe injuries and non-injured survivors must be analyzed.
Rational prevention methods against possible crush injuries due to collapsing buildings have been considered in the light of field and simulation experience we had gained and suggestions have been presented to reduce morbidity and mortality. Our work has been conducted with evidence-based medicine, appropriate observation as well as sampling and experimental methods.
Findings: A global approach concerning worst case scenario led by earthquakes has been proposed taking into consideration different models of behavior in different countries and societies to increase the chance of survival to a maximum and to reduce injuries to a minimum level.
Interpretation: Action plans of developed countries with higher building standards, which construct buildings that would not collapse in case of earthquakes and similar disasters, have been adopted as "carbon copy" plans by underdeveloped and developing countries without questioning against what and why these should be applied.

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ID 210: The Efficiency of Cardiopulmonary Resuscitation Among Patients with Sudden Cardiac Arrest

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Aim of study: To analyse if implementation of the basic life support (BLS) has an influence on the effectiveness of cardiopulmonary resuscitation (CPR) among patients with sudden cardiac arrest (CA). The influence of the arrival time of emergency medical service (EMS) on later effectiveness of advanced life support (ALS) was also investigated.
Materials and methods: Study of patients who had CA in Siedlce District between 2009-2011. The analysis was created on the basis of EMS medical data. The number and percentage of CA cases were assessed, considering place of an accident, type of EMS, time of arrival and implementation of BLS by pedestrians witnessing the accident. Medical rescue operations were considered as efficient when patient with active pulse rate on his carotid artery was admitted to emergency department (ED).
Results: 154 cases of CA were noted. Basic life support procedures were implemented in 2009,2010 and 2011 adequately for 17%, 12% and 10% people who had CA in that particular year. During three years of observation, in the case of Basic (without doctor) and Special (with doctor) units of EMS interventions at patients house, the percentage of BLS was adequately 5% and 7%, but the effectiveness of CPR adequately 15% and 21%. In public places Basic and Special units of EMS had the percentage of patients who had BLS adequately 9% and 21%, but the effectiveness of CPR was adequately 22% and 43%. Average time of EMS arrival to the place of accident is 6,1 minute in case of effective CPR and 11,6 in case of ineffective CPR.
Conclusions: The implementation of BLS and early ALS have a crucial influence on the effectiveness of CPR. The education on basic first aid is essential especially when the number of people deciding to use BLS is decreasing. Keywords: BLS, ALS, Cardiac Arrest.

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ID 211: MISP Intervention in a Combat Zone

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Doctors For You (DFY), an NGO founded by Indian doctors 5 years ago is proving its mettle again while serving currently for last 6 months, in the multi-hazard prone State of Assam. Incidentally, the organization was already on ground zero, when the crisis erupted in July 2012, by virtue of year long training

contract awarded by State of Assam for capacity building of government doctors in the area of disaster health.
After the onset of massive ethnic violence, DFY transformed overnight into relief mode to conquer the challenges of providing medical relief, psychological first aid and sanitation to more than 200,000 refugees in 222 relief camps spread across four districts of Assam- Chirang, Dhubri, Kokrajhar and Bongaigaon, besides safeguarding self from continuous ongoing violence in a conflict zone where the language spoken is unknown to this team.
DFY successfully implemented Minimum Initial Services Package (MISP) – a Sphere standard intervention in health sector for reproductive health needs during disasters – the first time in history of humanitarian crisis in India. This entailed distribution of safe delivery kits to more than 1000 pregnant women and referral of complicated pregnancies to higher health centres.
Despite multiple dangerous odds, the relief work is still continuing and more than 50,000 refugees have received medical relief, family planning services, sanitary napkins, treatment for sexually transmitted infections. Health talks to vulnerable populations across four districts are an ongoing process by DFY besides coordinating the raising of funds and providing relief items in association with Inter-Agency Group of Assam.
The above services are being provided in a very low resourced settings by a highly resource starved organization but without diluting minimum international standards of care by virtue of innovative and entrepreneur skills of team members with their persistent hard work and unflinching determination.
Please see details on http://www.facebook.com/pages/Doctors-For-You-DFY/232105786840621 and http://www.doctorsforyou.org/

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ID 212: Disaster and Emergency Medicine On-line Research Repository: A Retrospective Review

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Background: Internationally there is an increasing amount of literature published in the disciplines of disaster and emergency medicine. However, there is a limited opportunity to openly share research progress prior to peer-reviewed publication. Having the ability to share research prior to peer-reviewed publication has many benefits. As such, an online research repository for unpublished non-peer-reviewed research summaries was originally created by the authors of this presentation for the World Association for Disaster and Emergency Medicine (WADEM) nursing section. Later, this repository was launched to the wider WADEM membership. This presentation aims to showcase the research repository and highlight its usage since its launch in August 2012.
Methods: Data regarding visitations to the WADEM research repository was obtained retrospectively from an existing application within Google Blogger software from which the research repository platform is based. Data was analysed using descriptive statistics.
Results: The research repository was launched in August 2012 with 21 research summaries. Between August and December 2012, 6 additional summaries were submitted. Additionally, the research repository had been visited on 2734 occasions. The median visits per month are 550 (IQR: 429.5–663.5). The most commonly viewed research summaries related to disaster preparedness (n = 158), occupational stress (n = 110), emergency nurses willingness to assist in disasters (n = 59), and simulation in education (n = 52).
Conclusion: The results demonstrate that the research repository is being viewed and used. By showcasing the research repository in this presentation, it is hoped that contributions and views to this repository will be enhanced. In particular, this presentation highlights the benefits of openly submitting research summaries to the research repository, such as an opportunity for possible collaboration and sharing of research work.

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ID 213: Development of a Post-disaster Essential Medicine List in the Absence of a National Essential Medicines List

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Background: The Great East Japan Earthquake (magnitude 9.0 on 11 March 2011) revealed Japan's vulnerability with respect to pharmaceutical supplies in the acute phase after the disaster. Therefore, the Japan Association for Disaster Medicine established a committee to deal with pharmaceutical supplies after a disaster. As a member of the committee, I was responsible for developing a draft of the post-disaster essential medicine list (PD-EML). Since Japan does not have a national essential medicines list, there are political issues that need to be addressed. Here, I have presented the process with the identified problems.
Methodology: The data utilized to develop PD-EML and observations during the process were analysed both quantitatively and qualitatively.
Results and Discussion: At first, the following prerequisites for PD-EML were provided by the committee. PD-EML should be intended to provide primary care in the acute phase after a disaster. It should be applied to medicines carried by emergency medical teams (EMTs). It should satisfy the medical needs of people anywhere in Japan. To satisfy these prerequisites, weekly consumptions of medicine at prefectural levels were compared. The results showed there were almost no differences in the classification of medicine on the basis of efficacy, even in the earthquake-stricken areas in March 2011. On the basis of hospital data, frequently prescribed medicines were selected to create the PD-EML. Finally, the first draft of PD-EML was developed, which consisted of 80 medicines.
Conclusion: The draft is just the initial step undertaken to improve access to medicines after disasters in Japan. However, since the lessons learned from the earthquake imply that the immediate supply of the medicines mentioned in the PD-EML is critical, the PD-EML should be applied to the medicines supplied to shelters and health care stations by the government as well as the medicines carried by EMTs.

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ID 214: Paediatric Disaster Simulation: Effects of an Experiential Learning Experience on Paediatric Emergency Specialists

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2. McGill University

Background: Preparing paediatric hospital staff for the practical aspects of disaster medicine is a difficult task. Simulations of various types have been the traditional way of training hospital staff in skills needed for rare, high impact events such as a Code Orange.
Methods: We created a simulation workshop for practicing Pediatric Emergency Medicine (PEM) physicians. It included a combination of high, medium and low fidelity simulators as well as 30 standardized patients. Since this group of learners had never been exposed to such an experiential learning experience, we assessed its educational value.
Simulated disaster cases were assessed and debriefed by evaluators with experience in disaster preparedness and/or debriefing, using case specific evaluation grids.
Participants completed a self-assessment survey immediately following the workshop (with a retrospective pre-component to assess perceived change) and 6 months later to determine their perceived retention of knowledge and confidence.
Results: There were significant improvements in the participants' subjective abilities in both initial and delayed surveys in the following domains:

Survey Question:	Initial:	6 month:
Understand the dynamic nature of disaster triage	$P < 0.001$	$p < 0.016$
Identify disaster triage categories and use the color tagging system	$p < 0.001$	$p < 0.005$
Apply the principle "stabilize and dispose" in a code orange context	$p < 0.001$	$p < 0.005$
Prioritize resources to maximize survival versus maximizing individual outcome	$p < 0.001$	$p < 0.017$
Feel confident in their ability to respond to multiple/ mass casualty incidents	$p < 0.001$	$p < 0.007$

Evaluator grid data analysis contributed to disaster curriculum development.

Participants felt the pediatric disaster simulation day was valuable to their learning (5.63 on 6 point Likert scale).
Conclusion: Advanced learners who may be implicated in a disaster response believed that the simulation workshop improved their ability to manage patients in a disaster situation and felt it was valuable to their learning. This knowledge and confidence was retained 6 months after the workshop.

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ID 215: Disaster Risk Reduction by Community Action

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"Disasters" vary from country to country, people to people; because of state of disaster risk reduction depend on preparedness at community level. Disaster Contingencies Plan for Disaster Risk Reduction is to develop/enhance the coping mechanism of the local people to reduce the impact.
In Indian subcontinent, the community preparedness for risk reduction varies from one geographic location to other. Community contingencies plan for disaster risk reduction is developed locally by the local people. PLA (Participatory Learning and Action) method is induced for capacity development of the local people against emergency. The PLA method helps the people know adequately about the local geography, seasonality, local vulnerabilities, local resources, local infrastructures, people coping standard and its weakness to meet the emergencies. Thus a Community Contingencies Plan for Disaster Risk Reduction can be developed. The people living in hill, forest, flood plain, desert, coastal and earthquake prone zones will have different action plan according to the local need. Therefore formulation of appropriate plan of action for disaster risk reduction is the key issue. The local people especially the women, elder, community leaders, the political parties' representatives, the local Gram Panchayat, the Professionals should be involved in planning process. PLA process gives ideas about the ideal housing; people can develop in appropriate manner to reduce the impact of disasters. The losses from agro products, small scale industries are huge in floods, cyclone and Sea-surge, in plain and coastal areas, which needs to mitigate by community action. The crop insurance may be useful tool. The local indigenous plan, resources, forecasting, coordination, Training, transportation, food and water preservation, emergency health action, potential health hazard mitigation must be incorporated in the community contingencies plan for disaster risk reduction through PLA process. Thus all events will not be a disaster any more.

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ID 216: Japanese Approach to Support Disaster Victims' Families: The Organization and Goals of Japanese Society for Disaster Mortuary Operational Response Team (DMORT)

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3. Japan Red Cross Society
4. Hyogo Medical Examiner's Office
5. Japanese Society For Disaster Mortuary Operational Response Team
6. Hyogo College Of Medicine

Background: In the major train crush in 2005, in which 107 were killed and 562 were injured, field triage was widely carried out for the first time in Japan. In that activity,

100 deceased victims were attached 'black tags' and declared dead, and then transported to a makeshift morgue. It was accessed by the Japanese Association for Disaster Medicine to be successful to help prevent chaotic situation in receiving hospitals. But, next year, several family members of 'black tagged' passengers were reported to be frustrated by lack of information and distressed by suspicion of victims' resuscitabiliy.

Methods: Physicians, nurses, forensic pathologist, social workers, and newspersons organized a society in 2006, to support family members of disaster victims. In the beginning, we were advised to learn from the organization and activities of DMORT (Disaster Mortuary Operational Response Team) in the U.S. We have tried to adapt them to Japanese social systems.

Results: Research of Japanese social systems revealed police in charge of victim identification, and no organization's coverage of disaster victims' families.

Several meetings with the victims' families of the train crush revealed their needs for medical/social explanation and mental support.

Eleven closed seminars until 2009 helped us to focus on families.

Participation in 10 national, local, and airport disaster drills since 2008 helped appeal to authorities the needs of victims' families care.

Training courses, held 10 times since 2010, and several workshops in medical or nursing conferences helped to enlighten disaster community our concept.

We distributed mental health manuals for relief workers and victims' family caregivers in the earthquakes in Haiti in 2010, in Christchurch in February and the Great East Japan Earthquake in March, 2011.

Conclusions: Our society aims to support mentally disaster victims' families. Our goals are: field activity; networking of organizations for long-range support; and enlightenment/training.

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ID 217: Medical Preparedness by Social Initiatives

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"Disasters" varies from country to country, people to people; because of state of disaster risk reduction depend on preparedness at community level. Disaster Contingencies Plan for Disaster Risk Reduction is to develop/enhance the coping mechanism of the local people to reduce the impact.

In Indian subcontinent, the community preparedness for risk reduction varies from one geographic location to other. Community contingencies plan for disaster risk reduction is developed locally by the local people. PLA (Participatory Learning and Action) method is induced for capacity development of the local people against emergency. The PLA method helps the people know adequately about the local geography, seasonality, local vulnerabilities, local resources, local infrastructures, people coping standard and its weakness to meet the emergencies. Thus a Community Contingencies Plan for Disaster Risk Reduction can be developed. The people living in hill, forest, flood plain, desert, coastal and earthquake prone zones will have different action plan according to the local need. Therefore formulation of appropriate plan of action for disaster risk reduction is the key issue. The local people especially the women, elder, community leaders, the political parties' representatives, the local Gram Panchayat, the Professionals should be involved in planning process. PLA process gives ideas about the ideal housing; people can develop in appropriate manner to reduce the impact of disasters. The losses from agro products, small scale industries are huge in floods, cyclone and Sea-surge, in plain and coastal areas, which needs to mitigate by community action. The crop insurance may be useful tool. The local indigenous plan, resources, forecasting, coordination, Training, transportation, food and water preservation, emergency health action, potential health hazard mitigation must be incorporated in the community contingencies plan for disaster risk reduction through PLA process. Thus all events will not be a disaster any more.

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ID 218: Using New Methods to Assess Coverage of Decentralized Nutrition Programmes in Complex Emergencies in East and the Horn of Africa

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Background: For a long time acute malnutrition programmes have been implemented in complex emergencies but without scientific methodologies to evaluate population access and coverage. Currently low-resource methods capable of evaluating program coverage, identifying barriers to service access have been developed. Semi-quantitative evaluation of access and coverage method was used to evaluate access and coverage and investigate any barriers to uptake.

Methods: Two stage process. In stage 1, prior, the expression of beliefs about coverage based on qualitative and qualitative data is provided by the Mind Map exercise. The distribution of prior coverage estimate is determined through a beta distribution of the belief of or perceived possible coverage estimates. The prior estimate of programme coverage is then further refined by determining the likelihood through conducting a wide area survey using a simple stratified assessment of the catchment areas of the nutrition sites being investigated. Using an active and adaptive case-finding methodology informed and defined by the information gathered during prior building, cases of severe acute malnutrition children are identified and categorized as either being in or out of the programme. A questionnaire is administered to those out of the programme so as to gain information on various barriers to access to the programme.

Results: Programme coverage was 83.2% in Galckayo, Somalia, 76% in Rwanguba and in Masisi territory of Democratic Republic of Congo, 63% in Turkana county of Kenya, 67% in Durame in Ethiopia and 67.1% in Tonj South County of south Sudan. Major barriers to access included distance, insecurity, mothers' workload, cultural issues and long waiting times at feeding centres.

Conclusion: Even in protracted and complex emergencies, nutrition programmes can produce good quality and high coverage. They can still meet international SPHERE standards for coverage of more than 50% with enhanced access and decentralization.

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ID 219: The Isolated Island: Preparedness and Response of a Community Hospital for Earthquake Disasters

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Background: Hospitals play a critical role in providing communities with essential medical care during earthquakes. An effective and immediate response is critical in meeting the needs of affected populations. An effective disaster response plan, which was named "The Isolated Island", was developed. The plan was based on the assumption that one cannot depend on immediate aid from external sources during the first three to five days following an earthquake.
Methods: A special team developed an emergency preparedness plan for hospital response and an appropriate manual was published.
The plan was based on the assumption that the following will occur: Structural damages to buildings and essential utilities, interruption of communications, water supply, electricity, computer systems, external support and supply services. Staff availability will be compromised. All these factors will disrupt essential hospital operations. The response plan has several phases: In-hospital response, rescue and evacuation, hospital damages evaluation, and setting up outdoor treatment areas. The latter would include: triage, critically wounded, walking wounded, patients beyond salvage, command-and-control center, holding area for relatives/non-injured, psychological and social work support, and mortuary services.
Results: The following actions were executed: Education and training of the staff - "keep it simple", common language, and every individual knows his/her job. A major drill was conducted exercising all the phases of the plan. The drill included rapid assessment of structural damages, essential utilities and damage control using "disaster kits" stored outside the hospital. In addition a mass-casualty triage protocol based on severity of injury and survivability, simple triage and rapid treatment was executed
Conclusions: There is a need for hospitals to create an effective response for earthquake disasters. This can be accomplished through the preparation and practice of disaster plans. Extensive planning must occur, utilizing the talents of people throughout the organization. Always prepare for the worst as if you will be on "**The Isolated Island**".

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ID 220: Biomedical Data Collection for Mass Gathering Research and Evaluation: A Review of the Literature

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Background: Internationally, planned events such as mass gatherings occur frequently. Known factors influencing the usage of health services, or patient presentations, at mass-gatherings are acknowledged within the environmental, psychosocial and biomedical domains. Health-related research and evaluation from mass gatherings commonly include biomedical information pertaining to patient presentations. The aim of this research was to review the various categorisations reported by authors to describe the patient populations at mass-gatherings, with a focus only on the biomedical domain.
Methods: This research utilised an integrative literature review methodology to identify papers from within the last ten years that included research or evaluation from a mass-gathering event in which the authors included published biomedical information.
Results: Numerous papers were identified that included information pertaining to biomedical information from mass gathering events. It was noted that the coding and categorisation of patient-level biomedical information seems inconsistent, varied, haphazard and author dependent.
Conclusion: Recently, there has been literary discussion about the need for consistency and consensus in reporting on biomedical information. This literature review supports this notion. In particular, this presentation builds on a previously published minimum data set proposed by Ranse and Hutton and enhances it by including additional categorisations of biomedical information. As such, a revised minimum data set with a data dictionary is proposed in an effort to generate conversation about a possible agreed minimum amount and the type of information that should be collected consistently for research and evaluation at mass gatherings.

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ID 222: Disaster Preparedness in the Earthquake and Tsunami Prone Area in Japan

Taichi Takeda
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Background: Major earthquakes with a magnitude of 8-9 are anticipated to occur in the next 30 years at a 60% chance on the southern coast of Japan. Since the most part of our Prefecture is likely to be damaged by tsunami and landslides, residents are expected to take self-reliant approach on the initial several days after the earthquake and tsunami. We are developing disaster support system including community based medical disaster preparedness in the area.
Methods: We have been providing knowledge and skills to cope with the earthquakes in cooperation with experts in architectural and civil engineering. Educational programs for

public, local medical associations and the main hospitals have been developed to manage acute illness and trauma that may occur in earthquake and/or tsunami as well as during the evacuation and sheltering. We have started a new course to promote the public disaster preparedness. We teach emergency and disaster medicine to enhance knowledge of natural and social science on disaster preparedness. The national and local government has organized the medical assistance system of mobile medical teams to the affected area and we have been coordinating and educating the teams.
Results: Local residents including public and medical personnel started to acquire a general idea of disaster preparedness and mitigation. The educational programs seemed to motivate local residents and healthcare professions.
Conclusion: The integrated approach cooperated with engineering experts was effective educational approach to disseminate disaster preparedness to the residents in the earthquake and Tsunami prone area.

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doi:10.1017/S1049023X13005475

ID 223: Could We Be Better If We Utilized Structured Approach to the Great East Japan Earthquake and Tsunami, 2011?

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Background: On March 11, 2011, the Great East Japan Earthquake and Tsunami destroyed local governmental and health system and medical relief to the affected people was delayed in the initial few weeks. We organized medical teams from unaffected prefecture in Japan to support reconstruction of the local structure, however, the approach was difficult because the local coordination personnel were confused and the management system was not established. After a year, we analyzed if our approach could be better when we utilized a structured approach that had been recognized in the international humanitarian aid workers and NGOs.
Methods: We participated Needs Assessment Course of the Redr UK, London, and rated the usefulness of the educational course by simulating an approach to the Great East Japan Earthquake utilizing the skills and knowledge learned in the course and by comparing the difference between the simulation and the real experience.
Results: The approach in the simulation was better and well organized. For example, the secondary data correction was rational and interviews at the scene were coordinated. The Gap Analysis, Stakeholder Analysis and the SWOT Analysis that we applied in the simulation were convincing. If we could take the structured approach, we might be able to share the situation report early in the national and international relief community and initiate more organized approach to the affected area.
Conclusion: The method of the need assessment was found to be useful for the approach to a catastrophe such as the Great East Japan Earthquake and Tsunami.

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ID 226: The Emergency and Urgent Care System Impact of the Urgent Care Telephone Service NHS 111

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Background: NHS 111 was developed in response to evidence that the public are often uncertain about which service to contact for urgent healthcare problems. The service objectives are to simplify access, provide consistent telephone clinical assessment, and route users to the right NHS service, first time. We have examined the impact of NHS 111 on other services, public perception and costs.
Methods: A controlled before and after study in four pilot NHS 111 areas and three matched control areas to conduct 1) a time series analysis of changes in activity for emergency and urgent care system services for 2 years before and one year after the introduction of NHS 111; 2) before and after population surveys to measure perceptions of urgent care; and 3) a cost consequence analysis.
Results: In the first year of operation NHS 111 triaged 277,163 calls. In NHS 111 sites there was no evidence of change in the perceptions of recent users for entry to care, progress through services, convenience or satisfaction. There was no change in emergency ambulance calls, emergency department or urgent care use but a 19.3% reduction in calls to NHS Direct (95%CI -24.6% to 14.0%) and a 2.9% increase in emergency ambulance incidents (95%CI 1.0% to 4.8%). There was an overall additional cost to the emergency and urgent care system with a 21% likelihood of being cost saving but the potential to save costs if NHS 111 becomes a national service replacing the NHS Direct telephone service and manages all GP out of hours call handling.
Conclusions: NHS 111 did not deliver the expected system benefits during its first year of operation and increased costs. The increase in ambulance service activity has implications for future service development. The new service has the potential to save money if it is implemented nationally and replaces existing services.

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ID 227: Disaster Nursing in China

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Background: In May 2008, the devastating "512" Wenchuan earthquake with a magnitude of 7.9 struck the Sichuan Province in China resulting in over 65,000 deaths and over 3600 injuries. Several research studies relating to this devastating earthquake have been published. Thus, the purpose of this study is to review the published of the disaster nursing in China.

Methods: The China Knowledge Resource Integrated (CNKI) database was searched for Chinese published studies between 2008 and 2012. The keywords were "disaster nursing" and "disaster". Studies that did not take place in China were excluded.
Results: Sixty-three Chinese published studies were selected and reviewed, all were publishes in Chinese journals. Twenty-five (39.7%) of the studies described the development and application of nursing disaster education. Twenty-three (36.5%) of the studies addressed nursing practices applied in different disaster situations and settings. Fifteen (23.8%) of the studies were related to disaster nursing research.
According to the ICN Framework of the Disaster Nursing Competencies (ICN, 2009), most studies (n = 41, 65%) related to the improvement of disaster prevention mitigation and preparedness through education and public policy development. Twenty-two (35%) studies further elaborated the response and recovery in disaster situations.
Conclusion: This particularly applies to China, as China is the second largest country in terms of size in the world and is the world's most populated country. It is especially important for China to be prepared in advance should any disaster strike. Therefore, China has published the nationwide disaster prevention and contingency policy in 2008.
Since "disaster nursing" is relatively new in nursing, most of the studies reviewed focused primarily on education of "disaster nursing". It is suggested that standards are needed which will assist in the improvement of disaster nursing education and practice. "Disaster nursing" may need to be included as one of the compulsory subjects in a higher education nursing programs.

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ID 228: Human Stampedes: A Comparative Two Search Method Analysis to Assess Underestimation of Available Data

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Background: Since the publication of the topic of human stampedes in 2008, two separate but complementary databases have emerged: the Ngai Search Method and the Roy Search Method. The objective of this study is to estimate the degree of underreporting by comparing the Ngai Search Method to the Roy Search Method.
Method: During the 17th World Congress on Disaster and Emergency Medicine in Beijing in 2011, both search methods were compared for reported human stampede events in India between 2001 and 2010.
Results: Using the Ngai method, 34 human stampedes were identified. Using a previously defined stampede scale 2 events were class I; 21 events were class II; 8 events were class III; and 3 events were class IV. The median deaths were 5.5 per event and median injuries were 13.5 per event. For the same time period, the Roy method identified a total of 27 events, including 9 unique events that were not identified by the Ngai method. Of these 9 events, three fell under Ngai's exclusion criteria. Six additional events identified by Roy's method were all class I events, with a median of 4 deaths, and approximately 30 injuries. Bivariate and multivariate analyses were available for the Ngai database only due to the data extraction method. In multivariate analysis, religious (6.52, 95%CI 1.73-24.66, p = 0.006) and political (277.09, 95%CI 5.12-15,001.96, p = 0.006) events had higher relative number of deaths
Conclusion: Many causes accounting for the global increase in human stampede events can only be elucidated through systematic epidemiological investigation. Focusing on a country with a high recurrence of human stampedes, we compare two independent methods of data abstraction in an effort to improve the existing database and to identify pertinent risk factors.

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ID 229: Loyalties, Codes and Ethical Tensions in Conflict And Disaster

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Background: Health professionals (HP) work in diverse environments and jurisdictions, and are guided by various codes of ethics. The professional codes of ethics of the World Medical Association, of relevant national or provincial/state licensing boards, and of particular institutions all guide professional practice. Whether they work in hospitals, religious based institutions, correctional facilities, or in the military, all HPs work under varying constraints and guidelines. Thus, they may encounter tensions or conflicts (sometimes referred to as "dual loyalties") when trying to reconcile their various professional responsibilities because HPs are loyal to both the profession and their institution (employer).
In areas stricken by war, or disaster, these tensions are highlighted because the context arguably imparts unique ethical challenges for health care (e.g. consent, resource allocation, triaging, professional competency, and inter-professional collaboration).
Methods: Through qualitative interviews with Canadian military HPs, our study has sought to understand the significant ethical challenges that HPs face when working in environments of disaster or armed conflict. Preliminary findings reveal that the lack of concrete policies coupled with the paucity of support places HPs in situations where they feel uncertain, or uncomfortable with their professional obligations. In such situations, clear guiding principles and policies are needed to help HPs, and their institution, to address

ethical dilemmas and challenges while maintaining professional integrity and ensuring appropriate patient care. Without adequate guidance, HPs may be forced to prioritize one code of ethics over another, or rely on personal moral values to make ethical judgments; they risk feeling torn by different loyalties or professional responsibilities.

Results: Our study aims to both raise awareness of the important ethical dilemmas facing physicians who work in areas of disaster or conflict, and encourage the development of coherent policies and ethical codes that can guide HPs in harmonizing their various roles and responsibilities.

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ID 230: Human Stampedes: Repeated Patterns in Bangladesh and India

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Background: Human stampedes remain a burden on highly populated cities which lacks disaster response infrastructure. The objective of this study is to identify the common characteristics of stampede events occurred in Bangladesh and India, the two countries with the highest incidences.

Method: A LexisNexis® Academic search method followed by sequential internet-based English-language news search was used to record date, country, geographical region, time of occurrence, type of event, location, mechanism, number of participants, number injured, and number of deaths.

Results: A total of 350 human stampede events were identified worldwide as of January 1st, 2013, resulting in 10,304 deaths and over 22,645 injuries. In India, 77 events occurred with median deaths of 12/event and median injuries of 12/event. In Bangladesh 22 events occurred with median deaths of 2.5/event and median injuries 25/event. Religious events accounted for 48 of the 77 events in India (62.34%, chi-square <0.001), while factory fire-alarm related events accounted for 14 of the 22 events in Bangladesh (63.64%, chi-square <0.001). In bivariate analysis, indoor events were statistically different from outdoor events in association with deaths in India (Wilcoxon Rank Sum test $p < 0.01$). In India, multivariate negative binomial regression, time-of-day at night time (3.23, 95%CI 1.02 to 10.27, $p < 0.05$) and turbulence mechanisms (2.53, 95%CI 1.09 to 5.85, $p < 0.05$) were associated with increased number of deaths.

Conclusion: The patterns identified in this study can assist community level preparedness and was shown to demonstrate improve awareness of risk in a recent cross disciplinary drill at a religious Temple. As social media technologies continue to aid in the understanding of the characteristics of human stampedes, multidisciplinary interventions will be required to prevent future recurrence of mass gathering casualties.

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ID 231: Global Service Learning for Disaster Nursing: Lessons Learned from Pacific Partnership

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Introduction: Service learning has been shown to be a valuable teaching method that benefits both students and the community. During service learning, students provide a service within the community, and while doing so gain valuable experience resulting in improved knowledge, skills, competencies and confidence. Service learning conducted abroad is frequently termed global service learning, and is especially suited for disaster nursing education.

Method: The University of Hawaii at Manoa School (UHM) of Nursing participated in the 2012 Pacific Partnership (PP) humanitarian mission. The aim of PP is to improve interoperability of international military, government, humanitarian organization and disaster relief agencies with a goal to prepare during calm for times of disaster. During PP 2012, UHM faculty and students served as part of an international team that was comprised of civilian, military, non-governmental organization and academic personnel from multiple nations. At the different ports of call, the faculty and students participated in subject matter expert exchange (SMEE) activities. For the 2012 PP mission, a post mission evaluation was conducted of faculty, students and the host nation participants from one nation.

Results: The UHM faculty and students overwhelmingly reported significant improvement in knowledge, skills, competencies and confidence to serve on a humanitarian mission. Specific areas of improvement included: logistics, collaboration, understanding of other cultures (including the host country and military cultures), and leadership. Host nation participants reported a high degree of improvement in knowledge, skills, abilities and confidence for disaster preparedness, and indicated that would very likely use what was learned in future disaster relief efforts.

Discussion: Global service learning is an excellent method for enhancing the disaster response skills of faculty and nursing students from both the PP and host nation participants. All participants benefited from the endeavor; this type of service learning should be supported and expanded in the future.

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ID 232: Building a Temporal Clinic after 311: A Case of Iwate Prefectural Ohtsuchi Hospital

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Objectives: The 2011 Great East Japan Earthquake and Tsunami Disaster brought about fatal damages to extended coastal areas. This presentation reports how the Japanese Association of Medical Logistics for Disaster supported one local hospital in Iwate. We collaborated with private sectors to donate a clinic for temporal service to the Iwate prefectural Ohtsuchi hospital.

Method: Review the process from planning to delivering the clinic and seek better strategies for disaster preparation.
Results: The project started from hearing true needs from the affected hospital. The project committee researched the condition of the damaged hospital and the location of the temporal clinic was formally determined on April 14th. Assignation happened on October 4th. Challenges for us throughout the project were categorized into two groups, construction strategies and medical systems. Challenges in construction strategies include 1) negotiating with the national road-building standards, 2) negotiating with the Fire Defense Law, 3) adopting foreign construction products to Japanese standards, and 4) sourcing construction resources. Challenges in medical systems include 1) distance and the availability of public transportation in going to the clinic from shelters and temporary housing, and 2) recruiting medical providers.
Conclusion: The national road-building standards set a two-year interim measure on temporary buildings per disasters. The Fire Defense Law equally applies to temporary buildings and there are no exceptions to fire protection strategies. Our project utilized many foreign construction products and materials. Therefore, modifying them to fit with the Japanese standard and regulation for construction was quite challenging. Extralegal measures should be considered in order to resume local healthcare systems. Also, the high accessibility of these institutions especially by elderly people should be considered at the stage of planning.
Prehosp Disaster Med 2013;28(Suppl. 1):s75–s76
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ID 233: Epidemiología De Las Intoxicaciones En El Servicio De Urgencias Pediátricas De Un Hospital De 3er Nivel, Reporte De 5 Años

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Objetivo: Determinar los rasgos epidemiológicos de los pacientes atendidos por intoxicaciones en el servicio de urgencias pediátricas del "Hospital General La Raza" en un periodo de 5 años.
Metodos: Estudio observacional autorizado por el comité de investigación que analizó las variables epidemiológicas de los pacientes atendidos por intoxicación en el servicio de urgencias pediatría del Hospital General La Raza entre el 01 de enero de 2005 y 31 de diciembre de 2010. Se empleó estadística descriptiva con el programa de SPSS v.18
Resultados: Se incluyeron 993 pacientes intoxicados que correspondieron al 0.5% de la consulta del servicio. El 71% fueron intoxicaciones agudas y el pico etario fue de 1- 2 años (33.8%). El 60.5% fueron exposiciones accidentales y el 14.6% suicidas. La principal vía de contacto fue gastrointestinal (81.2%) y los xenobióticos más frecuentes la sosa caústica y el paracetamol. El lugar de exposición al tóxico más reportado fue el hogar (92.3%). La media de tiempo entre el contacto con el tóxico y la atención médica fue de 16.5 horas. El 45.9% de la población estudiada procedía de su domicilio. En el 30.6% de los casos se administró antídoto específico. Se presentaron complicaciones en el 7.5% de los casos. El 71.5% de la serie fue egresada a domicilio y sólo el 2.0% requirieron terapia intensiva.
Conclusiones: La frecuencia de pacientes intoxicados en este servicio es elevada. Sería conveniente que se contara con los recursos adecuados para la atención que requieren estos pacientes
Palabras Claves: Intoxicaciones, Epidemiologia, Urgencias, Pediatria.
Prehosp Disaster Med 2013;28(Suppl. 1):s76
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ID 234: Impacto De Una Estrategia Educativa En El Nivel De Conocimiento Del Personal Medico Residente De La Especialidad De Medicina De Urgencias Acerca De Protocolos De Actuacion En Casos De Desastre

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Objetivo: Determinar el nivel de conocimientos del personal médico residente de la Especialidad de Medicina de Urgencias respecto de los Protocolos de Actuación en casos de desastre antes y despues de una estrategia educativa.
Metodos: Estudio prospectivo cuasiexperimental de casos y controles que analizó la intervención de una estrategia educativa siendo esta un curso taller en un grupo de residentes de la especialidad de medicina de urgencias del hospital general 25 del IMSS en el conocimiento de protocolos de actuación en casos de desastre.
Resultados: Se incluyeron 13 residentes de la especialidad de medicina de urgencias., 3 de primer año, 6 de segundo y 4 tercero. Todos del sexo masculino. La edad fluctuó entre 25 y 34 años con una media de 28.23 +-2.12, las calificaciones iniciales se encontraron entre 3 y 6 con una media de 4.15 +- 1.06 y las calificaciones después de la estrategia educativa entre 8 y10 con una media de 9.08+-0.86. La comparación del antes y después muestra una diferencia significativa ($p < -0.001$)
Conclusiones: La evaluación diagnostica evidencia la falta de conocimientos de los residentes de la especialidad de medicina de urgencias en materia de protocolos de actuación en caso de desastre comprobándose que la estrategia educativa curso taller es adecuada para la preparación de médicos residentes de esta especialidad para su formación en medicina de desastres independientemente del grado académico en el que se encuentren.
Palabras Claves: Desastres, urgencias, educación.
Prehosp Disaster Med 2013;28(Suppl. 1):s76
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ID 235: Disaster preparedness in Hong Kong: First-aid training of the General Public as a Potential Means of Emergency Response

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Background: Six of the ten deadliest natural disasters, as measured by death toll, have occurred in China. First-aid knowledge and skills can be useful in treating injuries that commonly result from natural disasters. Yet there have been no studies examining first-aid as a potential means of disaster preparedness and/or emergency response in either Hong Kong or Mainland China. The present study focuses on the relationship between first-aid training and disaster preparedness within the general public community in Hong Kong.
Methods: Cross sectional study was performed using a randomized, cross-sectional, population-based household telephone survey. Descriptive and regression analyses were performed.
Results: Results, based on 1002 individuals, indicate that 26.2% of respondents have received some form of first-aid training, with 29.5% having received training within the past five years. First-aid training was positively associated with level of education, income, and perceived first-aid capabilities, despite the fact that the majority of trained respondents have not used their acquired first-aid skills after completion of training. There was no association between disaster risk perception in Hong Kong and first-aid training. Furthermore, there was no association between perceived utility of basic first-aid skills for disaster preparation and first-aid training.
Conclusions: Findings from the present study suggest that with the appropriate training and skills retention, members of the general public in Hong Kong can potentially be a primary source of immediate medical assistance in post-disaster situations. Further studies should address issues including the type of first-aid training most important for disaster preparedness and the relationship between first-aid training and post-disaster impacts.

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ID 236: Cultural Considerations in Major Incident Command and Control

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HMC Ambulance Service (Qatar)

Background: Effective use of command and control requires all stakeholders to be working by the same command and control principles. Stakeholders include all emergency service players but also the community they serve. Many of the current command and control principles applied to modern major incident management have been articulated within the context of western cultures. In developing incident management systems suitable for different cultural environments it becomes increasingly important to understanding the cultural impact on command and control principles especially within the context of major incident management.
Methods: Literature review of current (western culture) command and control theory is considered in contrast to case study and interview results of the author's experiences of setup and use of command and control systems in emergency services within different cultural landscapes including work within the Middle East and Asia.
Results: A number of practical considerations are identified that should be considered when trying to practice command and control principles in the context of different cultures. Some examples of major differences between cultures that affect the successful use of command and control include but are not limited to:

- Prevalence and effect of national pride and or patriotism,
- Values attached to relationships over designated command and control roles,
- Use of emotion to communicate,
- Value attached to the need for preplanning and degree of detail considered necessary,
- Reaction and response to death and dealing with the dead.

Conclusion: To achieve desired command and control outcomes it is essential that set up and use of command and control is performed in a manner harmonious with the cultural context it is operating in. In order to achieve this it is important to have an awareness of some of the most fundamental cultural differences within the emergency services and the communities they serve.

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ID 237: Ambulance Service Response to Large Scale Mall Fire

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Background: On the 28th May 2012 a fire broke out in a large-scale mall in Qatar's capital, Doha. The fire resulted in the second largest loss of life in the country's history with 19 deaths, 13 of who were children between the ages of 1 and 7 year(s) old. As the national ambulance service for the State of Qatar, Hamad Medical Corporation Ambulance Service (HMCAS) launched a Mass Casualty Incident (MCI) response to the fire in partnership with other agencies. HMCAS was actively engaged in the incident for over 4 hours with a total of 51 patients triaged at the scene and 47 patients transported. The scene was wide spread requiring coordination in a number of sectors working with various partners. The incident involved victims and responders from a wide diversity of cultural backgrounds. The 19 dead (including 2 rescuers) came from 12 different nationalities.
Methods: The case study was performed considering structured review of HMCAS internal finding. These findings were based on results of the Service's "hot" debrief held immediately following the incident with all medical command staff and a subsequent formal "cold" debriefing session with 81 HMCAS staff involved, 5 days after the event. Additionally, the author's personal experience as on scene medical commander of the incident was considered.
Results: HMCAS believes that the incident highlighted some infrastructural weaknesses in communications, command

and casualty clearing station structure. In addition other areas were identified for targeted awareness building. These included dealing with multiple paediatric cases and considerations in dealing with incidents of this nature involving such diverse cultures.

Conclusion: While the general consensus highlighted HMCAS' response as strong, it is understood that there is always opportunity for improvement. Detailed debrief proved invaluable in helping the organisation grow in its respond capabilities.

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ID 241: Disaster Medicine Preparedness for Mass Gathering Events

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Background: Development of Russian Disaster Service is regulated by the Field Experience, by new legislative papers and lessons learnt on the level of international medicine community. Disaster medicine in Russia was born 20 years ago as a Field Medicine system enforced by military-civil interaction and cooperation coming from gained experience in Afghan conflict, Chechen events. Secondly, our deep support is concluded from works and modern medical technologies, used in field.

The main method used is the analysis of statistics, of field experience and evolution tendencies of Disaster Medicine Service in Russian Federation.

The aim of this work is to explain the role of national disaster medicine service according to the requirements of social mass gathering events.

First: Mass gatherings of peoples protesting against any politics on the national or local level require only the permanent preparedness of local disaster medicine manpower and resources and being on duty of special medical teams. Any country hospital has the reserved beds (5% of totals). Permanent Ambulances are on duty.

Second: Olympic and Paralympics games (in Sochi), Sport Championships, Mass gathering in Festival events, etc. The preparedness of Disaster Medicine Service for this events is associated with the permanent revue of examination, reconstruction and providing of: local health facilities, methods of injured triage, mechanisms of evacuation, means of evacuation and equipment redness, analysis of background experience obtained in previous events (e.g. – in England, In Poland, in Ukraine, in Poland), regular top table- and field exercises on site, analysis of local capacities and their development, preparedness and analysis of various scenario, preparedness of disaster medicine plans, staff reservation and formation of register of DM staff, formation of local warehousing of medical products, preparedness of all disaster medicine centres according to the event occurring locally.

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ID 242: Management of Pharmaceutical Services in Disasters: A Study in Three Municipalities of the State of Rio de Janeiro/Brazil

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Background: In 2011 Brazil experienced the worst natural disaster in its history. In this sense, disaster preparedness should be undertaken on several fronts, including the health sector. Pharmaceutical services are part of services available to the population using the Brazilian Health System, and its mismanagement can increase event damage and further burden response. The objective of this study is to describe and analyze the preparedness of pharmaceutical services for disasters in three municipalities of the State of Rio de Janeiro, recently affected by disasters.

Methods: The study followed a cross-sectional design. Data were collected from document sources, public access databases, and interviews with key informants in pharmaceutical services and civil defense in the three municipalities, by means of a data collection instrument based on a logic model and indicators developed in a previous study. These indicators were organized into implementation and performance dimensions of the components and activities of pharmaceutical services.

Results: Problems regarding implementation and performance and lack of coordination between pharmaceutical services and civil defense were the most common. In spite of reported difficulties in the management of medicines in previous disasters, Key informants did not recognize the need of established protocols for action. Despite the earlier occurrence of disasters and the expectation of their repetition, there were no medicines or procurement lists containing strategic information for medicines supply that could be used for forecasting and procurement in future events.

Conclusion: Although the history of the region is linked to events that resulted in disasters, management of pharmaceutical services was not able to prepare in advance. We esteem that studying the preparedness of pharmaceutical services in these municipalities will clarify issues in order to better face or to avoid by other municipalities under risk of disasters.

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ID 243: Should Yogo Teachers Perform Triage in Schools? - The Necessity of Having Japanese Yogo Teachers Learn to Perform Triage

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Background: A Yogo teacher is in charge of children's physical and mental health in Japan and is employed by the school. Yogo teachers perform the central role of providing first aid in schools. In the Great East Japan Earthquake, a Yogo teacher performed triage in school. In this study, our objective is to investigate whether Yogo teachers need to learn about triage.
Method: Two hundred Yogo teachers from primary or junior high schools in Tokyo participated in the 90-minute START triage workshop. Pre- and post-questionnaires and tests were administered.
Results: The questionnaire and test were completed by 162 out of 200 (81%) Yogo teachers, and valid responses were received by 142 (71%) participants. In response to the post questions, "What do you think about START triage in your day-to-day work?" and "What do you think about START triage in a disaster?" more than 90% answered that it is "useful." In response to the post questions, "could you perform triage?" 45% answered, "I don't feel confident about performing triage," and 50% answered "neither of those." In comparing the pre- and post-test, it can be seen that the average score for the post-test improved.
Conclusion: Yogo teachers need to learn about triage, and the method of START triage is useful in both everyday work and during disasters. We aim to examine the content of the workshop and create an educational triage program for Yogo teachers.

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ID 244: Patient Safety Perspectives in Literature on Mass Casualty Incidents

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Background: Emergency medicine is characterized by operative conditions that put patient safety under pressure. Examination and treatment is carried out under significant time pressure. The work is decision-intensive. Measures to secure single, every-day patients satisfactory and safe treatment are largely the same as those taken to avoid unnecessary loss of life and health in the rescue work in a mass casualty incident. Providing timely and sufficient health services in a disaster is a question of patient safety.
How and to what extent are knowledge and perspectives from the field of patient safety research integrated in literature on modern urban mass casualty incidents?
Methods: Document analysis of 15 scientific papers and news articles on the pre-hospital rescue work following the terrorist bombings in Madrid in 2004 and London in 2005. The literature search was performed in Medline, Embase, PsycINFO and Science Direct.
A framework of elements of importance for patient safety in emergency medicine, as presented by Croskerry et al (1), was used as a tool for analysis.
Results: None of the articles made explicit from what general perspectives or scientific positions discussions were made. Some articles are strictly focused on a limited theme, but the overall approach in the study sample is consistent with the systems perspective in patient safety literature.
Individual workers, tasks, tools, work teams, physical environment, organizational interaction and social, economic and regulatory environment are key elements that are covered in the analyzed material.
Conclusion: Patient safety as such is not discussed in the material. Themes and issues from the field of patient safety research are none the less prominent in most of the articles. A stronger interaction between disaster and patient safety researchers could prove fruitful to both fields.
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Prehosp Disaster Med 2013;28(Suppl. 1):s79
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ID 245: The Logic Model as Framework for the Development of Simulation Exercises for Civil-Protection Units

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Within the MSc Disaster Healthcare course, given at the University of Glamorgan, the author had a placement at the Training Base Weeze (TBW). The TBW is an exercise campus for fire, rescue and police services. Using the facilities of a former RAF-airport, the TBW is able to provide different exercise scenarios.
The author was responsible for the scientific consulting by developing, conducting and evaluating simulation exercises for civil-protection units.
In the presented example a simulation exercise for two civil-protection units from the German Red Cross district "Niederrhein" (GRC Niederrhein) was developed, conducted and evaluated. As a framework for the scientific counselling the logic model (1) was chosen. The logic model allows consideration of customer wishes in the illustration of essential Inputs, Outcomes and Outputs (2). Based on the exercise priorities (set by the GRC Niederrhein) research methods (Outputs) were planed (3). To lead the exercise to the priorities a customized exercise scenario was developed.
The results of the pilot project will be the focus of the authors MSc dissertation. In this the logic model will critically underpin the use of the development and scientific counselling of simulation exercises.
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Prehosp Disaster Med 2013;28(Suppl. 1):s79
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ID 246: Evacuación y Triage en la Unidad de Terapia Intensiva

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Antecedentes: Los Hospitales pueden afectarse por emergencias y desastres internos o externos, y llevar a la necesidad de una evacuación que puede ser mediata o inmediata; una difícil situación será evacuar a pacientes de la Unidad de Terapia Intensiva (UTI), decidir que paciente deberá ser egresado primero y cual al final, continuar su atención y evaluar el riesgo/beneficio, pone de manifiesto la necesidad de contar con protocolos de actuación.
Métodos: A través de revisión de la bibliografía y el consenso de un grupo de médicos que laboran en la UTI, se creo un algoritmo para el triage y evacuación de pacientes hospitalizados en esta área, se consideran para el triage cuatro variables: apoyo ventilatorio, estado de conciencia, escala de SOFA y necesidades de equipamiento, se clasifica al paciente en tres categorías y se prioriza su evacuación, siendo enviados a la "Zona de Seguridad Interna" donde continuará la atención del paciente mientras se espera su ubicación final.
Resultados: Este modelo ha sido implantado en los Hospitales del IMSS, a través del Curso-taller "Evacuación de Hospitales con énfasis en Áreas Críticas" que incluye un simulacro; ha demostrado su utilidad en varios hospitales en México que han requerido evacuación total por diversos eventos. A través de este triage se priorizó la evacuación de pacientes de UTI, con resultados favorables.
Conclusiones: La conformación de este protocolo de actuación para la evacuación de una UTI, que incluye el triage de pacientes, priorización de evacuación y zona de seguridad interna ha permitido unificar criterios de actuación del personal de atención a la salud en el IMSS, y sobre todo mantener calidad y seguridad en la atención del paciente.

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ID 247: Programa Unidad Médica Segura del Instituto Mexicano del Seguro Social

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Antecedentes: El Programa Unidad Médica Segura nace como una necesidad ante los trágicos eventos que han afectado al Instituto Mexicano del Seguro Social. Por lo que se decide realizar un diagnóstico situacional de los niveles de seguridad que guardan las instalaciones del Instituto que ofrecen atención médica a nivel nacional.
Métodos: Para este ejercicio se tomó como base el "Programa Hospitales Seguros Frente a los Desastres" (PHSFD) de la Organización Panamericana de la Salud/Organización Mundial de la Salud aplicando el Índice de Seguridad (IS) de las Unidades de Atención Médica; estos fueron ajustados para poder ser aplicados a las unidades de primer nivel. El IS contempla variables cualitativas y cuantitativas que permiten a través de un modelo matemático la clasificación de los hospitales en categorías A, B y C, siendo esta última la que muestra una necesidad urgente de intervención para mejorar las medidas de seguridad.
Resultados: La fase de diagnóstico se realizó durante Julio-Agosto del 2009, aplicándose los instrumentos modificados del PHSFD en 1246 unidades médicas de los tres niveles de atención. Se observó que los hospitales rurales, unidades de atención ambulatoria, bancos de sangre y unidades de rehabilitación presentaron niveles de seguridad elevados. A las Unidades de Medicina Familiar y Hospitales que obtuvieron clasificación C, se les realizó un proceso de validación de datos, con resultado final de 16 Unidades en clasificación C.
Conclusiones: La probabilidad de daño grave a la infraestructura se consideró al evaluar la vulnerabilidad estructural y no estructural con el IS, Este diagnóstico situacional inédito a nivel mundial mostró las necesidades de inmediata intervención en las unidades afectadas tanto a nivel hospitalario como en unidades de primer nivel que son fundamentales en la cadena de atención médica.

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ID 248: Evacuación de Unidades Hospitalarias

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Antecedentes: Las unidades médicas enfrentan emergencias y desastres, que provocan la necesidad de hacer evacuaciones, por lo que es forzoso la planeación y preparación ante estos eventos. En el Instituto Mexicano del Seguro Social (IMSS) en un periodo de seguimiento de seis meses, se realizaron 17 procedimientos de evacuación total o parcial de unidades hospitalarias, un promedio de 2.8 evacuaciones mensuales principalmente por incendios, por lo que se creó una estrategia para asesorar a las unidades médicas en este tema.
Métodos: El IMSS implementó una estrategia, en la que cada unidad médica realizó un curso-taller y simulacro de evacuación de la unidad basado en el "Plan de Evacuación Hospitalaria con Énfasis en Áreas Críticas" poniendo en práctica las acciones programadas de las brigadas hospitalarias, las técnicas de movilización de pacientes, la integración del Comité Hospitalario para Atención de Desastres, la preparación de las Zonas de Seguridad y la instalación del Centro de Operación de Emergencias y Desastres, además como parte del programa se edito un video educativo que está a disposición de todo el personal en internet.

Resultados: Actualmente se ha realizado el curso/taller y simulacro de evacuación en más de 50 hospitales. En situaciones reales los hospitales han puesto en práctica su Plan de Evacuación, y han llevado a cabo las actividades planeadas, lo que ha permitido que el personal tenga identificadas las actividades a realizar en el momento de la emergencia obteniendo resultados satisfactorios.
Conclusiones: Las amenazas no se pueden erradicar, pero el daño que pueden ocasionar se mitiga con una adecuada planeación y preparación. Esta estrategia complementa los planes institucionales para enfrentar emergencias o desastres en unidades médicas del IMSS.

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ID 249: Centro Virtual de Operaciones en Emergencias y Desastres

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Antecedentes: El uso de la web 2.0 y redes sociales permite la comunicación en tiempo real, esta tecnología se aplica en la atención de emergencias y desastres; México es un país expuesto a múltiples amenazas y los servicios de salud deben estar preparados para la atención a víctimas, la comunicación es fundamental para la coordinación de la respuesta, por ello el Instituto Mexicano del Seguro Social crea el Centro Virtual de Operaciones en Emergencias y Desastres (CVOED), sistema actualmente compartido con otras instituciones de Salud.
Métodos: El CVOED es un sistema informático en internet que permite la comunicación en tiempo real con los tomadores de decisiones a nivel local, estatal y nacional, para formar una línea de actuación ante emergencias y desastres, facilitando la gestión de información y respuesta durante una crisis.
Resultados: El CVOED en sus dos años de existencia ha mostrado su funcionalidad en múltiples eventos adversos que han afectado directa o indirectamente nuestras instalaciones de salud, como ejemplos: sismos del 20 marzo y 7 de noviembre del 2012 ambos con magnitud mayor de 7°, en el primero apoyando la coordinación en la evacuación de un Hospital de Ginecoobstetricia; se ha utilizado en la coordinación de eventos con impacto internacional, visita del Papa Benedicto XVI y reunión G20, además la coordinación ante desastres internos como han sido la evacuación parcial y total de Hospitales por diversos eventos.
Conclusiones: La comunicación en tiempo real entre los niveles operativo, táctico y estratégico a través del CVOED ha permitido que los tomadores de decisiones tengan información pronta y precisa sobre la situación a la que se enfrentan, coordinar la respuesta ante la crisis, evitando pérdida de tiempo, duplicidad de acciones, y un rápido regreso a la normalidad.

Prehosp Disaster Med 2013;28(Suppl. 1):s81
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ID 250: Censo Nominal de Pacientes (CENOP) Frente a Emergencias y Desastres

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Antecedentes: Una necesidad durante la emergencia o desastre es la información sobre la atención de pacientes, en México durante el sismo de 1985 y pandemia de Influenza en 2009 se identificó una falta o insuficiente información, por lo que hizo indispensable la creación de una herramienta que nos proporcionara en tiempo real datos sobre los pacientes atendidos, características básicas y su ubicación, necesidad indispensable para los tomadores de decisiones y para la población en general.
Métodos: El Censo Nominal de Pacientes (CENOP) es un módulo inserto en el Centro Virtual de Operaciones en Emergencias y Desastres (CVOED), sistema informático en línea permanente donde la unidad médica ingresa la información del paciente atendido, y posteriormente el sistema muestra los datos a nivel local, regional o nacional. El CENOP desarrollado en forma inicial en el IMSS actualmente es compartido con el Sector Salud de México.
Resultados: El módulo CENOP se desarrolló durante los primeros meses del 2012, se probó con la participación de 334 hospitales quienes en un periodo de tiempo de dos días ingresaron datos de pacientes, logrando la concentración de datos de 12400 pacientes, ha sido usado en eventos reales para el registro de pacientes en la reunión del G20 en México, se tiene posibilidad de compartir información con un sistema similar desarrollado por el Gobierno Federal.
Conclusiones: Dentro del IMSS, Sector Salud y Gobierno de México, existe una herramienta confiable para contar con un censo real de pacientes, que en caso de un saldo masivo de victimas nos proporcionará información veraz de los pacientes atendidos, sus características, ubicación, y que permitirá una mayor coordinación para la respuesta de atención médica y otorgar información a la población.

Prehosp Disaster Med 2013;28(Suppl. 1):s81
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ID 251: Planes del Instituto Mexicano del Seguro Social Frente a Sismos y Tsunamis

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Antecedentes: México es un país con riesgo de sufrir sismos y tsunamis, la preparación ante estos eventos es primordial sobre todo cuando se trata de Unidades de Atención Médica, el Instituto Mexicano del Seguro Social (IMSS), otorga servicios de salud a 62 millones de mexicanos en 334 hospitales y 1219 unidades de primer contacto.

Métodos: Los Planes del IMSS frente a sismos y tsunamis han sido desarrollados sobre la base de un diagnóstico de infraestructura, recursos humanos, materiales y análisis de procesos críticos; son la estrategia del Instituto para enfrentar estas amenazas siendo activados en forma inmediata a todos los niveles y áreas de la institución. En ellos se incluyen los "Grupos de Respuesta Inmediata" (GRI) equipo multidisciplinario que es movilizado desde zonas no dañadas a las zonas afectadas, se conformó una "Reserva estratégica" que incluye medicamentos, material quirúrgico y de curación, entre otros insumos, distribuida en 3 estados del país; describen acciones a realizar antes, durante y después del evento.
Resultados: Estos planes han sido probados en 10 ejercicios de simulación y en 3 sismos de gran magnitud, 10 de diciembre 2011 6.5° de magnitud, 20 de marzo y 7 de noviembre del 2012 ambos con magnitud mayor de 7°, eventos donde se activaron los planes, se realizaron las actividades de las tarjetas de acción, y se simuló la movilización de los GRI y Reserva estratégica.
Conclusiones: La preparación ante fenómenos perturbadores, ha sido una prioridad en el IMSS por lo cual se crean los Planes Institucionales Frente a Sismos y Tsunamis, que han sido probados en situaciones reales, lo que ha permitido encontrar áreas de oportunidad para mejora logrando una mayor fortaleza, con la visión de mantener la continuidad de operaciones, salvaguardar la vida y seguridad de pacientes, y personal de salud.

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ID 252: Identifying strengths and Weaknesses in the Response for Mass Casualty Incidents: An After Action Review tool

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Background: Identifying strengths and weaknesses in responding to mass casualty incidents (MCIs) is a crucial component of emergency preparedness and response. A methodological process for mapping the lessons learned can be implemented if based on a structured After Action Review (AAR) tool.
Goals: To develop an AAR tool that will enable hospitals' emergency departments to identify strengths and weaknesses in the response to MCIs, and to identify best practice procedure for its conduct.
Methods: Based on knowledge acquired from an extensive literature review, a structured tool for conducting an AAR in the emergency department was developed. A modified Delphi process was conducted to achieve content validity of the tool, involving 48 medical professionals from all 6 Level I trauma centres in Israel. The AAR tool was tested during a simulated earthquake drill.
Results: All experts support conduct of an AAR in the ED following a MCI in order to build and maintain capacity for an adequate emergency response. Over 80% agreement was achieved regarding 14 components that were implemented in the proposed AAR tool. 94% perceived that AARs should be conducted within 24 hours from the event using both written reports and face-to-face discussions. Both physicians and nurses should participate. The incident manager should lead the AAR, limiting the time allocated for each speaker as well as for the AAR in whole.
Conclusions: Conducting a structured After Action Review in all emergency departments following an MCI facilitates both learning lessons regarding the function of the medical staff, and ventilation of feelings, thus mitigating anxieties and expediting a speedy return to normalcy.

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ID 253: Three Religions One Threat: The Impact of belief on Community Resilience

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Background: Community resilience is an important dimension of public health. There is a need to study the relationship between religious faith and community resilience. Such a study was conducted in a city that is exposed to a continuous threat of conflict, inhabited by a mixed population: Jews, Christians and Muslims.
Objectives: To study the relationship between religious background and the level of community resilience of residents of a city located in a conflict zone.
Methods: A cross-sectional study was conducted using the CCRAM questionnaire for measuring the level of community resilience among the different religious populations. The questionnaire was administered face-to-face and through a phone survey.
Results: The study population included 371 respondents between the ages of 18 to 80 years: 110 Jewish; 110 Muslims; and 151 Christians. Significant differences ($p < 0.05$) were found between the calculated level of resilience. On a scale ranging from 38-190, the highest level of community resilience was found among the Jewish population (126.6 average, SD 20.1); a lower level was identified among the Muslims (123.8 average, SD 24.8); and among the Christians, a lower level of resilience was observed (118.4 average, SD 17.2).
Differences between the groups were found significant regarding the preparedness and trust in the leadership.
Religious faith was found to have a significant influence on the perceived personal and community resilience when comparing secular to religious individuals in each religious sect.
Conclusions: There is variability in the level of perceived community resilience of different religious communities that face a common risk. Faith and religion were found to have a

positive impact on building and strengthening community resilience. Strength of religious faith has a significant influence on perceived personal as well as community resilience.

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doi:10.1017/S1049023X13005736

ID 254: Title - Risk Reduction and Resilience building in Aged Care Facilities in Relation to Bushfire

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Background: The need to evacuate an aged care facility is not a decision to be taken lightly. It takes time and is risky. The considerable risks and the need to potentially evacuate in the event of a bushfire event were drawn to the attention of SA Health in the wake of the tragic bushfires in Victoria Australia in 2010. As a result a working group was established reporting to the South Australian State Bushfire Taskforce. The risks were confirmed and the need for further work identified. To enable this to occur grant funding was successfully sought.
Methods: The Aged Care and Country Hospital Risk Assessment Project commenced at the beginning of 2010. A project team was established and in collaboration with other emergency services and in particular the Country Fire Service (CFS) in South Australia the facilities at greatest risk were identified. Extensive face to face assessments were undertaken at these sites to determine the Bushfire Assessment Level (BAL) rating and actions that would potentially improve this rating, thus allowing the potential to shelter in place in the event of a catastrophic fire.
Results: All sites assessed have reduced their risk and maintained an improved BAL rating. Most have lowered their level from 'extreme' to a level where they it is now possible to consider sheltering in place and only a small number remain in the highest risk rating.
Conclusion: The project has successfully enabled risk reduction and increased resilience. Other significant outcomes include growing collaboration with the aged care industry, development of a new emergency website, geospatially mapping of all sites, enhanced emergency arrangements, exercise programs, educational workshops and a toolkit to assist facilities in disaster preparedness planning.
This paper will describe the project, the risk assessment process undertaken, its findings and recommendations and strategies that have since been implemented.

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ID 255: St John Ambulance Pre hospital Care Model for 'Schoolies' a Mass Gathering Event of School Leavers in South Australia Designed to Reduce Pospital Presentations

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SA Health (Australia)

Background: Schoolies festivals began in Queensland in the 1970s and are considered by some as a cultural rite of passage in Australia for school leavers. Festivals take place across the Australia annually and are attended by thousands of school leavers. While it is a time of celebration it is often marked by significant alcohol intake and some drug experimentation.
Methods: In South Australia, school leavers congregate at Victor Harbor, a south coast seaside town. Encounter Youth a faith based, charity organisation provides a dedicated Festival program which includes support by a 'Green Team' of volunteers.
Health care preparations include pre hospital and hospital planning as well as first aid arrangements to the festival site. St John Ambulance has provided the first aid support since the festival began. Service provision includes first aid posts at each residential site as well as a Medical Centre (marquee/tent) located adjacent to the festival venue.
In 2012 over 6500 school leavers attended the festival, and of those needing first aid care, the primary presenting problem was alcohol intoxication. The Medical Centre was staffed by trained volunteers and included a Medical Emergency Team (MET) of medical, nursing, ambulance paramedics and advance trained first aiders.
Results: Over the 3 festival nights, 495 school leavers required treatment by St John Ambulance, 360 of these at the St John Medical Centre, most presenting between 9pm and midnight with many requiring intravenous fluid hydration and airway monitoring. *5* required hospital transfer from the centre the remainder were treated and directly discharged.
Conclusion: The provision of the St John Ambulance Medical Centre and the introduction of a MET have allowed for advanced care of many patients with significant alcohol intoxication in a pre-hospital setting. This presentation will discuss the strategies implemented and the positive outcomes for the local health services/hospitals.

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ID 256: Mental Stress Among Disaster First Responders in Japan from Triage "Black" Tagging

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9. Japanese Society For Disaster Mortuary Operational Response Team
10. Hyogo College Of Medicine

Background: Triage was supposed to be performed several times in Japan recent years. However, in our four-tiered triage system, first responders have been reluctant to tag "black," as it creates mental stress and raises legal problems. This study aimed to clarify the apprehensions of disaster first responders in Japan.

Methods: Questionnaires were administered to attendees of the 2011 annual meeting of the Japanese Society for Disaster Nursing. They were used to assess the problems with tagging "black" in disasters.
Results: One hundred and twenty-five attendees replied, of whom 107 were nurses. Their ages were 41.0 ± 9.3 years and period as professional medical staff was 18.1 ± 9.1 years (mean ± SD). 48.8% considered a "black" tag to imply "deceased"; 72.8% considered it to mean "unsavable," and 38.4% considered it to mean "latest transport/treatment." Appropriate medical personnel for declaring "black" were considered: physicians 93.6%, nurses 57.6%, and paramedic/EMT 53.6%.
Six people practiced and two supported actual triage, of whom five felt mental stress. Among 117 inexperienced people, 105 (89.7%) expected heavy or mild mental stress, 96 (89.7%) would perform disaster triage with or without hesitation, and 93 (79.5%) would tag "black," even hesitantly, in a situation with many cardiac arrest cases. Eighty-eight (75.2%) would tag "black" depending on authorized criteria, regardless of their personal opinion.
Conclusion: Disaster triage, especially tagging "black," creates much mental stress for disaster first responders, especially nurses. A consensus on tagging "black", officially standardized triage, and mental care for first responders is needed.
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ID 257: Forensic Dentistry in Disaster Management

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Disaster management involves complex webs of integrating multidiscipline professionals remedy or restore normalcy after the crisis. Proper academic programme will be of significant benefit to the society, provided professionals from various backgrounds are given the opportunity to contribute their knowledge mutually for the sake of synergism.
The role of Forensic Odontology has historically been documented to assist at the post-disaster phase. The practices of Forensic Odontology is presently restricted to developed countries with established postgraduate training in tertiary institutions while developing countries like Nigeria are yet to initiate any academic programme in this direction. The reality of these lapses was very obvious recently after the crash of DANA airplane in Nigeria, with loss of all the passengers resulting in blood samples being sent to the United Kingdom for DNA and other forensic analysis.
With frequent disasters such as air-crash, fires and road traffic accident [RTA] it is imperative that tertiary institutions initiate policy to begin training on forensic
Dentistry or Medicine. The present rudimentary approach of relying on photograph, birth marks or mode of dressing for identification by Save Accident Victim Association of Nigeria (SAVAN) and other agencies has several limitations in forensic analysis. This presentation highlights the lapses in forensic approach to disaster management in Nigeria and proffer solutions. Presently there is total absence of forensic medicines or forensic odontology in all the tertiary institutions in Nigeria, thus aggravating fear of a lack of human resources to man key sectors in managing emerging challenges in this area. The implication of this anomaly is frequent mass burial of unknown disaster's victims.
In summary, developing countries should urgently address acute shortage of manpower and institutional infrastructures to enable production of key personnel in this regard. By collaborating with developed countries the task can be made easier.
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ID 258: The Safety of Hospitals in Java Island Indonesia in Responding to Disasters

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Background: According to the National Board for Emergency Mitigation and Response (BNPB), within the last decade, every year, disasters and emergency events take the life of 10 thousand to almost 5 million Indonesians with earthquakes and tsunami being the main causes, comprising of 56% of all emergency events. The data from the last 2 centuries shows that East, Central and West part of Java are the areas with the highest number of disasters. The more concerning fact is that more than 50% of the country's population resides in Java. There is an extreme urgency for Java to have health facilities that are safe in emergencies and prepared to function, and respond properly to minimize injuries and save lives during disasters.
In 2009, the World Health Organization had "Save Lives, Make Hospitals Safe in Emergencies" as the theme of the World Health Day, 7 April 2009. There was no valid data on how many hospitals complying with the safety standard provided by the World Health Organization (WHO). Now, almost four years later, the data is still in absence. This study is initiating the information collection of hospitals safety situation in Java using the indicators set and used by West Pacific Regional Office of the WHO.
Objectives: To gain descriptive information about the compliance percentage of the referral government hospitals in 6 provinces of Java Island, against WHO Safe Hospitals Indicators.
Methodology:
1. Quantitative research methods
2. Sample: 90 government hospitals in the provinces of DKI Jakarta, West Java, Tangerang, Central Java, Yogyakarta, and East Java.
3. Study Design:
   - Instrument: Functional Indicators of Safe Hospital, West Pacific Regional Office of the WHO
   - Data collection: E-mail survey
   - Data analysis: SPSS
4. Study period: October 2012–February 2013.

Keywords: disaster, safe hospital, hospital in emergency
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ID 259: Use of Comsar Teams in Eastern Battle Fields -A Retrospective Study

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Background: Historically, in warfare, the majority of all combat deaths have occurred prior to a casualty ever receiving medical support. Like many nations, Sri Lanka too tried to counter this problem by inception and introduction of Combat search and rescue (COMSAR) groups, teams of medics trained on special operation tactics and rescue, in the eastern battle fields to care wounded soldiers, civilians and enemy combatants.
Methodology: 22 multi-casualty incidents of Eastern battle fields were studied retrospectively and analysed for type, number of injured, battle scenario, time taken for first aid and medical support ("golden hour" principle) and the method of casualty evacuation. The occasions of their deployment in eastern theatre of the battle fields and explore is there any reduction of number of combat casualty mortality and morbidity. Although the retrieval of patients under enemy fire posed major threat and they suppressed enemy fire and stabilized the patient before evacuation.
Results: The standard measurement of battlefield survival, is a comparison of the number of deaths and the number of serious injuries — those severe enough to prevent a casualty from returning to duty within three days. And to determine the role of medical care, the military typically separates death reports into casualties who die before reaching a hospital and those who die afterward. We found that 81.5% of survived when COMSAR groups were used. Contrast to that conventional buddy care method in conjugation with MDS-ADS system provided 68% survival rate.
Conclusions: We observed that marked reduction of "killed in action" and "die of wounds" both when utilized the COMSAR groups.
Recommendations: It is recommended to use buddy care with COMSAR groups that will increase the survival rate even more.

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ID 261: Vulnerabilities of Local Healthcare Providers in Complex Emergencies: Findings from the Manipur Micro-level Insurgency Database 2008-2009

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Background: Research on healthcare delivery in zones of conflict requires sustained and systematic attention. In the context of the South Asian region, there has been an absence of research on the vulnerabilities of health care workers and institutions in areas affected by conflict. The paper presents a case study of the varied nature of security challenges faced by local healthcare providers in the state of Manipur in the North-Eastern region of India, located in the Indo-Myanmar frontier region which has been experiencing armed violence and civil strife since the 1960s. The aim of this study was to assess longitudinal and spatial trends in incidents involving health care workers in Manipur during the period 2008 to 2009.
Methods: We conducted a retrospective database analysis of the Manipur Micro-level Insurgency Database 2008-2009, created by using local newspaper archives to measure the overall burden of violence experienced in the state over a two year period. Publicly available press releases of armed groups and local hospitals in the state were used to supplement the quantitative data. Simple linear regression was used to assess longitudinal trends. Data was visualized with GIS-software for spatial analysis.
Results: The mean proportion of incidents involving health care workers per month was 2.7% and ranged between 0 and 6.1% (table 2). There was a significant ($P = 0.037$) month-to-month variation in the proportion of incidents involving health care workers, as well as a upward trend of about 0.11% per month. Spatial analysis revealed different patterns depending on whether absolute, population-adjusted, or incident-adjusted frequencies served as the basis of the analysis.
Conclusions: The paper shows a small but steady rise in violence against health workers and health institutions impeding health services in Manipur's pervasive violence. More evidence-building backed by research along with institutional obligations and commitment is essential to protect the health-systems.

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ID 262: Civil Military Cooperation in National Disaster Medicine Service

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Background: In Russian Federation there are four main institutions dealing with emergencies: All-Russian Centre for Disaster Medicine "Zaschita", Central Hospital of Search and rescue team (Ministry of Emergencies), Hospitals of the third department of Health Ministry, Military Disaster Medicine Institution (Defense Ministry).
Objectives: To present the activities of National Disaster medicine System as an issue of military and civilian synergy.
Method: Analyzing the experience and lessons learnt in emergencies (mainly in mass casualties emergencies and in terrorist acts).
The last year's statistical data of emergencies are presented and interpreted. The focus of terrorist activities is displaced to the Northern Caucasus.

In all the disaster medicine institutions mentioned before military principles of hierarchy, strict vertical subordination of management mechanisms are the principal basis for efficiency of disaster medicine service. Problems of providing efficient medical humanitarian activity of specialists are solved particularly while using methodology, approaches, methods and experience of military medical-evacuation provision and Emercom transport for the injured in emergencies.
Symbiosis of military and civil medicine in disaster medicine service is dictated and forced by the necessity to enlist and to join the experience of both sides. This approach is the efficient tool to provide higher reliability of humanitarian activity in emergency. The efficiency of medical care delivery for injured in emergencies is a result of joint of the best new military and civilian medicine technologies in field hospitals. In ARCDM the staff is composed in major part by the military physicians retired. In the centre there is a special council making decisions for the strategies applied in emergency system development and a head quarter realizing all mechanisms of management in three stages of activities: emergency preparedness, emergency response and health structure recovery.
Conclusion: New CIMIC concept Model is the basis for the efficiency of emergency operational activities.

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ID 263: Enhanced Public Health Surveillance During Mass Gatherings: Using Syndromic Surveillance During the London 2012 Olympic and Paralympic Games

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Background: Syndromic surveillance is the real-time collation, interpretation and dissemination of data for the early identification of public health threats and their impact, enabling public health action. During the London 2012 Olympic and Paralympic Games, the Health Protection Agency (HPA) delivered an enhanced surveillance programme providing comprehensive assessment of the public's health, including residents and national and international visitors to the Games. Syndromic surveillance played an important role in this service. We describe the provision of an enhanced syndromic surveillance service and its use during the 2012 Olympics.
Methods: Prior to the Olympics, existing syndromic surveillance systems included the NHS Direct system, monitoring daily calls to NHS Direct for key symptoms, and the HPA/QSurveillance GP surveillance system, monitoring GP consultations for key clinical diagnoses. Preparing for the Olympics, the HPA developed two new systems: the Emergency Department Syndromic Surveillance System, monitoring daily attendances, and the GP out-of hours (OOH) system, monitoring daily GP OOH activity.
Results: Data from each system were received and analysed daily. This included monitoring time series trends, applying statistical models to determine unusually high levels of individual signals (alarms), and processing alarms through a risk assessment, determining those with potential public health significance. During the Olympic period no major alarms were identified, corroborating other intelligence sources. A daily syndromic surveillance report was generated providing this real-time intelligence to national monitoring teams.
Conclusion: The 2012 Olympics constituted a huge public health challenge requiring significant preparation. Provision of an enhanced syndromic surveillance service provided information to national HPAPAHPA teams, Department of Health and Ministers, as part of the national HPA Olympic surveillance response. This post-Olympic legacy provides the HPA, (transferring to Public Health England in April 2013), with a syndromic surveillance service that will improve surveillance and interpretation of seasonal outbreaks and future mass gathering events.

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ID 264: Emergency Department Syndromic Surveillance: A New National Surveillance System for Monitoring Community Health and Mass Gatherings in the UK

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Background: Syndromic surveillance is the real-time collation, interpretation and dissemination of data for the early identification of public health threats and their impact, enabling public health action. During 2012 a new syndromic surveillance system was launched: the Emergency Department Syndromic Surveillance System (EDSSS). This paper describes the EDSSS, its public health benefits, and the potential use for public health surveillance during mass gathering events.
Methods: The EDSSS is a joint collaboration between the Health Protection Agency (HPA) and College of Emergency Medicine (CEM). The collection of ED attendance data is passive without the requirement of intervention from ED clinicians. Automated processes are applied to emergency medicine systems to collect a minimum clinical dataset. All data are anonymised containing information about basic patient demographics, triage, diagnosis and discharge.
Results: To date, over 2,500,000 attendances have been recorded from the sentinel network of 31 EDs. The EDSSS

was part of the HPA national enhanced surveillance programme during the London 2012 Olympic and Paralympic Games. In addition, the EDSSS has been used for routine surveillance of seasonal outbreaks of influenza, respiratory syncytial virus and norovirus. The development of severity indicators is an additional benefit of the EDSSS, able to identify and monitor the presentation of more severe disease. During the 2012 novel coronavirus incident, EDSSS severity indicators were monitored, providing reassurance that there was not an increase of severe respiratory disease in the community.

Conclusion: The EDSSS has been developed, launched and tested during a major international mass gathering event. Development of severity indicators makes it an ideal public health surveillance system to monitor future mass gatherings including sporting events, festivals and geopolitical gatherings. In collaboration with the WHO Collaborating Centre on Mass Gatherings the EDSSS will play a part in developing a syndromic surveillance tool for use during future mass gatherings.

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ID 265: Evaluation of Disaster Preparedness Based on Simulation Exercises, the Comparison of Two Different Models

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Background: There are different methods of how to evaluate disaster preparedness so that weaknesses can be identified and corrected before a disaster strikes. The hospital incident command systems (HICS) as well as the disaster management indicator (DiMI) model are two methods for evaluating components of disaster preparedness based on performance during simulation exercises. The HICS model contains standardized actions for management group functions, which can be used to measure performance level of each function expressed in percentage. The DiMI model scores the performance according to predesigned templates on structure (staff skills) and processes (management skills).

Method: Two disaster exercises, with similar scenarios were simulated at two major hospitals. Both exercises were evaluated by two researchers, one with experience of the HICS model and the other with experience of the DiMI model. The researcher observed actions, processes and structures, independently of each other. After the exercises the results from the two different models were calculated and compared.

Results: In exercise A the HICS model indicated that 32% of the required positions were taken under considerations with an average performance of 70% and in exercise B, 42% with a performance of 68% in average. According to the DiMI model the result for exercise A was a score of 68% (15 out of 22) for management processes and 63% (14 out of 22) for management structure (staff skills). In exercise B the results was 77% (17/22) and 86% (19/22) respectively.

Conclusion: Both the HICS and DiMI model demonstrated results on an acceptable level, but most of positions were missed based according to the HICS method.

More research on this area is needed to validate which of these methods that best evaluates disaster preparedness based on simulations exercises or, if they are complementary to each other and therefore should be used together

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ID 266: A Report on the Pilot Administration of the Surgical Safety Checklist in a Hospital in Subsaharan Africa

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Background: Over 234 million surgical operations are performed each year worldwide. Majority of errors and complications in the operating theatre are caused by preventable failure of teamwork skills rather than technical problems. This prompted the WHO to design the Surgical Safety Checklist (SSC) to improve communication and provide a minimum standard to reduce complications and deaths from surgery. Its correct use has reduced adverse surgical events.

Methods: In April, 2009 a modified version of the Checklist was introduced in our hospital after a presentation to theatre room nurses. Fifty three forms were administered at elective operations in the emergency room theatre and the Orthopaedic suite from April 2009 - August 2010. The checklist was completed by the most senior anaesthetist in attendance. Analysis was done to assess the level of compliance.

Results: The patient's identity, type of operation and consent were confirmed from the patient in 94.3% of cases. Sites of surgery were marked out in 56.7%. Anaesthesia safety checks were carried out in 90.6%. Team members introduced themselves in 76% and jointly confirmed details of the proposed surgery in 77%. Anticipated critical events were discussed by the team in 64%–72% of cases. Machine dysfunctions were identified in 13% of operations, the commonest being oxygen alarm malfunction (46%), leaking breathing systems (20%) and faulty vaporizers (7%). Instrument and swab counts were confirmed in 72% and correct labeling of specimen in 73% while equipment problems needing attention were clarified in 57%. Key concerns about recovery and further management of the patient were addressed by the team in 57% of cases.

Conclusion: A significant number of checklists were incompletely filled out. The SSC has been adopted for all surgeries in our institution and details like ward and hospital numbers have

been included to ease post-operative follow-up of patients. There is need for training all operating theatre staff.

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ID 267: Hospital Resilience and Preparedness for New Hazards: A Comparative Study in Iran

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Introduction: Avian Influenza (Bird flu) is a newborn disease that has resulted in couple of crises in Iran during recent years. Health systems including hospitals do have an important role to respond this type of crisis, which needs prepared elements like organization, staff, resources, etc. The objective of this study was to evaluate and compare the preparedness level of hospitals settled in 4 provinces of Iran, with respect to Bird Flu crisis. It may present an institutional view of crisis preparedness in Iran's hospitals being considered in planning.
Methods: This qualitative study was done in 2010. Four focus groups were conducted in this study to collect the data on hospital preparedness, in terms of Bird Flu. Forty four experts from the hospitals, located in 4 provinces of Iran, participated in this study. The TOPSIS Model was used for preparedness level. There was a consensus of researchers on evaluating the data, using Liquert scale, and rank the hospital preparedness.
Results: The results showed that the most important preparedness evaluation criteria were human resources and organization; physical resources and supplies; auditing and exercises; and procedures and guidelines with importance score 0.471565, 0.228006, 0.164703, and 0.135726, respectively. The highest preparedness level was reported from province A hospitals (%51) and lowest from province D (43%). The participants believed that the budget and the knowledge of staff are the most effective factors on the preparedness.
Conclusion: The preparedness level of hospitals is not good enough in Iran, in term of Bird Flu. Similar condition is expected for other new hazards, but this subject should be evaluated by other studies. The authorities and planner must consider the barriers to and facilitators of hospital crisis preparedness in Iran, e.g. budget and education, to enhance resiliency and preparedness of Iran's hospitals with respect to natural disasters and biological hazards.

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ID 268: Management of Cardiac Diseases Observed in the Field Hospital of L'aquila (Italy) After the Earthquake of 6 April 2009

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Background: Previous articles reported an increase in cases of acute myocardial infarction, sudden cardiac death, ventricular arrhythmia threatening, hypertension, heart failure and pulmonary embolism not post-traumatic.
Methods: 6045 health records of the field hospital of the Marche Region in L'Aquila (Italy) operated by ARES-Italy from 6 April to 5 June 2009 have been analysed. Known or suspected heart disease and chest pain have been collected as "cardiac code" ("CC") in an Access® database. The distinction between various diseases has been excluded because often the operating conditions allowed only the diagnostic orientation and, after the initial management, patients were transferred.
Results: The "CC" was the second cause of access (599 pts., 10.1% of the total), after the trauma (17.2%). Mean age was 69 ± 11 years, 317 males (52.9%) and 282 females (47.1%). Triage input, the "CC" were classified: green code 230 pts. (39.4% of the total), yellow code 340 pts. (57.8% of the total), red code 28 pts. (4.7% of the total), blue code 1 pts. (0.2% of total). The "CC" accounted for 4.6% of the total code green, 34.4% of the total code yellow, code red 35.4, the 50.0% of the code blue. The "CC" required a large amount of work and it was the second cause of hospitalization (no. 17 pts., 30.9% of the total), the first cause of hospital stay (99 058 min. A total of 183 ± 342 min), and the first cause of transfer (no. 72, 55.0% of the total). Have been practiced n. 415 cardiology consulting, second only to orthopedic consultations. Among the instrumental performances, the electrocardiograms were in 3rd place (n. 547); radiographs were the 1st and 2nd blood tests.
Conclusion: Following a disaster, heart disease are the most common, affecting particularly the older population and its management requires a commitment of human resources, equipment and logistical expertise

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ID 269: A Delphi Study to Identify Process Indicators Essential to Register in Disasters and Major Incidents

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Background: Registration of data from a disaster or major incident may serve several purposes. One is to record data that can serve as a basis for evaluation of response and research. Some of the data needed can be retrieved after an incident while other must be recorded during the incident. In order for these data to be considered valid there is a need for a consensus on what is important to record during a disaster response. The aim of this study was to identify, and establish consensus regarding process indicators essential for the initial disaster

medical response as well as for research purposes, that also can serve as a base for a future national registry.
Methods: A three round Delphi study was conducted. A selection of 30 experts with a broad knowledge and experience in disaster and emergency response and medical management were invited. Process indicators for the initial disaster medical response were identified based on previous research and expressed as statements grouped into eight categories, and presented to the panel of experts. The experts were instructed to score each statement, using a five point Likert scale, and were also invited to include additional statements. Statements reaching a predefined consensus level of 80% were considered as essential to register.
Results: In total 97 statements were generated, 77 statements reached consensus and 20 did not. The 20 indicators that did not reach consensus mostly concerned patient related times in hospital, types of support systems and security for health care staff. The 77 statements that did reach consensus covered parts of all aspects involved in the initial disaster medical response.
Conclusion: The Delphi technique can be used for reaching consensus of data, comprising process indicators, identified as essential for recording from major incidents and disasters.
Prehosp Disaster Med 2013;28(Suppl. 1):s88–s89
doi:10.1017/S1049023X13005888

ID 270: Quantitative Evaluation of Military Medical Organization Using a Simulation Tool: A Pilot Study on Forward Resuscitative Capacity

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Background: Military medicine and disaster medicine in general are primarily considered a descriptive discipline. Prospective and quantitative methods for systematic evaluation have been warranted. In this article we developed an existing medical simulation tool used to evaluate civil major incident doctrines, readiness, command and control to meet the specific demands of military medicine. The aim was to measure patient outcome in response to changes made in an organization's resources and competences in a simulated military mass casualty incident.
Methods: The simulation system Emergo Train System® (ETS) was adapted and used to measure patient outcome in scenarios designed to test the impact of a Forward Resuscitative Capacity (FRC) unit. The number of patients, patient surge and FRC resource allocation were alternated. All medical command and control in the simulation was managed by senior instructors of Emergo Train System (one MD/professor, one specialist nurse, one simulation operator, one medical student).
Results: ETS defined patient outcome was successfully obtained in all scenarios. In the two scenarios with the largest amount of casualties, a total of 15 casualties (T1/immediate), the patients with penetrating injuries and large hemorrhages benefited from having the FRC deployed close to the incident, with a reduced risk of preventable death of one (out of four) and two (out of six) respectively.
Conclusion: This pilot study demonstrated the possibility to, in a simulated military mass casualty incident; relate different organizational and resource scenarios to patient outcome. Despite the relatively limited series of simulations it was possible to quantify patient outcome associated with risk of preventable death. This results needs to be validated with more tests. It is reasonable to assume that this is a useful and easy approach to, in a quantitative manner and as a complement to existing methods, evaluate military doctrines, readiness, command and control and training.
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ID 271: What Outcomes Measures Should Be Developed for Pre-Hospital Care?: Results of a Consensus Event

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Background: The PhOEBE (Pre-hospital Outcomes for Evidence Based Evaluation) project is a 5 year research programme which aims to develop new ways of measuring the performance, quality and impact of ambulance service care. As part of this programme we have conducted 2 systematic reviews to identify potential measures and held a consensus event to prioritise these measures.
Methods: Actual or potential measures or indicators for assessing ambulance service performance or quality of care were identified from two systematic reviews and categorised as clinical management, operational or patient based measures. Time measures were considered separately. We held a consensus event with participants representing clinicians, ambulance operations, commissioners, policy and academic research. Three small group discussion sessions were held and after each session we used turning point software for participants to electronically vote whether they thought each potential measure was essential, desirable or irrelevant.
Results: 42 participants took part and discussed and voted on 52 different measures. They could also add measures. The top 5 ranked operational measures were concerned with completeness & accuracy of records; accuracy of triage; appropriateness of service; ambulance training and ambulance utilisation. Top 5 clinical measures were accuracy of dispatch decisions, accuracy of problem identification; compliance with end of life care plans; patient safety and compliance with protocols. The top 5 patient measures were measurement and relief of pain; patient experience; return of spontaneous circulation; complications from care and survival.
Conclusions: Accuracy of different types of decision making and compliance with management protocols predominated as essential with pain management the most important patient measure. Management of end of life care was identified by participants. The electronic voting system which provided instant real time feedback was well received by participants. The next stage is a Delphi survey to further refine these measures and include time interval measures.
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ID 272: Vulnerability and Severity Scoring of Countries Affected by Complex Humanitarian Emergencies a Framework for Needs Based Funding

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Background: According to donor guidelines, allocation of funding for humanitarian assistance should be based on needs and severity of a crisis. To allow this, information is needed on the pre-disaster context, the type and severity of disaster, the number of people affected as well as expected needs per sector. Attempts have been made to establish a systematic approach for this based more on objective information sources. To date, none of the attempts have yet been widely presented or adopted. For Sida, the Swedish Aid Agency, the authors of the paper developed a framework to help allocate funding on the basis on vulnerability and need.
Method: Through a participatory process that included the stakeholders the research team step-wise developed a draft framework. On the basis of current literature a short-list of potential sources was identified. The sources were tested and scoring system was developed to enable analysis. As a next step the feasibility of the framework was tested on 19 UN Consolidated Appeals for 2013.
Results: Six variables are used for analysis of vulnerability and severity.

1. *Human Development level*
2. *Country vulnerability scoring*
3. *Number and proportion affected*
4. *Type of disasters/crises*
5. *Sector specific risk indicator scoring*
6. *Trends in the above*

The UN -CAP analysis showed significant variations of severity and needs between countries and between sectors.
Conclusion: The framework provides a tool to transparently and quantitatively compare severity and needs between countries and sectors. The framework can be used as a severity assessment tool and as support for needs based funding decisions. For overall understanding of an emergency, the framework analysis needs to be complemented with a narrative interpretation and discussion.

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ID 273: Training Nurses in Categorisation for Evacuation in a Large University Hospital

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Background: In hospital disaster preparedness, knowledge and skills in evacuation and more specific in categorisation of patients is an essential competence that nurses are not trained in during a normal education curriculum. The purpose of this study is to set up and evaluate such a categorisation exercise on the patient population present at the time of the exercise.
Methods: After an introduction of the existing categorisation system and a categorisation made in advance, the group of nurses were divided in two groups. In a table top setting, the patients were categorised and placed in order for evacuation by both groups. An evaluation of the exercise and a description of the different categories was made. Finally, a comparison between groups was calculated.
Results: More than 60 wards, functional units, Operating theatres, the Emergency department and Intensive care units participated in the study. The exercise was highly appreciated by the participating nurses. In addition, the comparison resulted in a high correlation ($r^2 > 0.85$) between the two groups and with the control categorisation. As the study is ongoing, the final results will be presented at the meeting.
Conclusions: A short during and practical exercise on categorisation for evacuation was highly appreciated by the majority of all participating nurses and units. Although categorisation for evacuation is not a routine skill of nurses, surprisingly high correlation factors were observed. This indicates that the categorisation system is easy to apply and has practical implications.

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ID 274: An Evaluative Study of the Basic Life Support Skills of Emergency Medical Technicians

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Background: Basic life support is the most fundamental skill to save life. It's necessary that EMTs, as the first part of the chain of survival, have enough competency to perform BLS. The aim of study is to evaluate BLS skills in EMTs.
Methods: A descriptive, cross-sectional study has been conducted in Nov 2012. 218 EMTs who passed the exam participated in the study. Accuracy of skills has been evaluated by questionnaire. The questionnaire includes demographic data and a 19-item checklist to assess BLS (first encounter, cardiac massage, ventilation and assessment). Content validity index (0.92) and reliability was ($K = 0.87$) via interobserver agreement. Descriptive statistics have been applied and Data was analyzed by MS Excel 2007.
Findings: correct performance mean for all EMTs was 75.08%. The most correct performance was related to cardiac massage (84.81%) especially placement of hands (90.37%). The worst performance was related to ventilation (11.24%) especially chest rise (14.68%) and the most neglected part was related to first encounter (27.41%) especially call for help (54.59%).
Conclusions: EMTs demonstrated an acceptable level of performance in BLS. It's recommended more attention should be dedicated to ventilation skills in BLS courses

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ID 275: Exercise Milo: Disability and Decontamination

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Background: Exercise Milo was a live field exercise held in London in 2010, designed to enable the NHS in London to test its preparedness for emergencies involving large numbers of people with physical disabilities. The exercise scenario involved the simulated exposure of volunteers to an accidental chemical release at an international sports event for disabled athletes. Exercise activity included decontamination of the casualties and transfer to hospital for ongoing management. Exercise Milo is unique as it followed disabled casualty groups through the treatment pathway including decontamination and subsequent management at a receiving hospital.
Methods: A total of 96 casualty volunteers took part in the exercise, including 37 participants with physical disabilities including limb amputees, visual and hearing impairments, and wheelchair users. Personnel from the UK emergency services and health sector participated at the incident scene, at a hospital and from various off-site health sector control rooms. A comprehensive evaluation of the exercise included player debriefing, a time and motion study of mass decontamination and post-exercise casualty volunteer discussion groups.
Results: The exercise highlighted a number of issues for health providers and emergency services, including: the management of decontamination processes and the time needed for disrobe and decontamination with disabled groups; the provision of respiratory protection for immobile casualties in the hot-zone to prevent prolonged exposure; and maintaining the integrity of 'clean/dirty' lines at hospital entrances to avoid cross-contamination of staff.
Conclusion: Exercise Milo delivered important recommendations for UK emergency and health services that will facilitate the development of response capabilities, and also provided one of the first opportunities for responders to practice the decontamination and treatment of large numbers of disabled casualties. Exercise Milo has implications for the wider international emergency response community in planning for incidents involving large numbers of casualties with a range of functional needs.

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ID 276: Organization of Medical Aid to Children with Skeletal Trauma in Disasters with Mass Casualties

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In case of disasters with mass casualties trauma outcomes in children with skeletal polytrauma (SPT) depend on time, volume and quality of provided medical care at all stages of patient's evacuation.
The aim of the present work was to develop principles for organization and medical care to children with SPT in case of disasters with mass admissions of them to local hospitals.
The developed principles were utilized in helping children with SPT after earthquakes in Armenia (1988), Georgia (1989), Iran (1990), Sakhalin (1995), Afghanistan (1998), Turkey (2001), India (2002), Algeria (2003), Pakistan (2005), Indonesia (2006 and 2009), Haiti (2010). It has been found out that skeletal trauma (ST) is the mostly widespread pathology and is equal to 71.2% of all hospitalized children, while SPT is diagnosed in 25.8% of them.
The first place belongs to fractures of bones in lower extremities (crus – up to 38%, thigh – up to 29%) and upper extremities (forearm – 28% and shoulder – 12%). Fractures of bones of foot and hand were seen less frequently – 4.5% and 2.5%, correspondingly. Very rarely, one can see fractures of pelvic bones (up to 1.5%) and spine (up to 1%) because of high mortality rate in these injuries at the pre-hospital stage.
It has been found out that it is possible to increase the quality of medical care for children in disasters, to considerably decrease mortality and to decrease the risk of trauma complications by 5 folds as well as to gain good outcomes with high quality of life in 85% of injured children if a specialized pediatric team is sent to the disaster site. This team should include experienced anesthesiologists, surgeons, neurosurgeons, traumatologists and pediatricians.
To provide a high-quality traumatologic help to children with SPT the experienced team should be equipped with modern implants, apparatuses for external fixation and necessary instrumentation.

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ID 278: Disaster Myths and Misconceptions Among Emergency Department Personals in Pakistan

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Introduction: Tremendous economic losses, significant number of deaths, injury and adverse public health consequence are posed by disasters. Disaster myths are among the many other factors that may aggravate their grave effects.
Myth means untrue, fabricated (made up) or altered, strained reality. Disaster myths negatively affect every phase of emergency management or disaster response. The media and physicians with insufficient knowledge on disasters have a great role in the development of disaster myths.
Objective: The objective of the study was to assess among emergency medicine physicians and nurses, their knowledge about common myths and realities in a disaster situation.
Methods: A self administered questionnaire was distributed among 50 emergency medicine nurses and physicians attending a disaster medicine conference. The questionnaire was based on the myths and realities in disaster situations, published on the web by the World Health Organization.

Results: The results showed that the most common misconception was that epidemics are inevitable in disaster situations (71%), dead bodies pose a risk of spreading epidemics (70%) and the best way to prevent disease is mass burials (68%). Use of mass vaccinations was considered useful (65%), foreign medical aid is required to help the affected population (45%) and lots of ambulances and medical personnel is required to help the affected (30%).
Conclusions: In disaster management, physicians and nurses account for a major group of the manpower involved in saving lives. Therefore, their opinions about disaster myths are highly valuable. From the results of our study we have clearly identified a great need for educating both nurses and physician about the realities behind these myths that have been around for ages. A greater allocation in the curriculum to disaster medicine may be valuable in solving this problem.
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ID 280: The Challenges and Problems of Supporting Cambodia's Emergency Medical System

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Background: Cambodia is an economically developing country located in Southeast Asia's Indochina Peninsula. One of Cambodia's challenges is that many people lack education, particularly in the countryside, which suffers from a lack of basic infrastructure. Despite a recent increase in traffic accidents, most hospitals lack specialized capability to treat trauma and emergency patients. An emergency medical system (EMS) including pre-hospital care has not fully been established.
Methods: The Hyogo College of Medicine Medical Team has supported and conducted emergency medicine training courses in the Phnom Penh Army Hospital for the past three years. The Advanced Trauma Life Support Program has focused on teaching the skills necessary for trauma resuscitation. Herein, we report our experiences with the challenges and problems of supporting an EMS in Cambodia
Results: The development of an EMS in Cambodia is complicated by many factors, including a poor economy, poor baseline health indices, poor education system, and an unstable political system. Cambodia has never had an adequate number of hospitals or clinics. Since trauma and emergency medicine is costly, management of emergency hospitals and provision of appropriate medical care to poor people is difficultSocialized health insurance and staffing of the hospital have not been sufficiently developed, and the building of hospitals and training of medical doctors has been delayed. In terms of education, no textbooks written in the local language, no appropriate curriculum for trauma and emergency medicine, and no diagnostic tools or drugs are available.
Conclusion: Cambodia must establish an EMS as soon as possible. Economical and intellectual support from developed countries is absolutely required. We found that training helped Cambodian physicians to address emergency medicine with confidence and competence. The training program may contribute positively to improving patient outcomes.
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ID 281: Use of Emergency Department in Queensland Public Hospitals by Immigrants

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Background: Immigrants might use emergency care differently from local populations due to the existence of several barriers such as language, cultural, and socio-economic status. However, immigrants are not a homogeneous population. The aim of this study is to examine whether immigrants born in refugee source countries (IRSC) are different from those immigrants born in other countries (IOC) using the local population (LP) as the reference group in the use of emergency department (ED) in Queensland public hospitals.
Methods: A retrospective analysis of a Queensland state-wide hospital ED dataset (ED Information System) from 1-1-2008 to 31-12-2010 was conducted. The proportions of interpreter use were calculated using Pearson Chi-square test. Logistic and multiple linear regression analyses were performed to determine the relationships between ambulance use and born countries, admission status and born countries, and length of stay in the ED and Born countries, respectively. The analyses were adjusted for gender, age, triage categories, and interpreter use.
Results: The interpreter use was 8.9% in IRSC and 1% in IOC group (Chi-squared = 5347.1, $p < 0.001$). Compared with the Australian born population: The rate of ambulance use was higher among IRSC (odds ratio OR 1.2, 95% confidence interval, 1.2–1.3), and lower among IOC (OR 0.8, 95% CI 0.8–0.8). Both IRSC and IOC were less likely to be admitted to hospital from ED, (odds ratio 0.7 (95% CI 0.7–0.8), and 0.9 (95% CI 0.9–0.9), respectively). There were significantly longer lengths of stay in EDs among IRSC (OR 33.0, 95% CI 28.8–37.3), and IOC (OR 8.0, 95% CI 7.4–8.6).
Conclusion: There is a significant association between born country and the use of ED care patterns in Queensland public hospitals. Further sample research is required to investigate reasons behind this population level phenomenon.
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ID 282: Electronic Triage System Using the Digital Pen; Usefulness in a Simulated Multiple-Casualty Incident

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Background: Disruption of information is the major obstacle in coping with multiple casualties such as in multiple-casualty incidents or disasters. This study was to determine the usefulness of an electronic triage system using the digital pen with which triage data of patients could be shared in real-time among agencies involved.
Methods: The electronic triage system consisted of digital pens, smartphones, a server and terminal PCs. We used triage tags on which detailed dot patterns were printed. A miniature camera was embedded at the tip of the digital pen, digitized the handwriting on the triage sheet printed the dot pattern. The data on the triage tag were transmitted to a smartphone and then to a server via the Internet. The data were presented in a preset format at terminal PCs. The triage information was viewed at the triage site, the disaster HQ and the base hospital. We simulated a multiple-casualty incident in which 3 triage sites were set up.
Results: Seventeen simulated casualties were triaged; the patient's background and triage category were written on the triage tag using the digital pen. As for triage criteria, 9 were classified into "immediate", 7 into "urgent", 1 into "delayed" in the primary START triage. In the secondary triage, 11 were classified into "immediate", 3 into "urgent", 3 into "delayed". Three casualties were changed into "immediate" from "urgent" in the second triage. These triage data were updated in real-time at each site and successfully transmitted to the server and terminal PCs. By sharing triage and patient information, the HQ and hospitals became well-prepared for next actions required for the medical management.
Conclusion: The results of this study indicated that the electronic triage system using the digital pen might be quite useful in sharing triage information in a multiple-casualty incident.

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ID 283: Activities of Our DMAT on the Great East Japan Earthquake and Disaster Prevention and Countermeasures Headquarters

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The Great East Japan Earthquake was occurred 11 March 2011. The Great East Japan Earthquake and Tsunami Disaster brought about great loss and suffering. Such prefecture was dispatched DMAT (Disaster Medical Assistance Team) at disaster area, about 1000 DMATs concentrated at disaster area. Our hospital's DMAT reports that Activities in Iwate Pref, 13 March from 17 March.

Our DMAT supported Fukushima university hospital, SCU (staging care unit) established in Iwate Fire Academy, Disaster Prevention and Countermeasures Headquarters established in Iwate prefectural office. In particular, Disaster Prevention and Countermeasures Headquarters was gathered various information from to SCU in Hanamaki Airport, DMAT secretariat at Tokyo, and dispatched DMATs to disaster area, we were busy to respond that. Therefore, command and respond were delayed because commander who decided DMAT's activity or doctor adjusted Fire Department and the Self-Defense Forces. There were disaster risk management offices of police, fire department, Japan Coast Guard, and the Japan Self-Defense Forces other than medical on the same floor. Their organizations hold a conference twice a day to shire information and activities.
Disaster Prevention and Countermeasures Headquarters was shortage of manpower. Disaster Prevention and Countermeasures Headquarters has to construct immediately after earthquake occurred. In addition, enormous information is gathered from various organizations at Disaster Prevention and Countermeasures Headquarters. Therefore, it needs to have highly capacity to handle information.

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ID 284: Language Barrier in Disaster Planning — The Bellevue Hospital Center Experience

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Background: Previous studies of disaster responses suggest that vulnerable populations (such as limited English proficiency (LEP) patients) suffer disproportionally. Effective disaster plans must account for socio-economic and language barriers to providing healthcare for vulnerable populations; in addition to potentially greater health needs resulting from underlying medical problems. The objective of our study is to identify the unique challenges and needs of the LEP population during a disaster.
Method: Bellevue Hospital Center (BHC) is the oldest public hospital in the United States, providing care for a socio-economically and racially diverse patient population, where 28.6% of patients have LEP. A prospective survey of patients presenting to the BHC Emergency Department with a target convenience sample of 1,000 was conducted. The study was terminated early due to the mandatory evacuation orders enacted upon Hurricane Sandy's landfall on October 29, 2012.
Results: The five most common non-English languages among BHC patients are Spanish (57%), Mandarin Chinese (17%), Cantonese Chinese (5.7%), Bengali (4.3%), and Polish (4.1%). Of the 511 surveys conducted at BHC, 41 (8.0%) patients had LEP, compared to our expected 28.6% (chi-square goodness of fit test with one degree of freedom = 105.95, $p < 0.0001$).
Conclusion: The challenges of investigating, understanding and subsequently providing care for the LEP population is highlighted in the non-representative proportion of LEP

patients in the survey respondents. This is despite the survey being conducted in an environment where LEP patients comprise a significant proportion of the population sample and where previous studies suggest that LEP patients are most likely to seek care. Understanding the unique characteristics of this vulnerable population would provide policy makers the opportunity to more effectively respond during a disaster to ensure continuity of healthcare to these communities. However, as this study demonstrates, significant challenges remain in elucidating the true healthcare needs of LEP populations.

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ID 285: From Hurricane Irene to Hurricane Sandy — State of Disaster Preparedness in the New York University and Bellevue Hospital Center Population

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Background: Hurricane Irene exposed gaps in the disaster preparedness of hospital systems in the US Northeast region, which became major deficiencies on Hurricane Sandy's landfall. The state of preparedness, with emphasis on potential vulnerability in patients presenting to an urban emergency department has not been previously examined. The objective of our study is to assess support networks, personal preparedness, as well as the response to the mandatory evacuation order in parts of New York City (NYC) due to the flood risks posed by Hurricane Irene from August 26 to August 29, 2011.
Method: A prospective survey of patients presenting to the New York University Langone Medical Center (NYULMC) and Bellevue Hospital Center (BHC) Emergency Department contains 38 questions including demographic, vulnerability, and personal disaster preparedness. The study was terminated due to mandatory evacuation after Hurricane Sandy's landfall.
Results: 248 surveys were completed at NYULMC and 511 were completed at BHC. Of the 759 completed surveys, 494 (65.1%) subjects knew their SLOSH (Sea, Lake, and Overalnd Surges from Hurricanes) zone. 553 (72.9%) subjects were in NYC during Hurricane Irene, of which 30 (5.4%) experienced electricity outage, 295 (53.5%) had at least one month's supply of medication, 6 (1.1%) ran out of prescription medication, 4 (0.73%) had difficulty with food/water, and 4 (0.73%) lacked home aide. 55 (10%) of the 553 subjects who remained in NYC received mandatory evacuation orders, only 28 (50.9%) of them evacuated (chi-square = 28.32, $p < 0.001$).
Conclusion: In our study we discovered that only 50.9% of NYC residents receiving mandatory evacuation orders evacuated. Additionally, policy makers should note that 46.5% of patients had less than one month's supply of medications and 34.9% of patients were unaware of the SLOSH zone within which they reside, as they would be at risk in the event of another flood related disaster in NYC.

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ID 286: Pediatric Peripheral Vascular Injuries: An Experience from Level 1 Trauma Center, India

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Introduction: Pediatric vascular injuries pose a unique challenge due to relatively low incidence. Our aim is to evaluate patterns of injuries, diagnostic and therapeutic modalities, morbidity, mortality and long term outcomes in pediatric patients presenting to level 1 trauma centre with a peripheral vascular injury.
Methods: A retrospective review of patients 1-18 yrs of age treated for peripheral vascular injuries from 2007-2012 was conducted. Patients with injuries to non-specific vessels, mangled extremities needing primary amputation and isolated injury to digits were excluded. Patients completing two years following injury were analysed for long term outcomes using DASH and LEFS questionnaires for upper and lower extremity.
Results: 136 patients presented with peripheral vascular injury to the casualty from which 82 patients were finally selected. 60 patients completed 2 years follow up. Children 14-18 yrs were most commonly injured (43.3%). 82% injured were males but females were significantly higher (in <5 yrs group. 55% children were inflicted with blunt trauma. Falls (28.3%) as blunt trauma while glass cut injuries (20%) was the main mechanism for penetrating trauma. Machinery cut injuries (13%) were almost exclusively restricted to lower age children (1-13 yrs). Brachial artery was most commonly injured (32%) followed by femoral artery (20%). In >95% patients primary repair was the treatment modality. Length of hospital stay and mean ISS scores were higher for vascular injuries involving lower limbs (p value <0.05). Vascular patency was present in >85% patients at 2 yrs.
Conclusion: Epidemiology of peripheral vascular injuries differs in India compared to west and these carry significant morbidity due to associated injuries despite good vascular outcomes.

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ID 287: Australasian Disasters of National Significance - An Epidemiological Analysis 1900-2012

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Background: The WADEM Oceania chapter encompasses Australia and New Zealand. A regional epidemiological analysis of Australasian disasters in the 20th century to present was undertaken to examine trends in disaster epidemiology, to characterize the civil societal impacts on disaster policy, practice, and legislation, and finally to identify enduring limitations in national disaster resilience.
Methods: A surveillance definition of disaster was developed conforming to the CRED criteria (≥10 deaths, ≥100

affected, or declaration of state emergency or appeal for international assistance). Retrospective case-finding occurred from literature review and key informant interviews in the disaster community. The authors then identified a subset of disasters of national significance by applying economic criteria (>$A50,000,000 in losses/damages in current dollars) or legislative criteria (state and Commonwealth legislative impact.)

Results: The surveillance definition yielded 121 disasters in the period from which 53 emerged as disasters of national significance. There were 35 natural disasters, 12 technological disasters, 3 terrorist offshore attacks, 2 major epidemics, and 1 mass shooting. Geographic analysis reveals that states with major population centers experienced the vast majority of disasters of national significance. Timeline analysis reveals an increasing incidence of disasters after year 2000. Within the past 3 years, seasonal bushfires and floods have incurred the highest death toll and economic losses in Australasian history. Reactive hazard-specific legislation emerged after all terrorist acts and after most disasters of national significance suggesting that prior legislation was deemed inadequate.

Conclusion: Timeline analysis reveals an increasing incidence of natural disasters over the last 15 years with the most lethal and costly disasters occurring in the last 3 years. Vulnerability to disaster in Australasia appears to be increasing. Reactive legislation is a recurrent feature of Australasian disaster response which suggests legislative shortsightedness and a need for comprehensive all-hazards model legislation in the future.

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ID 288: Please Don't Go: Factors Associated with High Acuity Patient Leaving without Being Seen at an Urban VA Emergency Department

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Patients that leave without being (LWBS) seen are a well recognized sequelae of emergency department (ED) crowding. There is a paucity of research studying LWBS rates in the Veteran's Affairs (VA) health system. The purpose of this study was to investigate factors associated with higher acuity patients who LWBS.

Daily ED census reports were collected over six months at an urban teaching VA Medical Center with over 30,000 ED visits per year. The dataset was analyzed to provide descriptive characteristics of ED utilization and flow. Patients were categorized into higher and lower acuity categories. Stepwise backward logistic regression was used to identify predictors of higher acuity LWBS.

The mean daily census was 82 (32-119) patients, with a 14.4% admission rate and 7.3% clinic diversion rate. The mean wait time and LOS was 73 minutes and 272 minutes, respectively. The mean LWBS rate was 7%. Higher acuity patients LWBS on 62% of the days. Variables associated with days that high acuity patients LWBS were daily census (OR:1.415; 95% CI:1.221,1.639), LOS (OR:1.011; 95% CI:1.000,1.023), Triage time (OR:0.937; 95% CI:0.876,1.002), number of high acuity patients (OR:0.749; 95% CI:0.639,0.879), number of clinic diversions (OR:0.723; 95% CI:0.610,0.857), and number of low acuity patients (OR:0.689; 95% CI:0.583,0.814). Expectedly, increased ED census, LOS, and decreased diversions were predictive of higher acuity patient LWBS days. It is unclear why both increased numbers of lower and higher acuity patients, as well as longer triage times, were predictive of days without high acuity LWBS. Further studies should focus on identifying how these factors may alter decision making behavior of providers and patients to prevent higher acuity patients that LWBS. Current interventions should focus on reducing ED census by increasing diversions to clinic and decreasing overall LOS.

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ID 289: Emergency Medicine in Thailand: A Survey of Residency Program Graduates

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Emergency medicine (EM) is a new specialty in Thailand that was first recognized by the Thai Medical Council in 2003. The first EM residency trained physicians graduated in 2007. Currently there are 18 residency programs with over 200 residency graduates. Given its relative youth, EM has not been established in many hospitals and hence is not widely recognized and appreciated as a specialty. To date, there has been no literature describing the work environment and career perceptions of EM graduates in Thailand.

Methods: Electronic surveys were sent to all EM residency graduates identified through the Society of Thai Emergency Physicians. Results were coded into a spreadsheet and analyzed using SPSS to provide descriptive characteristics of EM graduates. Composite variables measuring perceived system support, practice barriers, and personal career satisfaction were analyzed via logistic regression as predictors of perceived career longevity.

Results: 68 of 268 graduates (25.4%) responded to the survey. The average age is 31.5 yrs and are 3 years post-residency. The most common perceived strength of emergency departments (ED) was administration (36.8%). The most common perceived barrier to emergency medical care was utilization of the ED by non emergent patients (77.9%). The most common source of career dissatisfaction was poor quality of life attributed to shift work (58.8). EM physicians were overwhelming satisfied with their career choice (92.6%). However, 55.9 percent reported that they were hesitant or unwilling to practice as an EM physician in the next 10 years. Personal career satisfaction was predictive of perceived career longevity (odds ratio 2.316; 95% CI: 1.232, 4.353; p = 0.009).

Conclusions: Similar to many other countries, career longevity is a threat to the development of emergency medicine as a specialty. Further research is needed to elucidate the role of personal career satisfaction on the perceived career longevity of EM physicians.

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ID 290: Design Suggestion for "Safety and Resilience Hospital" by the Collaboration of Architects and Researchers

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Background: In Japan, the function requirements for a 'safe and resilient hospital' have been analysed by medical experts and engineering researchers. As a result, we determined that a plan for the first floor was particularly important for hospitals which admit a large number of injured people after a large earthquake. The purpose of this study is to create a concrete model for a 'safe and resilient hospital' through the collaboration of architects and these researchers.
Methods: A model hospital is designed by three architects who have a lot of knowledge in disasters. The assumed disaster is the Great Hanshin–Awaji Earthquake, for which the model hospital would be a disaster core hospital having 60 beds (which could be expanded to 180) near the Osaka International Airport. The hospital had a structure and facilities that could withstand an earthquake. Further, the hospital could accept 1,000 injured people at a disaster area and transport some them outside that area.
Results: The three suggested plans are as follows: the first hospital would have a large corridor, which would be used as a space for the additional beds treatment space. The second hospital would employ open-and-close-type shutters, and consequently, outdoor space would be changed into indoor space. The third hospital would have large eaves on the building, and the bottom of the eaves could be used as a triage area. These plans were announced at an open symposium and were assessed by some experts including an architect critic.
Conclusion: The model hospital is not an actual hospital because they do not satisfy Japanese law. However, this study show the methods to increase space for a 'safe and resilient hospital'. Such an activity through the collaboration of architects and researchers is effective.

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ID 293: Rescue Missions for the Very Aged People - Reasonable or Nonsense? A 30-month-analysis of People in the Age Over 100 of a German City

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Backround: In Dresden emergency medical care is provided by thirty ambulances and one helicopter. The mean age of the population has increased during recent years. Simultaneously the number of rescue missions for elderly patients (pat) is rising up. Goal of the study was an evaluation of emergency cases in very old pat to identify circumstances and requirements with regard to emergency medical services.
Methods: Data on all emergencies was collected (Husky fex21®) and transferred to a central system. All cases between 1/2008 and 6/2010 of pat in the age of 100(+) were analysed.
Results: A total number of 204773 cases of emergency were documented. 212 pat were in the age of 100 or more years. 88.2% were female. Ambulances were on the scene within 6.0 min [0–17]. In 47,1% location of emergency was at home, in 45.8% in a nursing home. 37.8% had life-threatening injuries or dysfunction with a NACA score 4 and higher. 3.8% were classified in NACA 7. The most common cause for the rescue mission was a minor head trauma after downfall with 25.9%. Injuries of the lower limbs were documented in 13,2%. Other frequent diagnoses were unspecific pain (11.8%), pneumonia (9.4%), acute coronary syndrome (8.0%), stroke (7.0%), hypoglycemia (5.9%), unconsciousness (4.7%) and cardiac arrest (3.8%). No pat received cardiopulmonary resuscitation or endotracheal intubation. However, 65.9% of pat were admitted to hospital. 8.2% denied a transport.
Conclusion: Every year we see more emergencies in old patients. There is a high number of pat with life-threatening injuries or dysfunction requiring emergency care. We have to adjust the conditions in this field of emergencies. The implementation of 24 hour services of general practitioners, adaption of emergency rooms, as well as special education for emergency professionals with regard to diagnoses and ethical aspects in elderly pat are reasonable.

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ID 294: The Development of Disaster Medicine in China after Wenchuan Earthquake

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In 2008, a devastating earthquake struck Wenchuan, southwest China's Sichuan Province, which killed an estimated 68,000 people and caused the economic loss higher than US$75 billion dollars.
Five years after Wenchuan Earthquake, the locals, with a concerted help from all over China and the world, have created miracles in the reconstruction. The experience gained from the Wenchuan Earthquake rescue fostered the development of disaster medicine in China. The disaster education-warning-response-reconstruction complex has been established in China. In 2011, Chinese Society of Disaster Medicine was established in Shanghai, many provincial level disaster medicine associations have been established afterward. The Central Government put more in the budget for disaster management. Many universities setup disaster medicine or disaster management courses. Many disaster medical rescue

teams of different levels have been organized, equipped with hi-tech devices designed for the extreme conditions. The personnel for disaster medical rescue have undergone more and more specific trainings not only in medicine, but also in management, physical and mental. Public education on disaster medicine has been widely promoted. For the past years, China has been working with its international partners to improve the scientific basis for disaster and emergency health practice and to combine the international guidelines with China's situation to improve the practice and outcomes.

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ID 295: La Medecine Du Danger

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Les professionnels de santé sont sortis de leurs cabinets de consultation et de leurs hôpitaux.
Ils découvrent et pratiquent un métier qui n'est plus le leur et qui les éloigne de la médecine traditionnelle.
Ma communication sur la **MEDECINE DU DANGER** découle de différents drames où des médecins ont perdu la vie mais aussi de l'évolution du comportement humain, d'une diversité des risques environnementaux et d'une technologie galopante qui nous agressent au quotidien sans préparation aucune.
Le médecin est sorti de l'hôpital. L'université ne le prépare pas à la gestion des risques alors que le citoyen recherche le risque zéro, telle est la problématique.
Les actions que nous proposons permettent une approche synthétique multidisciplinaire avec l'acquisition de connaissances basiques sur:

- **l'Homme**: l'individu avec ses réactions, la foule avec la dynamique des rassemblements, la violence, le terrorisme…
- **l'environnement**, les différents risques naturels avec les gestes essentiels de survie.
- **la technologie**, les risques NRBCE, les moyens de transport, les matériaux nouveaux et l'identification des sources de toxicité humaine.

La **formation** à la prévention des risques peut être déclinée sur deux niveaux:
- Basique (BIPS) pour les connaissances sur les risques non programmés, les gestes réflexes, la découverte du milieu hostile.
- Avancé (AIPS) pour les personnels qui travaillent en équipe ou dans un environnement à risque identifié en créant une cohérence dans les missions de sauvetage entre la gestuelle médico-secouriste et le professionnel.

Le médecin n'est pas préparé à affronter les dangers. Il ne doit pas être une charge pour les équipes de secours. Sa vie est essentielle pour le devenir de la victime. Son intégration dans le sauvetage est aujourd'hui incontournable sous réserve qu'il demeure un soignant formé aux techniques de protection individuelle.
C'est un **MEDECIN INTEGRE** pour une **MEDECINE DU DANGER.**

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ID 297: Role and Place of Emergency Medical Care Center in Republic Of Bulgaria for Providing Prehospital Care During Disasters Situations

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Background: Emergency medical care (EMC) in the Republic of Bulgaria is a component of the health system in the country. The country has long had traditional organization of medical care in emergency situations and responds to disasters, accidents and catastrophes (DAC). Activities provided to EMC in 1995 were carried out by "quick and urgent medical care" to hospitals. Between 1996 and 2012 the country conditions changed significantly and put EMC system with new challenges. A new national system for emergency calls and for Emergency Medical Care Centers (EMCC) has been constructed. This improves coordination and unified actions providing pre-hospital care in emergency situations and DAC.
Methods: Used and implemented the following methods: survey and analysis of literature; SWOT analysis, Historical and Documentary methods.
Results: Analysis of the current state of the system for EMC in Bulgaria shows the need to update and improve the structure and organization of the EMCC in responding to DAC. Strengths and weaknesses of the system and concept for future sustainable development are indicated.
Conclusion: The worldwide number of reported disasters and the need to provide EMC has increased. In Bulgaria, the requirements for the provision of EMC are increased and number of people in need of providing EMC with pronounced shortage of health personnel are significant. The country has introduced a concept for the future development of the system of EMCC. It provides for the inclusion of a new professional field paramedic. In Bulgaria there are no strictly regulated legal frameworks, standards and protocols for working EMCC in providing pre-hospital care including BAC.
Keywords: Emergency Medical Care System, for Emergency Medical Services Center, Emergency and disasters situation, Republic of Bulgaria, Pre-hospital care

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ID 298: Railway Track Injury – A Common Mode of Life Threatening Injury: An Experience from a Developing Nation

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Introduction: In India the only literature available regarding trauma is on road traffic injuries and hardly any studies

have been done on the other causes of trauma. Trauma is caused by a wide variety of risks e.g. fall, agricultural related injuries, fire arm injuries, natural and man-made disasters. According to The National Crime Records Bureau in 2009 there were 25,783 deaths and 3792 injuries were reported due to Railway Track Injuries. Our study looks at the epidemiology and severity of Injuries related Railway Track Injuries in urban India.

Methodology: The present study is a retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry forms at Trauma Center, AIIMS.

Results: From 1st January 2011 to 30th September 2012, 21286 patients were registered as red/yellow triaged patients in the Trauma Emergency out of which 300 were in the group of patients who were involved in the Railway Track Injuries. A total number of 300 patients were analysed. (178, 59.3%) were triaged red, (93, 31.0%) yellow, and (28, 9.33%) patients were brought in dead. Male: Female ratio was (8.7:1). The different mechanisms of injury were blunt (294, 98.0%) and Penetrating (6, 2.0%). Patient was passenger of train (134, 44.66%), Pedestrian (160, 53.33%), Unknown (2, 0.66%). There were (20, 6.66%) patients under the influence of Alcohol, and a majority of them (18, 90.00%) were Pedestrian/ trespassers. The average ISS of patients having ED Death was very high i.e. 59.44. Most of the patients were admitted to Trauma Surgery (70, 23.33%) Out of total 145 patients admitted (32, 10.66%) had in-hospital mortality (Avg. ISS – 16.59); (113, 37.66%) were discharged.

Conclusion: Railway track injuries cause significant loss of lives and limbs in patients. Our results indicate that railway related deaths could be prevented by surveillance, education and public awareness.

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ID 300: Medical Insurance System of the Population in Disastrous Situations in Republic of Bulgaria

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Background: The event of different types, sizes and weight of disasters in Bulgaria have created common and serious medical conditions in the affected region. Health facilities have been completely or partially destroyed, there is insufficiency of health staff and medical sanitary assets. The medical insurance system of the population in Bulgaria in disasters includes central, regional and local executive authorities and government for management and coordination of activities in medical insurance. For the realization of activities in medical ensuring system of the population Unified Rescue System with unified European Emergency Number 112 in Bulgaria are built. The nature of the emergency in Bulgaria (police, fire, medical) is determined. National system 112 in Bulgaria include Emergency Medical Care Centers. In medical care in all existing health facilities and medical teams units are included.

Methods: Used and implemented the following methods: survey and analysis of literature and documentary method.

Results: Analysis of the current status of the 112 system and medical care system in Bulgaria shows that in large-scale disasters there is discrepancy of the existing and the necessary medically forces and resources the hearth. The distribution of the Emergency Medical Care Center teams in the country is uneven and there is a serious shortage of medical staff in disasters.

Conclusion: The system of medical insurance in Bulgaria in structurally and functionally insufficient for a large magnitude disaster with a major share of medical losses. In Bulgaria there is no strictly regulated legal framework, standards, protocols and Triage system for providing medical care during disasters.

Keywords: Unified Rescue System, Medical Insurance System of the population, disaster situations, Republic of Bulgaria
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ID 301: Out of Hospital Cardiac Arrest (OHCA) in Air Rescue Missions; A 4-Year Evaluation from a German Helicopter Base

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Background: In Germany emergency medical care is provided by ambulance cars. Additionally rescue helicopters are available. The rescue helicopter in Dresden is covering the city of Dresden with 512000 inhabitants and surrounding areas with distances up to 70 km. Goal of the study was an evaluation of cases with OHCA in helicopter rescue missions.

Methods: Data of all emergencies from the German Air Rescue (DRF-Luftrettung®) Helicopter Base Dresden were recorded and transferred to a central computer database (MEDAT®). Data from all OHCA between 01/2005 and 12/2008 were analyzed.

Results: There were a total number of 5020 cases of emergency during the study period. 337 Patients (Pat) with OHCA were recorded. 69% male. Mean age 62.2. The helicopter was on the scene within 10.9 min. [4-27]. The most common cause of cardiac arrest was an acute coronary syndrome (30.6%). Other frequent reasons were internal and neurological diseases (38.3%), trauma (18.4%) and suicide (5.3%). CPR was performed in 65.3% of Pat. 35.5% achieved a Return of Spontaneous Circulation (ROSC) within 18 minutes [1-60]. 8.6% received CPR during transport. Resuscitation was aborted in 61.8% after 32 minutes [10-80]. In 116 Pat asystole was the first documented rhythm. 18.9% of these Pat achieved ROSC. In 31 cases the first rhythm was ventricular fibrillation with a ROSC rate of 51.6%. In 24 trauma cases 1 patient reached ROSC. When CPR started immediately 52.9% were successful. 11.8% had ROSC, if CPR started with a delay of 10 minutes (+) after collapse. If bystander CPR was performed 40.3% achieved ROSC, without 27.9%.

Conclusion: In helicopter rescue missions OHCA is frequent. The first cardiac rhythm and the cause of cardiac arrest are factors with highly impact on outcome. Immediate Start of CPR and bystander CPR improves the success. Therefore-more and early education of BLS is reasonable.

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ID 302: Motorised Two Wheeler Vehicle Injury Patterns, Severity, Mortality and Helmet Usage: Analyses from Largest Single Institution Trauma Databank in India and Lessons for Society

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Introduction: Road Traffic injuries are the leading cause of deaths among young adults in India. Motorised two wheeler crashes account for 21.1% of all fatalities. Mandatory helmet laws exist for males but not females due to social concerns.
Methods: All patients (whether driver or pillion) involved in motorised two wheeler crashes reporting to JPNATC from Jan 2011-July 2012 were reviewed. Groups were identified based on helmet usage. Anatomical and physiological severity of injury was determined by AIS, ISS scores and presence of shock respectively. An attempt was made to perform a paired subgroup analyses on female patients due to differential helmet legislations.
Results: 2718 cases were identified which were overwhelmingly male (90.5%). Helmet usage was overall 51.5% with 11.69% for females and 4.47% for female pillion riders. Helmet use was associated with 45.4% reduced adjusted odds of mortality (OR 0.54, CI 0.33-0.88) and 42.45% reduced adjusted odds for serious head injury (AIS $\geq$ 3) (OR 0.57 CI 0.45-0.72). Non statistically significant reduction in adjusted odds of cervical spine injury (19% reduction) (OR 0.81, CI 0.46-1.12) and adjusted odds of facial injury (17% reduction) (OR 0.83 CI 0.65-1.05) was seen (this study was underpowered to detect less than 21.7% reduction in cervical spine injury and less than 30% reduction in facial injury with α set as 0.05 and β as 0.1). Female riders were overwhelmingly pillion (88.61%). Paired Wilcoxon ranked sum analyses revealed the (overwhelmingly unhelmet) pillion female to have significantly higher odds of death (1.86 CI 1.04-3.32) and mean ISS score (p value 0.003) than the male paired cohort driver.
Conclusion: Road traffic injuries are frequently serious poly-trauma and mandatory helmet laws can help reduce mortality and burden of serious head injury and needs strict implementation for all excluding gender bias.

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ID 303: Intent to Leave and Turnover Among Paramedics in Israel

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Background: The Paramedic is a relatively new health care profession in the field of medicine. The profession was introduced in Israel in 1979 by the national EMS system. In Israel, almost no research has been conducted on job satisfaction, intent to leave, and turnover rates among paramedics.
Methods: An online survey for qualified paramedics. The survey collected demographic information, as well as measures of job satisfaction and intent to leave the profession.
Results: A total of 528 paramedics participated in the study (35% of the total population). About half were still working as active paramedics, 46% of them indicated that they might leave the profession in the near future. Although paramedics indicated a high level of job satisfaction, they indicated that they are underpaid, and don't have enough promotion possibilities. Additionally, 74% felt that a lack of legislation negatively affects their professional status, and 93% emphasized that they are in a need of a professional association. Only 60% would choose again to become paramedics. In three years 50% left the profession.
Conclusion: The Israeli paramedic has the highest documented turnover rates in the world. These rates are significantly higher than those of physicians, nurses or physiotherapists. The high turnover is derived partly from the inherit qualities of the paramedic profession and partly from reasons unique to Israel. The high turnover rates have significant implications on the EMS system, the paramedic profession and the health system as a whole.

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ID 304: Epidemiology of Bowel Injuries After Blunt Trauma - 5 Yr Experience from a Tertiary Care Center of India

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Introduction: Injuries to small bowel are common after blunt trauma. Studies have difference in opinion regarding anatomical

site of injury especially in relation to western literature Our aim was to study the mechanism, anatomical distribution, management and outcome of intestinal injuries from blunt abdominal trauma arriving at the trauma center.
Material and Methods: A retrospective study was conducted on 247 patients who underwent laparotomy for intestinal injuries from blunt abdominal trauma over a period of 5 years. The patients were analyzed with respect to the mechanism, anatomical distribution, associated injuries, management and outcome.
Results: 247 patients admitted to JPNATC AIIMS with suspected bowel injury sustained after blunt abdominal trauma were an analysed. Male to female ratio was 7.8: 1 and the average age was 27.14 with age ranging from 3 years to 80 yrs. RTI accounted for 79% of the patients, followed by Assault (11%), FFH (6%) and others (4%). There were 312 injuries among these 247 patients. There were 9 perforations at Dudenojejunal and 4 near ileocaecal junction. 5 gastric perforations and 13 duodenal perforations mostly associated with pancreatic injuries were noted. Colonic injuries were 28 in number. Mesenteric injuries seen in 92 cases. 43% had at least one other associated injuries including other intrabdominal, thoracic, neurologic, skeletal or maxillofacial injury. The commonest injury was a perforation at the antimesentric border of the small bowel. Treatment consisted of simple closure of the perforation, resection and anastomosis and diversion. Out of 31 deaths 7 had isolated bowel injury and rest had multiple associated injury.
Conclusion: Compression injuries are more common (62%) rather than deceleration injuries in developing countries like India leading to non specific pattern of bowel injuries mostly distributed in the anti-mesenteric border of jejunum and ileum. They are associated with good outcome unless have other associated life threatening injuries or had late presentation.
Prehosp Disaster Med 2013;28(Suppl. 1):s99–s100
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ID 305: Disaster Medicine Include Not Only Search and Eescue Phase But Also Recovery and Reconstruction Phase at the Case of East Japan Earthquake and Tsunami 2011

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The East Japan Earthquake, 2011 destroyed the medical system of the affected area in East Japan. All Disaster Emergency Teams including DMAT, Red Cross, Japan Medical Association, etc were dispatched to the site of disaster. They performed the disaster medicine during search and rescue phase and acute phase. And then most teams returned their own hospital after the acute phase. The government inputted a big fund to the recovery of affected area. At first we delivered small doctor cars to affected clinics and hospitals, because of these medical facilities also were loss their doctor cars. Secondly, we made up the medical system of small area with IT. Because affected victims were forced to live in the mountain widely. And a few medical doctors must cover a widely affected area. Disaster Medicine includes not only a search and rescue phase but also recovery and reconstruction phase.
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ID 306: Improving Emergency Staffs' Capability in Surge Scenario

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Background: The study hospital is an acute care general hospital serving an urban population. This improvement programme took place in her Emergency Department (ED). The programme was designed to help the department in her preparedness for a large scale surge scenario like a pandemic, a natural disaster or a terrorist event. The impetus to improve started after a simulated exercise conducted by the Ministry of Health (MOH), Singapore. This exercise served as an audit to test the ED's capability. It allowed the ED leadership to become aware of the gaps of the department in such a situation and a programme to improve in these deficiencies was initiated.
Methods: This study utilised qualitative methodology. The ED leadership analysed the reported deficiencies and did focus group feedback sessions. Assessments of certain protocol components were also conducted with interviews and surveys.

- The focus group feedback sessions identified 2 main problems:
- Knowledge Gap: Staff not knowing the surge scenario protocol well

Communications problem: Miscommunication between healthcare workers and patients, and between healthcare workers themselves
Intervention and results: In order to have a successful programme, there must be adequate buy in by the staff. The focus groups served as an avenue for the problems to be evaluated. Having ownership, solutions were raised and agreed upon. The improvement programme began with component training. The flow of patients through the ED in a surge scenario was broken down into different phases. Leaders were identified in each and retraining in the protocol based on the problematic areas was done.
Another audit, conducted by MOH, showed significant improvement. Most staffs reported greater confidence following the improvement programme.
Conclusions: For surge scenario, an audit by an external agency can reveal gaps that the leadership does not see. An effective improvement programme can be developed from the ground up.
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ID 307: Media Analysis on Risk Communication in Disasters in Indonesia

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Background: As shown by regular media conferences conducted in the event of disasters and public health emergencies, authorities consider media management as an element of disasters and public health emergencies responses. In the risk communication conducted by health sector, the media conference is an

instrument to reach two objectives: 1) to provide situations information aimed to manage public reactions, 2) to promote risk awareness, pursuing people to take actions to prevent/mitigate health risks. This study is observes whether media messages are in line with those objectives.
Methods: This study analysis the contents of news within 90 days since the on-set of 4 major disasters in Indonesia: Tsunami in Aceh in 2004, earthquake in Yogyakarta in 2006, earthquakes in Padang in 2009, and volcano eruption in Yogyakarta in 2010. The analysis investigates the availability of sentences which communicate descriptive information of expected behaviours such as, the situation is alarming, people are to remain calm, to go to health centres, etc, in written news archives available on-line of 1 national news agency, 3 national television stations, 3 national newspapers, 6 local newspapers, and 2 on-line media.
Result: (the study is still being conducted – therefore the result is still partial and inconclusive) From analysis of national news agency and national newspapers, only less than 10% news has sentences that are in line with the second objective of risk communications.
Conclusion: (the study has not been finalised) The conclusion of this study is planned to depict media tendencies in broadcasting messages related to disasters, therefore potentially could provide recommendations on development of messages for media preparedness workshops and media conferences. Additionally, this study plans to provide scientific basis for authorities to plan health risk communication plans.
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ID 308: Cost of Emergency Care in an Apex Trauma Centre in New Delhi, India

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Background: Emergency services are provided free in government hospitals. The purpose of this study was to estimate the total average cost, fixed and variable costs incurred on emergency services per bed per day to be able to understand its implication on planning of trauma services.
Methods: We undertook an observational study for a week to gain an insight into the working of trauma centre. Consumption pattern of medical, surgical, crystalloid, linen, stationery, and general stores supplies was studied for six months. Total cost incurred in running of the ED was worked out by integrating all the costs incurred in delivery of emergency services like salaries of the providers of medical care, cost of consumables, cost of fixed assets and their depreciation, equipment cost, their depreciation and maintenance, cost of laundry, blood bank, CSSD services and various overheads.
Results: The total average costs were INR 13859 (about 252 US $) per bed per day. Of this fixed costs were INR 10253 (about 186 US $) and the variable costs were INR 3606 (about 66 US $) per bed per day respectively. Of the total average costs, manpower costs were 155 US $ (=62%), consumables costs were 48 US $ (=19%) and the equipment costs were 15 US $ (=6%) respectively.
Conclusion: Due to the high portion of fixed costs, efficient utilization of services is critical. This consideration is of paramount significance while planning such centres, so that cost of providing trauma services is optimised.
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ID 309: Stay or Leave? - Evacuation of Geriatric Patients with Chronic Diseases

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Background: When the East Japan earthquake occurred, many disaster-affected hospitals had to transfer their in-hospital patients to other hospitals. Hospitals within 30 km of the Fukushima Dai-ichi nuclear power plant also had to evacuate hospitalized patients because of the evacuation order. However, in some cases, evacuation was started without adequate knowledge of the destination hospital, and patients had to spend a night in a bus or an evacuation center. Little is known that many patients with chronic diseases died during and after transportation. The aim of this study is to reveal patient outcome at the end of 2011.
Methods: The Aizu Chuo Hospital is located in the same prefecture as the nuclear power plant, at a distance of 100 km from the plant. Ninety seven geriatric patients with chronic diseases were transported and admitted in this hospital from the hospitals within 30 km of the plant. Data regarding their medical conditions, age, sex, level of consciousness, activities of daily living, and nutrition pathway were obtained from their medical records.
Results: The average age was 84.2 ± 8.4 years, including 28 males and 69 females. Sixty-seven patients did not obey verbal commands, 44 had prolonged immobility, 37 were fed through a tube, and 23 received nutrition through a central vein. No patients died during transportation, but 13 patients died within a month and 38 patients were dead by the end of 2011.
Conclusion: This survey revealed the outcome of geriatric patient with chronic diseases. Disaster-affected hospitals need to transport hospitalized patients within a short period of time. During evacuation, it is important to secure beds for patients and the lack of doing so will result in major complications.
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ID 310: Systematic Review of Pre-Hospital Outcomes for Evidence-Based Evaluation of Ambulance Service Care

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Background: Ambulance service performance measurement has previously focused on response times and survival (particularly from out-of-hospital cardiac arrest). The PhOEBE (Pre-hospital Outcomes for Evidence Based Evaluation) project is a 5-year research programme which aims to develop new ways of measuring the performance, quality and impact of ambulance service care. As part of this programme we conducted a systematic review of the international literature on quality measures and outcomes relating to pre-hospital ambulance service care, aiming to identify a broad range of outcome measures to provide a more meaningful assessment of ambulance service care.
Methods: We searched a number of electronic databases including CINAHL, the Cochrane Library, EMBASE, Medline, and Web of Science. For inclusion, studies had to report either research or evaluation conducted in a pre-hospital setting and published in the English language from 1982 to 2011, reporting either outcome measures or specific outcome instruments.
Results: Overall, 181 full-text articles were included: 83 (46%) studies from North America, 50 (28%) from Europe and 21 (12%) from the United Kingdom. Initially, 176 articles were included after examining 257 full-text articles from 5,088 abstracts screened. A further five papers were subsequently identified from references of the articles examined and studies known to the authors. There were 140 articles (77%) which contained at least one survival-related measure, while 47 (26%) included information about length of stay and 87 (48%) identified at least one place of discharge as an outcome.
Conclusion: In addition to measures relating to survival, length of stay and place of discharge, we identified over 100 additional outcome measures. Few studies included patient reported outcomes or cost outcomes. By identifying a range of outcome measures, this review will inform the use of a greater range of outcome measures and development of new outcome measures in pre-hospital research and quality improvement.

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ID 312: Survey of Knowledge, Attitude and Risk Perceptions (KAP) of Healthcare Personnel During a Potential Avian Influenza Pandemic

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Background: Behaviour of healthcare personnel is largely determined by their perception of risk and adequacy of training during epidemics. This prompted us to study the KAP of healthcare workers in our hospital catering to a population of 10000 people in the city of Mumbai, during the H1N1 influenza pandemic in 2009. This would determine the training and preparedness strategies in future epidemics, as this is sparsely studied in Indian context.
Methods: We administered a questionnaire based survey, after approval by Institutional ethics committee. A representative sample of 10% from each educational, socioeconomic and work strata ranging from ward assistants, nurses, general practitioners, post graduate trainee doctors and consultants was randomly selected. The level of adequacy of knowledge was calculated according to a predetermined answer sheet, separate for each educational stratum. The K.A.P scores were then compared amongst these different groups.
Results: Adequate knowledge was lacking in the health care workers (28%) and apathy towards the epidemic was seen in about one third (30%) of the responders. Consultants and nurses were found to have relatively high knowledge scores with the other groups exhibiting low knowledge. General practitioners and post graduate trainee doctors had highest risk perception (73% and 75% respectively). Subsequently, they also had highest rates of perceived inadequacy of training (64 and 42% respectively).
Conclusions: As an important part of the Pandemic preparation, targeted education and training programs for the frontline healthcare workers, may address their concerns about personal occupational risk and inadequacy of knowledge.

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ID 313: Fonctionnement du Mécanisme Européen de Protection Civile Entre 2007 et 2011

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L'Union Européenne (UE)a créé un mécanisme d'assistance en cas de catastrophe dans un des pays membres ou en cas de demande d'un pays extérieur. Ce mécanisme a été activé par le « monitoring information center »(MIC) 148 fois entre le 1/01/2007 et le 31/12/2011 avec une moyenne de 30 interventions par an. Deux tiers des actions d'assistance ont été faites au profit de pays non membre. Les feux de forêts ont concernés 42 mises en œuvre du mécanisme et les inondations représentent 44, soit au total 59% des interventions. Les séismes représentent la troisième cause de mise en œuvre du mécanisme avec 17 cas soit 11%. Dans l'UE les principales interventions ont concernés les feux de forêts pour les pays du pourtour méditerranéen avec essentiellement un support européen en moyens aériens. Une intervention sur cinq a été réalisée en coopération avec d'autres agences de l'UE comme ECHO ou SANCO ou de l'ONU telles qu'UNDAC, OCHA et l'OMS. Si les catastrophes naturelles représentent encore l'essentiel des causes de mise en œuvre du mécanisme européen de secours, il faut noter cependant que certaines causes deviennent émergentes comme les demandes d'assistance lors de maladies infectieuses comme la grippe H1N1

et le Choléra. L'évacuation de population européenne des zones de guerre ou de blessés européens lors d'attentats terroristes a permis de montrer la capacité de l'UE d'agir de façon solidaire. Il faut noter deux mises en œuvre tout à fait exceptionnelles du mécanisme en prévision des risques liés à l'entrée dans l'atmosphère de deux satellites en septembre et octobre 2011. Ce bilan de 5 années du mécanisme européen de secours confirme l'importance qu'a prise l'UE dans l'aide en matière lors des catastrophes. L'axe de coordination des secours retenu avec des experts et des coordinateurs formés de façon identique a désormais fait ses preuves.

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ID 314: Evidence Aid: Needs Assessment on the Use of Systematic Reviews in Disaster Settings – What Do Aid Workers and Policy Makers Want?

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Background: Systematic reviews are key to well-informed decision-making in health care and this recognition is growing in other areas (such as within WADEM's audience) where choices have to be made between different interventions or actions. Established in 2004, Evidence Aid has been working to improve timely access to knowledge relevant to natural disasters and other humanitarian emergencies. It is a global, independent initiative seeking to improve usage of systematic reviews to assess effectiveness of interventions in disaster risk reduction, planning, response and recovery.
Objective: To identify the attitudes of those involved in humanitarian response towards systematic reviews, priorities for evidence, and preferences for access to this information.
Methods: An online needs assessment survey is ongoing (www.evidenceaid.org) and will expand to include in-depth interviews with key informants and qualitative analysis.
Results: For the first 85 respondents quantitative analyses shows 83% think that systematic reviews are useful in disasters, and almost all 'agreed' (25%) or 'strongly agreed' (71%) that humanitarian interventions should be based on reliable knowledge of which interventions work, which don't work and which are potentially harmful. Inadequate access was the most commonly reported barrier to usage of systematic reviews (70%). Respondents favour access to full systematic reviews supplemented by comments from relevant experts (61%) to contextualise the review for the disaster setting. Online access is preferable (83%). Of the 25 respondents who have worked for donor agencies, 83% said that systematic reviews could be used to assess the likely effects of interventions before providing funding.
Conclusions: There is a strong need and desire for systematic reviews amongst the humanitarian community to improve their interventions and actions, and to assess impact. They wish these reviews to be accompanied by contextual comments about the findings.

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ID 315: Prioritisation for Evidence Aid: Choosing Systematic Reviews for the Evidence Aid Database

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Background: Evidence Aid draws on knowledge from Cochrane Reviews and other systematic reviews that have assessed interventions or actions which might have an impact on health in disaster settings.
Methods: In August 2012, The Cochrane Library contained 5168 full Cochrane Reviews and 2236 published Protocols. Each of these 7404 records was assessed to ascertain whether it might be relevant to Evidence Aid. For protocols and reviews published up January 2012, this assessment was done by three people working separately to categorise potentially eligible records as 'High priority', 'Unsure' or 'Not Relevant'. Three Cochrane Review Groups were sent their selected records and provided feedback leading to the addition of a category of 'Low priority'. Lists of records were then sent to all other Cochrane Review Groups for prioritisation. A more streamlined approach was adopted for the protocols and reviews published since the start of 2012, and the registered titles for a small number of Cochrane Reviews were also considered.
Results: All assessors categorised 135 records as 'high priority'; prioritisation for 522 records was inconsistent. The 91 records contained in the Special Collections were automatically marked as high priority and were not assessed as part of this process. This gives a total of 226 high priority records for the prototype for the Evidence Aid database.
Conclusions: Prioritisation is important to Evidence Aid to ensure that the database only contains information which is relevant. Evidence Aid will partner with aid agencies, NGOs and others to incorporate their views and priorities into this process. A workshop in 2013 will help to identify the highest priorities, using the approach developed and refined by the James Lind Alliance.

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ID 316: Pre Hospital Relief Organization in the Stampede of January 1, 2013 in Abidjan, Côte d'Ivoire

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Introduction: During the night of Christmas Eve on December 31st 2012, illuminations and fireworks are held in the city of Abidjan. A stampede occurred in the city center, causing many deaths and injuries. We describe the organization of pre-hospital emergency, note the shortcomings to improve the organization of future events.

Methods: Descriptive study of the intervention of the emergency services. We describe the alert, the resources committed, implementation of a rescue plan, number of victims, epidemiological characteristics, evacuation.
Results: The call reached the dispatcher center at 1:55 am from a doctor of our unit who received a call from a friend on the scene.
Nine minutes later, reinforcements requested by the team forward.
The crowd was estimated at about 100 000 people.
Three ambulances were joined by a supervisor to the scene.
At the organizational level, it was not possible to establish a security perimeter as well as an advance medical post, because of the density of the crowd.
There was no light in the area where the disaster occurred.
We counted 61 people dead. We transported 19 wounded.
There were 10 traumas with loss of consciousness, and 9 minor traumas.
The management consisted of a perfusion and oxygen for victims with respiratory distress.
Discussion: Support of victims of a stampede is not easy, according the context of psychological trauma and panic. Contingency plans in case of disaster exist but have not been triggered.
The majority of those who died were children aged 8-17 years.
There was no anticipation of risks related to a large gathering of people. The emergency services were not pre-positioned.
Conclusion: The inability to prevent disasters or to predict accurately requires one hand to think of ways and means for recognizing situations and also provide training to stakeholders for effective interventions and relevant decisions.

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ID 317: Planning and Experimental Study of an Innovative Conditioned Air Distribution System for Civil Protection Sanitary Modules

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Background: The major companies involved in tent production for sanitary modules of Civil Protection have focused mainly in the search for strategies to increase the speed of tent installation, rather than improving the indoor comfort. Granting an appropriate level of comfort inside tents, where patients may have severe critical diseases and the medical team could be active for many hours, is a complex, but important target.
Methods: A Marche-UPM team has developed and tested, on a Civil Protection tent, an innovative conditioned air distribution system, based on air diffusion induction and made off materials compatible with the tent's enclosure, in order to increase the thermal indoor comfort. Analysis was carried out by fixing on the inner surface of the tent the innovative system of diffusion in tissue. The monitoring of the thermal fluid parameters was performed, in the UPM's campus from January to July 2011, before with a traditional air conditioning system and then with the innovative system.
Results: The values of indoor temperature monitored without air-conditioning system confirm the low inertia of the tents enclosure's conformation. With the traditional air conditioning system are established high air velocity close to diffuser (0.4 m/s -0.7 m/s) with air streams, and there is an high vertical temperature gradient of about 10°C. With the innovative air conditioning distribution system there is a lower vertical temperature gradient of 3°C, the air inside the tent is uniformly distributed, with an average velocity of 0.03 m/s.
Conclusions: The air conditioning systems currently used do not ensure comfort conditions for medical treatments because of inadequate indoor temperature gradients, high air stratification and convective flows. The innovative conditioned air distribution system improved the indoor comfort of the tent: it provided excellent temperature distribution by reducing temperature gradients, the air is uniformly distributed and the velocity is reduced.

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ID 318: Evidence Aid: A Resource for Those Preparing for and Responding to Natural Disasters, Humanitarian Crises and Major Healthcare Emergencies

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Background: Evidence Aid was established following the Indian Ocean tsunami (December 2004), to improve access to systematic reviews of the effects of healthcare interventions of particular relevance in the aftermath of natural disasters (www.evidenceaid.org). Between 2010-12, important progress was made through a needs assessment survey.
Methods: The 1st Evidence Aid Conference was held in 2011 in Oxford, and the 2nd conference was hosted by the Belgian Red Cross in 2012; each included more than 70 participants from a wide range of backgrounds and organizations (including - Belgian Red Cross, US Center for Disease Control and Prevention, The Cochrane Collaboration, Department for International Development (UK), Health Protection Agency (UK), International Committee for Red Cross, Médecins Sans Frontières, OXFAM, Research4Life, Save the Children, UNHCR and the World Health Organization).
Evidence Aid has an ongoing needs assessment survey (www.evidenceaid.org) and has surveyed more than 100 people from aid agencies to policy makers to donors.
Results: Preliminary analysis of the needs assessment survey showed that 82% of respondents thought that systematic reviews are useful; 51% had used them as a basis for decision-making; 81% thought that improved access to systematic reviews could play a role in improving the response to natural disasters and other humanitarian emergencies and the majority said that they would use online systematic review training if it were available. These results indicate that there is a lack of

accessibility to relevant systematic reviews in the field of disaster and humanitarian emergency management. Evidence Aid will address this imbalance by providing a free at the point of use database of relevant tagged information.
Conclusions: Evidence Aid has outlined short, medium and long-term goals, including a mission statement, identification of potential partnerships and target audience, content (with an initial focus on interventions or actions with health-related outcomes), governance, communication, funding and training.

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ID 319: IED-related Experience of the Medical Support Team of the Polish Military Contingent (PMC) in Afghanistan

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Background: While the Polish field hospital of the Polish Military Contingent (PMC) in Ghazni has been in operation, in the period from 8 June 2010 and 31 December 2012, there were 96 incidents, which involved IEDs. A total of 289 individuals (Polish soldiers, members of the Afghan National Security Forces and civilians) were injured in those incidents, while 32 died on location (KIA).
Methods: Analysis of IED incidents which involved the Medical Support Team, including the analysis of the mechanisms and consequences of IED incidents as well as the methods applied by the Medical Support Team of the Polish Medical Contingency in Afghanistan. Furthermore, FST practice, pre-hospital care, such as the procedures applied on location of the incident, evacuation methods and the future fate of the injured were reviewed.
Results: Out of the 289 injured 32 suffered terminal injuries (KIA), 257 were evacuated (72% by MEDEVAC and 28% by CASEVAC). Seventy-two patients suffered serious injuries. Forty-seven patients were operated on at the FST on emergency basis. Additional 11 patients died in consequence of the injuries they suffered. MEDEVAC transported a total of 212 injured to the level III trauma centre.
Conclusions:

1. Quick rescue response immediately following an incident (specifically to ensure haemostasis) has greatly reduced the number of preventable deaths.
2. 18.3% of patients required urgent life-saving surgery at the FST level.
3. Mortality among the persons who reached FST (DOW) amounted to 4.3%.
4. The responsibility of the FST is limited to stabilising life functions and damage control; urgent evacuation to level III trauma centre (according to triage-based priority) is an element of the treatment system.

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ID 322: From Marmara to Haiti: An Analysis of Orthopedic Injuries and Treatment in Children During Earthquakes

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Background: Children are one of the most vulnerable populations in disasters. It is established that rates of death and injuries in earthquakes are different in different age subgroups. Children are less affected by earthquake-related injuries, but damages are more severe, causing higher mortality.
Methods: A literature review of the Pubmed database until 2012 using the keywords "earthquake orthopedic" was carried out selecting data concerning children injuries. The screening, performed by two reviewers, aimed at evaluating orthopedic earthquake-related injuries in children: clinical features (fractures and/or soft tissue damages) and location of trauma injuries, treatment performed (conservative or surgical and type of surgical procedures), duration of the hospitalization. Another objective was the identification of starting points to define the standard of care for this population during earthquakes.
Results: 91 papers were identified and screened and 10 were included in this analysis. A first interesting result was the incidence of the lower vs upper extremities fractures (68.03% vs 21.77%). The amputation rate varied from 3.66% to 10.94% of trauma-treated children and from 4.48% to 14.00% of surgical patients. External fixation was the most frequent surgical procedure. Several limitations emerged from the analysis: definition of the pediatric age (for some authors extended from birth to 16 years of age, for others up to 18), time of the healthcare activities described (early vs late period) and lack of data about antibiotic therapy and post-surgical rehabilitation.
Conclusion: Papers show few and often-dissimilar data but reveal some interesting findings. Field hospitals and teams should be prepared and get resources to treat mainly lower extremities fractures in children. A consistent amount of external fixators are required. Considering the high rate of orthopedic patients among the earthquake-injured children, the presence of a pediatric orthopedic surgeon is recommended. Further studies should evaluate precisely which cases require a conservative approach.

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ID 323: Craniomaxillofacial (CMF) Injuries in US and UK Soldiers During Afghanistan and Iraq Conflicts: A Medical Review

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Background: The military surgery is conducted in a difficult and dangerous environment. Since 2001 during the Afghanistan (Operation Enduring Freedom) and Iraq war a huge number of casualties were caused due to daily terrorist attacks, mainly caused by blasts. The objective of this study was to evaluate the type of injuries, the early and late treatment and possible complications of the CMF injuries of US and UK soldiers during these wars.
Methods: We performed a literature search using the PubMed online database from 2001 to November 2012, respective of these two wars. We selected only articles concerning the Iraq and Afghanistan conflicts and about casualties treated in US and UK hospitals, to avoid bias about the treatment. The search criteria selected were the following:

- maxillofacial AND war AND surgery (128 results)
- mandibular AND war AND surgery (59 results)

Results: Screening was performed by 4 reviewers who were double blinded. After the screening, only 5 articles were assessed to be eligible. There were several limitations to this retrospective review: 1) because of considerable lack of data and 2) it was possible to do only a limited and qualitative analysis. The cohort of patients was 2214 with 4997 CMF injuries (1.80 injuries/patient). The studies underline that the blast was the first case of this type of accident (83.41%). The most frequent damage was related to the mandible (600 pts, 27.1%) and the most frequent complications were infections. Only one article reported the mortality (63.33%).
Conclusion: At the moment the database is limited. It is not possible to determine which kind of treatment and type of surgery could deliver the best outcomes and reduce complications. Taking into consideration that CMF injuries have had a marked increase in the last century, it is necessary to conduct further and ongoing researches about this topic.

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ID 324: Primary Repair or Fecal Diversion for Colorectal Injuries After Blast: A Medical Review

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Background: Blast is a frequent cause of injury in conflicts, resulting in colorectal wounds. In these cases primary repair (PR) can be safely performed. The research aim is to indicate which patients could be treated with PR or with fecal diversion.
Methods: A literature search was carried out using "PubMed" online database from 1993 to November 2012. Search criteria and results founded:

- (Blast OR War) AND (intestinal OR abdominal) AND perforation (45 articles)
- Blast AND intestinal AND perforation AND surgery (17 articles)

The criteria to select papers used the following keywords: "blast and abdominal surgery in conflict". The screening was performed by two independent reviewers.
Results: Five papers met the search criteria, after screening abstracts and full texts. Articles take into account wars in Bosnia, Afghanistan and Iraq. The patients' cohort was composed by 319 people. Casualties' average age was 27 years old, mainly males (93.3%) and soldiers (90.6%). Injuries were localized in colon (descending 38.9%, ascending 29.4%, transverse 25.9%) and rectum (5.8%). PR was performed on 161 (50.5%) patients, whereas fecal diversion on 158 (49.5%). The average hospitalization was 22.2 days (this information was reported in just three articles). Only three papers treat the morbidity and mortality variation in PR or ostomy group, resulting in overall complications (28.6%) and mortality (8.1%) rate. However, each one of the three authors outlined the PR did not present a complication and mortality statistical difference compared to fecal diversion.
Conclusion: Several limitations were encountered in this medical review due to lack of data, leading to a qualitative analysis only. As the authors sustain, the review points out that PR did not present a complication and mortality probability increase for patients who do not show associated injuries (diaphragm, stomach, pancreas, spleen, kidney) and haemodynamic instability; but should be avoided in these cases.

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ID 325: Low Code and EMS: A New Challenge

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Background: The EMS has an important role to provide care in the pre-hospital setting. The Italian EMS, called 118 and established in every county, called Regione, provides base and advanced care with a three-tier system: ambulance with EMTs, nurses and physicians. It allows the chance to provide advanced care with an emergency physician at a patient's home and the currently Government cuts to the National Healthcare System (NHS) underlines the importance of studying the activity of the EMS system. Therefore, the priority of analyzing the activity of the "118 Piemonte" is to evaluate the changes that could be proposed to achieve a better service for the population.
Methods: Collection and analysis of data collected from the 118 Piemonte from 2005 to 2011.
Results: In 2005 the population in Piemonte was (4341733) and in 2011 (4363916) inhabitants (+0.51%). In that period the calls to the "118 Piemonte" changed from (418577 in 2005) to (515150 in 2011) with an increase of (+23.08%). The ambulance was dispatched (348534) times in 2005 and (373756) in 2011 (+7.24%). The patient was transported to the hospital in (268346) times (2005) and in (292570) times (2011): (+9.03%). An interesting comparison was that the cases of major code (yellow and red) were similar, but in the same period there was an impressive rise of the low code

(white and green), in particular white code (cases that should have been treated by the primary care physician): +199.81% (in the last year, 2010-2011, +13.43%).
Conclusions: Consider changes in the "118 Piemonte" that could improve the management of the low code patients by utilizing the emergency physician at home. Regulating the links with the primary care physicians are essential to improve the answer of the NHS to the patient needs and to bring forward a more efficient and effective 118 system.

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ID 326: Railway Accidents in Poland – Analysis of Events and Conclusions

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Background: Between 2010 and 2012, there were four large railway incidents in Poland resulting in 18 deaths and 203 injuries that required hospitalization. The incidents occurred in completely different weather (winter vs. summer) and topographic (developed land vs. marshy woodland with limited access) conditions.
Methods: The various stages of the rescue efforts were analysed: notifying the emergency services about the incident and its location; the first stage of rescue operations and evacuation of the injured; the technical and rescue measures taken to free the injured trapped in the railway cars; triage; and subsequent allocation of the injured to hospitals.
Results: The gap analysis of the rescue efforts during the mass casualty incidents being the consequence of four recent railway accidents in Poland, in terms of the rescue, evacuation and medical procedures, as well as the problems encountered during the entire operation, allowed reaching material conclusions regarding the preparedness of the rescue services to deal with similar incidents.
Conclusions:

1. At the stage of notifying the incident, it may be difficult to provide its exact location.
2. Rescue vehicles and ambulances may have no or limited access to the site of railway accidents occurring in poorly accessible terrain or adverse weather.
3. Spontaneous flight from railway cars and embankments is an additional danger and various secondary injuries may be suffered.
4. In a railway accident, rescue operations cover a large area necessitating dividing it into several triage sections and extensive logistic support.
5. The rescue equipment used by fire fighters in road and technical rescue operations mayprove inadequate in railway accidents.
6. One should consider the possibility of applying combat medicine procedures in controlling haemorrhage and preventing hypothermia in mass casualty incidents which could decrease the number of preventable deaths.

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ID 327: How to Prepare an Emergency Department for a Mass Casualty Event? Could War Experience be Helpful?

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Background: Most of the 207 Emergency Departments (EDs) in Poland are small. In 2011 the median patient load was 16000 patients per annum (only 6 departments dealt with over 50000 patients) which necessitated, on average, 2 physicians and 3 nurses on duty. Consequently, the Polish system is ill-suited to respond to mass casualty events.
Methods: Analysis of the EDs in Poland in terms of patient load, personnel, triage procedures, the ability to adapt to deal with mass casualty events, and how that ability could be improved using the experience of the Forward Surgical Teams (FST) at military hospitals.
Results: Analyses conducted by the Polish National Centre for Quality in Healthcare (CMJ) have shown that as many as 23% hospitals had no triage procedures and that there were significant differences as to who was responsible for triage (physicians, nurses, paramedics). Other inconsistencies in procedures used to deal with mass casualty events were also found. Only few hospitals had drills simulating mass casualty events.
Since over 80% of the recent mass casualty events in Poland occurred outside larger cities, the small EDs were the first in line to deal with the injured.
Based on experience of the Polish military hospitals an FST may be quickly adapted to simultaneously treat even 10 injured.
Conclusions:

1. Standard procedures applied in the army could be easily adapted to the conditions of civilian EDs to deal with a mass casualty event.
2. The scheduling of daily backup personnel as well as defining the exact scope ofresponsibility in mass casualty events allows avoiding the initial chaos.
3. Standardised positions at an ED greatly facilitate the work of the backup personnel requested to report on duty.
4. Initial triage made by a physician at entry to the ED is key in case of significant patient load.

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ID 329: Training Academic Paramedics and Preparing for Trans-Border Collaboration in Regional Disaster Response

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Background: Effective emergency and disaster response rely heavily on the proficiency of paramedics who constitute the

backbone of many pre-hospital medical systems. Additionally, (and especially in large scale events) such a response may be greatly enhanced by the ability to coordinate the response across borders (between counties, states or neighboring countries).
The Jordan Red Crescent together with Ben-Gurion University (BGU) and Israel's national EMS (MDA) cooperated in an academic training program for Jordanian paramedics and a collaborative taskforce targeted at enhancing collaborative disaster response.
Objective: To analyze an academic emergency medicine initiative and draw insights into the pre-requisites for the successful initiation and completion of such projects, as well as into the challenges to be overcome.
Methods: Analysis of all project related documents and personal interviews with relevant partners, written by program initiators and managers.
Results: In 2009, 15 JRC students were enrolled into a three year emergency medicine program at BGU. The Students performed most of the study curriculum at the main campus in Beer-Sheva Israel, undergoing hospital clinical rotation at Jordanian hospitals and their EMS rotations on MDA (Israel's national EMS) units throughout Israel. 14 students successfully graduated and returned to Jordan. In parallel, a committee was established made up of Jordanian representatives recruited by the JRC as well as representatives from MDA, BGU and the Israeli Ministry of Health tasked with building a multilateral collaborative response plan for disasters, The committee's work was highlighted by a large joint exercise held near the joint border.
Conclusions: Collaborative training of medical emergency personnel and the building and exercising of collaborative disaster response plan, can potentially enhance response capacities. Such projects can even be pursued across country borders, even when there is tension between the bordering countries. This collaboration was also motivated by its potential peace building contribution.
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ID 331: LSSDs Force Imperative Revision in the Medical Discipline

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Background: Following large-scale sudden disasters (LSSDs), the traditional medical providers are competent to meet a small fraction of the impending needs during the response and rehabilitation phases. The medical health systems, both national and international, strive to exploit a great deal from the concept of 'more of the same', thus far with ineffective results. The 'more of the same' concept cannot tackle the need in medical capacity following on-set of LSSD, in addition to the already existing routine needs.
Revision of Medical Discipline: LSSDs dictate a revolutionary bold revision in the current Medical Discipline; an appropriate doctrinal approach, mechanisms, legislation, tools and rulership measures. Such disasters demand a new vision, presented in particular by an alternative corresponding language as well as different terminology. This presentation offers the establishment of a new professional discipline, one which is tangential yet distinct from routine traditional medicine.
Proposed Approach: The proposed discipline inspires a new-fangled approach towards 25 areas, among them; Disaster medicine, Pre-hospital care, Triage, Post-hospital care, Veterinary medicine and Pharmacology.
LSSDs require the development of a comprehensive integral and intertwined package. The very basic 'macromolecule' designed for an individual victim due to LSSD to include the following composition: emotional first aid, medical first aid, potable water, edible food, temporary shelter, legal issues, and medicines for persons with disabilities. These 10^6 packages are required within a matter of hours from on-set.
The medical milieu should extend its proficiency, ethics, personnel, materiel, premises and legitimacy to the establishment of a new discipline.
Conclusion: This approach requires courageous and open-minded leadership. WADEM, in its capacity as a professional world association for Disaster Medicine should take a leading position and role. The 'more of the same' concept should be replaced by a new professional discipline.
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ID 332: The Role of Information Technology in Epidemiological Investigating an Outbreak – A Bioterrorism Exercise Model

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In November 2010 an exercise named "Orange Flame 6" was held in the Northern District of Israel as part of an annual preparedness project for an unusual biological event. The scenario included the dispersal of anthrax and botulism in different places and at different times. The District Health Office's aim was to identify the cause and mechanisms of morbidity and to determine scheduling, locations and mechanisms of dispersal.
Preparations included training, discussions and coordination with all stakeholders - medical, municipalities, army and security agencies. For data collection, processing and sharing of information an integrated epidemiological system was created using *SharePoint 2010*, an epidemiological questionnaire in *InfoPath 2010*, and *Reporting Services* morbidity reports. On the day of the exercise, the district health office has received reports of unusual morbidity from local clinics and hospitals and investigation teams were sent to hospitals. Data was directed from different sources into a central database. *Integration Services, GIS* and *SPSS* analysis were used.
Three hundred and forty-three "infected" patients presented at nine community clinics and four acute care hospitals: 80% had

symptoms and signs of respiratory anthrax, and 20% had symptoms and signs of botulism. In the prior 21-day period, 144 of those hospitalized had visited 1080 places, mainly in the towns of Afula, Nazareth and Tiberias. Most reported exposure occurring from 22nd to 29th November 2010. Within an hour after entering the data, the anthrax distribution point was identified as the "Valley" mall in Afula. The botulism was pinpointed to contaminated salads sold in a Nazareth hotel and Golan Heights kiosk.

The epidemiological system combined computing technologies to quickly and efficiently determine the outbreak temporal and spatial dimensions. It can be applied in similar events and requires cooperation between the District Health Office and all parties involved.

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ID 333: Sensitivity and Specificity of Mid-Upper-Arm Circumference (MUAC) to Screen Malnourished Children Aged 6-59 Months in the Camps of Internally Displaced Population (IDP) in Assam

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Background: Malnutrition is considered as a major health problem globally, leading to morbidity and mortality, stunted intellectual growth, and increased risk of diseases[1]. Severe acute malnutrition (SAM) is a potentially fatal condition requiring urgent social and medical interventions[2], but moderate malnourishment (MAM) can be used as an alert to start treatment to prevent SAM. Measuring MUAC is an easy and quick way to detect malnourishment[3]. The World Health Organization (WHO) defines SAM as a weight-for-height z score (WHZ) of <-3 and MAM z-scores between –3 and –2[4], but feasibility of calculating WHZ in the field has been questioned[5]. In the ethnic conflict in Assam, anecdotal evidence pointed high prevalence of malnutrition in IDP camps. The aim of this study was to assess sensitivity and specificity of MUAC to screen malnourished children aged 6-59 months.

Methods: Data of 1414 children living in IDP camps were collected during August to September 2012. MUAC measurements for malnourishment were taken. Height and weight data was used to calculate WHZ to identify SAM and MAM using the $z < -3$ and $z < -2$ cutoff respectively. S*ensitivity* and *specificity* were calculated using the formulae TP/(TP+FN) and TN/(TN+FP) respectively, were TP was true positives, FN false negatives, TN true negatives and FP false positives.

Results: Total, 23 (1.6%) and 218 (15.4%) children were categorized as SAM; 146 (10.3%) and 234 (16.5%) children as MAM according to MUAC and WHZ respectively. MUAC sensitivity and specificity was 3% and 99% for SAM and using MAM cutoff sensitivity increased to 64% and specificity remained 96%.

Conclusion: Our findings indicate that MUAC is a reasonably precise screening tool. When resources, time or security concerns limit the use of advanced methods, modification of screening standards to screen children in need of further interventions provides a valuable method to respond in such situations.

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ID 335: Three Years After - Recovery from Wildfires: The Experience from Greece

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Background: In 2007 Greece was devastated by a series of massive forest fires that broke out in several areas, with the region of Peloponnese and especially the state of Ilia suffering the greatest number of losses involving property and humans. The purpose of this study is to compare the short and long-term psychological and social impact in terms of health and social life of those affected in Ilia. Specifically the paper examines whether the psychosocial phenomena that occurred immediately after the disaster were sustained over time and whether they influence the life and health level of those affected.

Methods: The study was conducted on a sample of 409 people, which came from the region of Ilia and were affected by the disaster, at two periods of time: six months and three years after the disaster. The questionnaire used included three fields: the first field related to demographics, the second related to general problems while the third field concerned the assessment of health status and evaluation of support from state structures.

Results: According to this study many of the psychological findings and social impact on the affected, that were present six months after the disaster are still present three years after, but significantly lower ($p < 0.5$), with only a slight increase in the expressed need for governmental support.

Conclusions: The psychological effects place a heavy burden on the person and its personal development and together with the deterioration of the social system result into deterioration of living standards and disruption of social cohesion, making the provision of support to the victims a necessity in order to maintain a smooth social structure.

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ID 336: Training Methods for the Control of Catastrophic Haemorrhage in the Military Environment

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Background: Catastrophic haemorrhage from extremity injuries is the single most common cause of preventable death in

the military environment. With the now widespread use of different techniques to control this type of bleeding, such as tourniquets and haemostatic agents, it has become possible to dramatically improve the rate of survival for battlefield casualties. However, there are also pitfalls. The different techniques have to be used in a correct and timely way in order to avoid malfunction and complications.

Methods: Different training techniques to control catastrophic haemorrhage have been used, and evaluated by the Swedish Armed Forces in the pre-deployment training of physicians, nurses and medics for many years. The training techniques include different types of patient simulators and live tissue training on anaesthetized animals.

Results: Instructors as well as trained personnel report pros and cons for all tested training methods. Preferred training conditions include a high degree of realism in combination with the possibility for multiple training attempts.

Conclusion: Out of a number of possible training techniques for control of catastrophic bleeding in the military environment, no single method can yet be described as the gold standard. However, most of the training should be performed using different types of patient simulators. Live tissue training on anaesthetized animals is a valuable method for training of advanced surgical procedures and should not be used for training of basic lifesaving procedures such as control of catastrophic haemorrhage from extremity injuries.

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ID 337: Prevalence of Wasting and Stunting Among Children Between 6 and 59 Months in the Camps of Internally Displaced Population (IDP) in Assam, Northeast India

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Background: Conflict has devastating effects on population health, and children are one of the most vulnerable groups. Assam has experienced conflicts for last 30 years. Recently, the conflict intensified and large population groups were displaced. Initial reports indicated a high prevalence of malnutrition in the camps. The aim of this study was to assess the prevalence of wasting and stunting among children between 6 and 59 months in these camps.

Methods: Data on age, height, and weight of 1414 children living in nine IDP camps in Assam were collected using a survey approach during the period August-September, 2012. Height and weight data was used to calculate weight-for-height z scores (WHZ) and height-for-age z scores (HAZ) using the World Health Organization international growth reference. Using WHO cutoffs, wasting is defined as WHZ < -2 and severe wasting as WHZ < -3. Stunting as HAZ < -2 and severe stunting as HAZ < -3. Kruskal-Wallis test was used to compare mean WHZ and HAZ; and Chi^2 to compare wasting and stunting prevalence between camps respectively.

Results: Mean age was 37.2 (17.4) months, and mean height and weight were 89.1 (14.1) cms and 11.3 (3.4) kgs respectively. Mean WHZ was -1.55(1.7) and mean HAZ was -1.49 (1.62). There was a significant difference in mean WHZ ($p < 0.05$) and HAZ ($p < 0.05$) between camps. The overall prevalence of wasting and stunting was 34% (26.6-40.6%) and 37.1% (31.2-43.0%) respectively.

Conclusion: Our study showed that prevalence of wasting and stunting in IDP camps are above WHO threshold (15%) for nutrition intervention. The prevalence of wasting and stunting indicates high prevalence of acute and chronic malnutrition respectively. The overall prevalence of wasting was found to be higher as compared to 13.7% and 19.8%, the prevalence of wasting in Assam and India respectively. The substantial variation of malnutrition between camps emphasizes the need of thorough nutrition assessment before nutritional interventions.

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ID 338: Examining the Relevancy in Promoting Interdisciplinary Education for Effective Academic Training of Future Disaster and Emergency Response Professionals

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As the need for disaster management and disaster medical professionals continues to grow, academic and training institutions around the world are faced with a demand to create and implement effective learning programs. Candidates with diverse educational backgrounds and experiences will be sought after by many industries to prevent, provide response and repair damage caused by disasters.

The author argues that while it is a relatively new educational concept, interdisciplinary study is quickly becoming known for its inventiveness and versatility in providing a well-versed backdrop for addressing disaster and emergency-related incidents. While medicine and public health are certainly major front runners, engineering, education, information technology, mathematics, social and humanitarian studies, biological and physical sciences and history are only a few relevant subjects that may enhance a candidate's education and future capability to obtain a successful career in disaster and emergency response.

The author identifies principal challenges in maintaining a relevant interdisciplinary program and present ways to address these challenges, presents collaborative techniques for educational policy-makers and examines three existing accredited academic interdisciplinary programs which have helped students pursue their educational goals in the fields of disaster management and disaster medicine.

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ID 339: ED Staff Knowledge of the Paramedic Profession in Israel

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Background: In Israel paramedics do not routinely work in Emergency Departments (ED). It is unclear whether the ED staff is familiar with the Competencies of EMS paramedics, and whether the staff would be interested to incorporate paramedics as part of ED staffing.
Methods: A questionnaire was distributed among physicians and nurses working in the ED's of four level one hospitals in Israel. The Questionnaire collected demographic information, knowledge about the paramedic's work in the EMS system, estimation of paramedic knowledge and clinical skills, and staff attitudes regarding their possible incorporation in the ED.
Results: Ninety two physicians and a hundred and two nurses answered the questionnaire. Most physicians and nurses had been instructed in the past by paramedics in an Advanced Cardiac Life Support (ACLS) course. Physicians and nurses lacked knowledge about the procedures which paramedics are allowed to perform: from a list of 11 procedures only 42% knew 9-11 procedures. There was confusion among the staff regarding the role of paramedics in the mobile intensive care units and regarding the training required in order to acquire a paramedic certificate. Although nurses appreciated the clinical practice of paramedics more than physicians, they did not support the introduction of paramedics to the ED as much as physicians did.
Conclusion: Although the staff of the ED encounters paramedics handing off patients on a daily basis, they lack knowledge on the procedures paramedics perform in the EMS setting. Nurses appreciate the work paramedics do more than physicians but are more reluctant to incorporate paramedics in the ED. In view of the ongoing severe staffing shortage of both ED nurses and physicians and the positive experience in incorporating paramedics to the ED staff we recommend a pilot study in Israel.

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ID 340: Usage of The Mobile Telemedical Complex in Work of Field Hospital

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Introduction: A prominent feature of work in a field hospital (FH) in the extreme environment is the necessity to deliver medical care with limited numbers of physicians to a large number of patients with different pathologies.
Methods: In 2009-2011 the mobile telemedical complex (MTC) was included in the composition of equipment in FH in the All-Russian centre of disaster medicine, working in borders of South Ossetia and Abkhazia, in which the aboriginal system of public health services practically did not function. MTC consisted of: A specialized car; A mobile station of a communications by satellite with the automatic self-directed antenna on the car roof; A system of a video conferencing on the basis of the equipment "Cisco"; A complete set of a mobile radio communication; On-board system of navigation; Place of the employee computerized workers; Scanner of X-ray films; A safety system of the confidential information; A complete set of the equipment of the local computer network. MTC is designed for autonomous operation and functioning in the absence of ground-based communications and power supplies. There were 30 different doctor's occupations in FH.
Results: In total 121 telemedical consultations were performed during 1.5 months (33.3% to children). The network was created, which included 10 scientific institutes and 2 large hospitals. 60.3% consultations were carried out by surgeons of various profiles, 13.2% doctors respiratory specialists (a pulmonary tuberculosis) and remaining doctors of various specialties. 10 patients were delivered directly for the further treatment after telemedical consultations, 9 patients for diagnostics, treatment tactics were specified in FH.
Conclusion: A mobile telemedical complex in extreme environments and absence of telephone communication allowed having regular communication with the Management Centers, to arrange telemedical consultations and decide patient's evacuation issues efficiently.

Keywords: extreme environment, field hospital, mobile telemedical complex, telemedical consultations
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ID 341: A Review of Traumatic Spectator Mortality at Major Sports Events

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Background: Mass attendance at sporting events are a feature of modern society and the medical care of spectators at such events has become another essential element in the field of disaster medicine and mass gathering medical care. The purpose of the present study is to quantify spectator mortality arising from major incidents at sporting events and to identify the factors involved.
Methods: A Medline, Internet and disaster database search was undertaken using keywords (Mass Gathering, Sport, disaster, fatality) to identify major incidents at sporting events which led to spectator mortality. Incidents were included that

involved a minimum of one fatality and the reasons for the incidents were abstracted.
Results: Searches identified a total of 143 incidents involving 3760 fatalities occurring between the years 1888 and 2012. Of these incidents the majority 84 (58.7%) occurred at football (soccer) matches, 28 (19.5%) at motor racing events, 14 (9.75%) at airshows and the remaining 17 incidents involved a wide range of other sports. The events also resulted in an estimated total of 11,941 non-fatal injuries. The precipitating factors, both single and multiple, which led to the incidents were identified. These included structural failure, weather, rioting, stampede, fighting, crushing, locked gates, fire, collisions, explosion, playing equipment, terrorism and police/military action.
Conclusions: The current study reviews spectator fatalities arising from major incidents at sports events and identifies a number of the causative factors involved.
Onsite training for traumatic and non-traumatic major incident management should occur regularly.
Medical input into the planning for the management of major sports events is essential and should take account of the physician and paramedic skillsets required.
Prehosp Disaster Med 2013;28(Suppl. 1):s111–s112
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ID 343: General Practitioner Interest in a Structured Immediate Care Scheme to Support the National Ambulance Service (NAS) in Ireland

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Background: Irelands National Ambulance Service (NAS) officially operates a non-physician system. Ambulance Technicians, Paramedics and Advanced Paramedics deliver the clinical care. Recent changes to the structure and location of emergency departments (ED) in some cases has increased total transfer times from receipt of call to arrival at the most appropriate ED. The integration of physicians who are appropriately trained, equipped and tasked using a set of criteria has the potential to support the NAS both from time and clinical aspects.
Methods: Questionnaire was distributed at a pre-hospital educational session as part of the annual Autumn meeting of the Irish College of General Practitioners (ICGP) to appraise current practices of assisting NAS with emergency calls, identifying training needs of physicians and determine willingness to be involved in a formal, structured, supported pre-hospital medical scheme for the NAS similar to the BASICS model in Scotland.
Results: 31 physicians attended the session, 29 responded to the survey request who worked in a variety of clinical settings Urban 8/29 (27.5%), rural 11/29 (37.9%), Mixed 9/31 (31%) with one physician not working clinically.
20/29 physicians indicated they had responded to calls from the NAS for assistance with 9 indicating they did not or had never been asked. 19 physicians indicated the types of calls they feel comfortable responding to.
7 physicians indicated they would not respond to NAS calls for assistance either because of perceived skills deficit or lack of cover for their absence.
20 physicians indicated the range of up-skilling they felt would be required to effectively support NAS with emergency calls.
19/29 responders (65%) indicated willingness to participate in a structured scheme.
Conclusions: There is significant physician interest in a structured pre-hospital medical support scheme with self-identified training requirements. A pilot scheme is required.
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ID 344: Impact of a Single Large Mass Gathering Music Event, from a Series of Such Events, on a Receiving Hospitals Emergency Department (ED)

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Background: Overcrowding is a significant feature of EDs in Ireland leading to difficulties with surge capacity. Mass gatherings are a feature of modern society and the medical care of patrons at such events can significantly impact attendance patterns at EDs in their locality before, during and for some period after the event. A series of concerts took place in Europe's largest public park, situated in Dublin, resulting in large numbers of patients being transferred by ambulance to the nearest ED.
Methods: Retrospective chart review of patients presenting to the ED over a one week period to determine if presentation was related to the planned mass gathering music events.
Results: 50 patients presented a total of 53 times over the week in total with 39 patients presenting to the ED over a 24 hour period relating to one of the events. 35 of these 39 were transferred by emergency ambulance, 1 by taxi and the others self-presented.
9 patients overall required formal admission to hospital (2 of these required 2 admissions)
25 of those referred required interventions/procedures in the ED including administration of IV fluids, suturing, plastering, reducing dislocated joints. 8 of the presentations related to being stabbed at the event and 4 of these required formal insertion of chest drain.
Alcohol and/or drugs were a feature or co-factor in 37 of the cases
6 had a GCS < 9 indicating a potential issue in airway management and requiring intensive observation and management, with 2 GCS of 3, one of whom died and 3 others presenting with GCS 6 of whom one also died
Conclusions: Referring hospitals need to be part of the planning process for large mass gatherings to enable appropriate staff scheduling and that surge capacity exists for a predictable workload. Serious illness does occur at mass gatherings.
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ID 345: Emergency Kit Compendium — Interval Analysis

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Background: Standardized emergency kits for civilian patients date from World War II with the Red Cross development of *Materia Medica Minimalis* in 1944. Since the pioneering work of WHO led to the first emergency health kit in the 1980s, emergency kits have proliferated in the disaster relief community. This study reports an interval analysis of emergency kits from the kit compendium project initiated by US Office of Foreign Disaster Assistance in 2012.
Methods: Emergency kits commercially available in the public domain were identified by literature review and key informant interviews. Excluded were kits developed by national militaries for battlefield use as well as kits developed by NGOs for internal agency use. A physician and pharmacist team inventoried kit contents with particular attention to epidemiological methods underlying kit development and case management guidelines for intended providers.
Results: Sixty-nine kits were identified among 29 kit types. 88% of kits contained supplies or equipment, 54% contained medications, 32% contained intravenous solutions, and 13% contained controlled substances. The international emergency health kits and the reproductive health kits were the two main types of kits developed from epidemiological data. Most kits had a disease or specialty-specific focus — trauma kits, surgical kits, diarrheal disease kits, and obstetric kits among them — and were configured to support the case management of a specified number of patients. The most common use of a cold chain was conservation of oxytocin.
Conclusion: Commercially available emergency kits are most commonly designed for a specific type of disease or clinical intervention. While such kits appear to facilitate the logistics of fulfilling a field requirement in clinical care, they are of limited use to donors seeking an evidence-based approach to commodity selection and kit development. Further multi-party consensus is recommended to configure emergency kits that best support post-disaster health systems recovery in resource-limited environments.

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ID 346: Planning to Organize the Local Medical Coordinate System after the Great East Japan Earthquake

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Background: After the Great Hanshin-Awaji Earthquake, the countermeasures of our country for disaster medicine changed greatly. But we could not enough overview needs of medical coordination and public health throughout disasters. As a result, it was difficult to coordinate medical care during the Great East Japan Earthquake in Japan. To improve our medical coordination during a disaster, our government had started planning to make structures of medical coordination in each local government.
Methods: We analysed our experiences of medical coordination in some affected regions, local governments and hospitals, and propose a system to coordinate medical care in a disaster.
Results: We had no agreed system to coordinate medical teams at both regional and local government levels. So we started to make a model of medical coordination system in each level. The concept of the system is to establish a medical coordinate team during a disaster in each region and local government.
Conclusions: From our experiences after the Great East Japan Earthquake, we need a standard system to coordinate medical care and public health. Now we must start to make a curriculum to develop the staff.

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ID 349: Progressing Towards an International Consensus on Data Modeling for Mass Gathering and Mass Participation Events

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Background: There is call for increased attention to foundational theory building to support the evidence base for mass gathering medicine/health (MGM/H). There is a need for a more consistent approach to data collection, case reporting, and research methodology. Recently publications highlight the need for agreement on data points across varying MGM/H contexts.
Methods: This discussion aims to present a supportive rather than prescriptive process of building consensus that will support MGM/H researchers and clinicians to produce work with value to international events. The authors propose an ongoing, iterative, collaborative process with the goal of developing and maintaining consensus on core concepts, methodology, and reporting in MGM/H research and evaluation. Stakeholder input will be sought internationally from researchers, advocacy groups, and operational personnel who may undertake literature reviews, research collaboration, consensus meetings, as well as iterative document creation and review.
Results: The authors propose five conceptual categories as a starting point for analysis and discussion: 1) Event & Community (prospective & retrospective) - describing events so events in different parts of the world can be compared reliably; 2) Health Team Resources - describing personnel, equipment, assets, policies, protocols and other factors that impact on-site care; 3) Patient - describing patient encounters,

history, findings, treatment, response, and outcome; supporting a minimum common set of descriptors of patient factors; 4) Reporting - standardized descriptive, summative, or analytic reporting "fields" and formats that would permit a more consistent understanding of events and increase the ability to perform meta-analyses of events; and, 5) Overview of Research Methodologies – review and categorization of common methodologies in the MGM/H literature, including summarization of best practices to support future inquiry into MGM/H.
Conclusion: This proposed method of consensus will allow mass gathering health science to become more robust and be generalizable to other MGM/H events.
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ID 350: Psychosocial Wellbeing – Collaborative Emergency Response and Initial Recovery Work Following the Canterbury Earthquakes, New Zealand

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Background: Canterbury experienced two major earthquakes in September 2010 and February 2011 and many thousands of aftershocks. In the immediate aftermath Welfare Centres were established, support to search and rescue staff was provided and Helplines and Earthquake support coordinators were established. During the following two years the psychosocial needs of individuals, families and the community were attended to in many ways. This was only achievable through multi-agency collaboration, constant monitoring and finding new ways of working.
Methods: Civil Defence Emergency procedures provide a structure and system for responding to an emergency in New Zealand but we were ill prepared for addressing psychosocial needs following a disaster of this scale in an urban area.
As ongoing seismic activity continued to impact the community, responses were evolved to meet the psycho-social needs. Recognising the importance of psychosocial wellbeing, collaborating across sectors, providing rapid responses and building psycho-social capacity and capability at individual, organisational and community levels were the key elements of our response and recovery.
Drawing on internationally recognised models, guidelines and relevant research literature key representatives of government, NGO and aid organisations met, co-ordinated and delivered the necessary responses.
Results: Building on the cross sectoral relationships that were initiated after the first quake, a psychosocial wellbeing committee was quickly re-established. This group received constant updates and co-ordinated immediate responses ranging from psychological first aid, helplines, earthquake support services, wrap around support to families of the bereaved, temporary accommodation services, expert advice and messaging as well as individual and family counseling and support. A range of systems were developed which enabled rapid reactivation after significant aftershocks.
Conclusion: An understanding that psychosocial needs are as important as the 'bricks and mortar' for recovery is now well established. Dealing with psychosocial issues is a pre-requisite to successful recovery – the learning continues.
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ID 351: Disaster Prevention Programs as a Part Of Community Safety Promotion

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Background: Disaster prevention and preparedness is one of the top priorities in every local government in Japan. In the past few years, some municipalities have started disaster prevention programs as part of community safety promotion activities, which originally aimed at injury prevention in communities. The objectives of the present study was to analyze the characteristics of these types of disaster prevention programs.
Methods: We investigated the disaster prevention programs in 12 municipalities in Japan which have started community safety promotion activities: six of them were designated as the International Safe Communities (ICS) by WHO Collaborating Centre on Community Safety Promotion, and the other six are the candidates for ICS, as of the end of 2012. We analyzed the official documents, the conference minutes, and the websites of the municipalities in terms of their contents, stakeholders, and evaluation process. We also interviewed the persons in charge in some local governments to collect complementary information.
Results: Seven out of 12 municipalities explicitly stated disaster prevention programs as part of safety promotion activities. Most of these municipalities developed the programs for those who need special support during a disaster. A wide range of actors, including fire stations, social workers, and community leaders, are collaborating for developing and implementing the programs. However, hospitals and healthcare workers are not invited to the task force members in all the municipalities. Most of the municipalities developed the evaluation plans and set numerical targets for some process indicators.
Conclusion: Disaster prevention programs as a part of community safety promotion activities can be effective in terms of multi-sectoral approach and regular evaluation. To enhance health and medical support for the community members with health problems, medical professionals should be involved in the program.
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ID 352: The Development of a Strategic plan for Psychosocial Recovery Following the Canterbury Earthquakes, New Zealand

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Background: Canterbury experienced two major earthquakes in September 2010 and February 2011 and many thousands of

aftershocks. In addition to the immediate aftermath following these events, the psychosocial needs of individuals, families and the community continue to be significant. New and innovative ways of working collaboratively across agencies needed to be found and remain integral as we move forward. A new government department – CERA – was established to lead the recovery work.

Methods: Using internationally recognised models such as Psychological First Aid and the 2007 United Nations Inter Agency Standing Committee (IASC) intervention pyramid, a range of responses, programmes and interventions were developed and delivered across the community. Blending a mix of existing services and skills with the new expertise in CERA, outcome measures were identified and continue to be monitored. From this foundation, two years post the major quakes, a series of focus groups targeting a wide range of participants together with consultation with key stakeholders has been supplemented by expert opinion and international literature to inform the development of a strategic plan for psychosocial recovery for the 2 – 5 year post event period.

Results: The Psycho-social Subcommittee of the CERA Wellbeing planning group has used the information from the focus groups to develop a strategic plan for the ongoing psychosocial recovery of Canterbury. The plan is used as a tool to inform government and community leaders and to guide individual and inter-agency service development, delivery and funding. Whilst it has a 3 year strategic overview, the plan will be reviewed annually taking into account updated information from local needs analyses and relevant new research literature.

Conclusion: The development of a Strategic Plan for Psychosocial Recovery for individuals and the community post the Canterbury Earthquakes has informed and facilitated the planning and delivery of evidence based recovery in our region.

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ID 353: The Role of Specialist Mental Health Services in the Psychosocial Response and Recovery Following the Canterbury Earthquakes, New Zealand

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Background: Civil Defence Emergency procedures provide a structure and system for responding to an emergency in New Zealand but SMHS services had not been involved in any planning exercise from a psychosocial recovery perspective. Consequently when Canterbury experienced two major earthquakes in September 2010 and February 2011 the SMHS were ill prepared to provide psychological and psychosocial recovery services. New and innovative ways of working collaboratively across the sector and across agencies needed to be found quickly both as first responders and continuing psychosocial recovery.

Methods: Using internationally recognised models for response and recovery a range of programmes and interventions were developed and delivered across the community. A core group of staff were quickly identified and assembled to develop systems, protocols and resources to support staff deployment in a range of activities to meet the identified needs arising from control centre. These systems and resources were constantly monitored and updated to ensure maximum effectiveness in the face of rapidly changing needs. The expertise of SMHS staff was used in both direct service provision and to inform and support the response and recovery work across the sectors.

Results: SMHS staff provided psychological first aid at Welfare Centres and key search and rescue bases, wrap around support to families of the bereaved, attendance at community meetings and fora, expert advice and messaging as well as individual and family counselling and support. In addition to the direct service provision SMHS staff provided additional support by way of supervision of front line staff, briefing sessions for emergency workers, public education and helping to build front line capacity and capability.

Conclusion: Utilising the expertise of SMHS staff to provide and support the psychological and psychosocial recovery activities post a major disaster not only assisted the emergency response activities but also enhanced resiliency across the sector.

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ID 354: Reconstruction of Disaster Medical System After East Japan Great Earthquake

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Background: An organized medical system was constructed in eastern Japan following the earthquake on March 11th 2011. We have improved the disaster correspondence of our hospital based on the actual activity experiences.

Methods: As DMAT (Disaster Medical Assistance Team), we engaged in various activities in the headquarters of affected regions, patient air-transport system, first-aid stations, and hospitals. One DMAT team can rarely work at all levels of the organized structure of disaster medical care.

Through the experience in the actual disaster activities, we performed various improvements so that our hospital can perform disaster medicine effectively.

Results: For the construction of an acute care system, more than 1000 DMAT teams gathered from all over Japan. Although DMAT were firstly dispatched for severe patients who needed air-transportation, their actual job was conveyance of chronic-phase patients in order to reduce the burden of local hospitals. Because many information tools were not available, collaboration between each organization was difficult. It became clear that establishment of the chain of command, reservation of an information means, and cooperation between organizations was indispensable so that the hospital which becomes a base of the stricken area might function.

Conclusions: A practical manual for coping with disasters was created, and training for all personnel. The radio equipment used as the base of the communication for medical care was

newly established in the hospital. Two sets of doctor cars were employed by everyday emergency care, and cooperation with each organization was built. Everyday preparation is required in order for a hospital to function at the time of a disaster for saving the lives of many.

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ID 355: Psychological First Aid (PFA): Comparison and Components Analysis of PFA Frameworks

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Background: Psychological First Aid (PFA) has been popularized and widely promoted as a multi-strategy framework for early psychological intervention for disaster survivors, focusing on providing practical support, diminishing distress, and promoting active coping. Despite the popularity of PFA, and its broad endorsement by disaster mental health experts, recent reviews have found no evidence that PFA is a "safe, effective, and feasible intervention" when provided by non-mental health professionals. PFA is regarded as "evidence-informed" but without evidence of effectiveness. Meanwhile, multiple versions of PFA are circulating and there has been no attempt to compare versions, or to conduct components analysis, to determine which elements of PFA could be analyzed to demonstrate effectiveness. A compelling need in the field is to determine whether the popularity of PFA can be matched with evidence of effectiveness.
Methods: We are conducting an ongoing content and components analysis of several well-recognized PFA frameworks. One standard for comparison among PFA models is provided in the consensus document, "*Five Essential Elements of Immediate and Mid–Term Mass Trauma Intervention: Empirical Evidence* (Hobfoll et al., 2007). We examined PFA models based on programmatic foci on promoting the elements of safety, calming, connectedness, self-efficacy, and hope. We compared PFA models based on pedagogic standards of clarity, complexity, ease of training and application, and ease of evaluation for effectiveness.
Results: PFA models differ in terms of content, operational principles, understandability, clarity, complexity, and potential for evaluation. Results of the analyses will be presented.
Conclusion: Expert consensus is an important but insufficient rationale for continued promotion and implementation of PFA in the absence of attempts to conduct evaluation for effectiveness. The present content and components analysis is an important step toward evidence-based evaluation.

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ID 356: Did Disaster Base Hospitals Function in the Great East Japan Earthquake?

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Background: The Disaster base hospital is based on the reflection point at the time of Hanshin Awaji Great Earthquake in 1995. There were no hospitals that provided enough medical care in disaster medicine and the designation maintenance began from 1996. 638 institutions are appointed today.
Purpose: To inspect whether disaster base hospitals were able to achieve the role in the Great East Japan Earthquake.
Method: Questionnaire survey and hearing investigation for all forty-four disaster base hospitals in 4 affected prefectures.
Results: The following became clear:
Hospital buildings of all thirty-two hospitals in three suffered prefectures (Iwate/Miyagi/Fukushima) were destroyed partially. These hospitals limited the medical care. Some hospitals did not have enough earthquake resistant construction and/or communication tools. EMIS (Emergency Medical Information System) was impossible because of disruption of the Internet line temporarily. The hospital in the coastal area became the base of the backward transportation. The hospital in the inland area accepted many patients.
Discussion: In the Great East Japan Earthquake, the disaster base hospitals took a central role in stricken areas. However, the problem remained. In disaster base hospitals, the earthquake proofing of the institution, the insurance of plural means of communication including the satellite phone, the insurance of the system to do entry to EMIS, the storage of food/drinking water/medical supplies for 3 days, heliport maintenance in the hospital, possession of DMAT, a role of the centre in the region from a time of peace became an urgent problem. Disasters base hospitals across the whole country should have a function of equality because disasters may occur anywhere in Japan.

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ID 357: A Methodological Approach for the Evaluation of Preparedness of Pharmaceutical Services for mass casualty events in Brazil

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Background: In 2014 and 2016 Brazil will host two huge events, the FIFA World Cup and the Olympic Games, respectively. Events like these are known to be an opportunity for the occurrence of mass casualties. Pharmaceutical Service (PS), as a key component of the health sector, are especially demanded in these cases, and must be prepared. A method to describe and analyze PS within the Brazilian Health System in urgent and emergency care scenarios was developed.
Methods: The literature was searched in order to understand the measures and needs related to the health sector in mass casualty events, and a graphic model representing context and fields of intervention was developed in order to pave framework development.

Results: A framework for the analysis divided into two components, preparedness for response and preparedness for recovery, was built. Five dimensions encompass these components: Structural Issues, Information and Communication, Logistics, Human Resources and Ethics, Culture and Religion. The analysis will involve triangulation of data, anchored in field data, context analysis and interviews of municipalities' key-actors. Interviews with key actors from different government agencies involved in Pharmaceutical Services in preparedness and response to disasters and managers of the hospital network of interest will be done. The method of choice will be case studies, to be carried out in the cities that will host the sports events.
Conclusion: We propose that the case-report approach, subsidized by field data, context data and the contribution of key stakeholders may help identify critical points for intervention in the health sector that, in turn, should promote preparedness for potential mass casualty events during the upcoming sports competitions in Rio de Janeiro and in 11 other major cities in Brazil.

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ID 358: Understanding and Meeting Population Needs Following Major Radiation Emergencies: Overarching Lessons from Fukushima Dai-ichi

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Background: The March 2011 earthquake-tsunami disaster in Japan killed nearly 16,000 people and left more than 2,700 others missing. The "3.11 disaster" also devastated one of the world's largest nuclear generating stations – Fukushima Dai-ichi – resulting in one of the world's most serious radiation emergencies to-date.
Methods: At the request of one of the largest hospital and healthcare networks in Japan, a special non-governmental Radiological Emergency Assistance Mission flew to Japan from the United States in April 2011. The three-person team (including the author) carried out extensive fieldwork in affected areas such as the 20-30 kilometer Emergency Evacuation Preparation Zone. In addition, the team provided radiological information and training to more than 1,100 Japanese hospital and healthcare personnel and first responders.
Results: Following the 10-day mission, the team undertook a careful review of lessons learned based both on time spent in the field and on continuing follow-up work. The mission produced numerous lessons learned in such key issue areas as community impacts, public health, psychosocial and behavioral effects, risk communication, training, preparedness and response.
Conclusion: Some of the initial lessons learned from the mission have been published in the disaster literature over the past two years. In this presentation, the various lessons are reviewed and overarching recommendations are presented for better understanding and meeting population needs following major radiation emergencies.

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ID 359: Ethics in Disaster Medicine

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Ethics of medical personnel in the humanitarian world is a marriage between medical ethics and humanitarian ethics and hence is governed by 2 sets of pillars of ethics. The pillars of medical ethics are simply autonomy, beneficence, non-maleficence and justice. The Pillars of the humanitarian ethics are more numerous and include (not exhaustively) humanity, neutrality and impartiality, and other principles such as independence, voluntary service, unity, universality, accountability, professionalism, respect, participation, self-reliance, capacity building, coordination. This is made even more complex by mandates of organisations & personal principles.
Although set out with altruistic & noble intentions to do good, due to the nature of these humanitarian missions in disasters, (that are intensified by a myriad of factors such as harsh, insecure environments, major uncertainties, limitations to operations control, language & cultural barriers, power discrepancies, urgency factor & time constraints), practitioners find themselves making decisions under the weight of a complex moral code and thus face the risk of significant error, and possible harm despite their best efforts.
This thought provoking presentation dissects in detail different aspects of ethical dilemmas commonly faced in the pre departure phase as well as on the scene phase of most disasters. Ethical complexities in terms of pharmaceuticals, equipment, intervention & research among others are also discussed. The presentation goes on to unravel disaster tourism & further investigates various agendas behind disaster aid. Accountability & sustainability of programmes are explored. It illustrates some of the mistakes that have often been made in the past and proposes ways of addressing these in the future.

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ID 360: Humanitarian Response to the Libyan Crisis 2011 Western Theater

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Background: The Libyan Crisis of 2011 saw over 650,000 cross-border departures from Libya into Tunisia. Libyans comprised the majority of displaced persons with approximately 100,000 remaining in Tunisia. This study reports a real-time evaluation of crisis management.
Methods: This real-time evaluation examined population displacement data from UN lead agencies, epidemiological data from disease surveillance sites, and operational data from WHO emergency coordinators.
Results: Three main populations of concern dominated the health sector. The largest population of concern was native Libyans integrated into host families and host communities. The Libyan population exceeded 20% of the total population in Tataouine governorate and 10% of the total population in

adjacent Medenine governorate. Sentinel reporting facilities in Tataouine reveal a doubling of outpatient consultations during the study period with refugees accounting for half the total.
The second population of concern, collectively numbering fewer than 10,000 persons, was refugees and displaced persons clustered in small camps along the border. Shousha camp was unique in history in harboring third country nationals from over 30 countries. Inter-ethnic rivalries within the camp ultimately triggered a violent backlash from host country nationals and became a national security issue for the Tunisian government.
The third population of concern was the scores of war wounded brought into Tunisia for clinical care. Hospital costs for these patients became an unprecedented burden for the country.
Health sector management was complicated by inadequate human and financial resources from the humanitarian community particularly UN lead agencies.
Conclusion: There was no public health crisis as defined by excess mortality, malnutrition, vaccine preventable illnesses, epidemics, or marked unavailability of care. There was a health sector management crisis. This may be remedied in part by the current transformational agenda of the IASC which appears set to be a major driver of reform in future international disaster relief operations.

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ID 361: Management of Crush Syndrome in Large Scale Earthquakes - Japanese Government's Wide-area Medical Transportation Plan for Domestic Disasters and JICA's Disaster Medical Relief Team with Advanced Functions for International Disasters

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The Japanese government has developed a nationwide air medical evacuation plan for wide-area earthquake disaster management. The purpose of this evacuation plan is to save the lives of casualties with severe conditions such as crush syndromes and serious injuries and relieve the medical burden on hospitals in the affected area. In order to achieve this purpose, this evacuation plan involves dispatching disaster medical assistance teams (DMATs) to the affected area and transporting severe casualties to medical institutions outside the affected area by Japan Self-Defense Force aircrafts. Under this plan, DMATs provide medical management during the air transport or at staging care units to be set up at airports. This significant achievement stems from the continued efforts of the Japanese government to provide an adequate response to earthquake disasters based on lessons learned from the Great Hanshin-Awaji Earthquake.
Japan International Corporation Agency (JICA) has been taking the responsibility to dispatch Japan Disaster Relief (JDR) teams when major disasters occur overseas, especially in developing countries, and the governments of affected countries or international agencies request emergency assistance. From 1987 JICA has experienced deployment of 51 medical teams so far. The policies of JDR Medical team are:

- Strengthen Quick Dispatch System
- Maintain Self Sufficiency
- Coordinate with UN/Other Teams

The next step of JDR medical team:

- Expanding the medical function, such as providing hemodialysis, major surgical procedures and ward units. Target Regions of advanced functional medical teams is the Urban area of Asian and Oceania regions. And target times are within 24 hours of departure from Japan, to within 48 hours starting medical intervention utilizing chartered flights.

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ID 364: Development of a Trauma Registry in India

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Background: Trauma registry is an unknown entity in India. There are few if any databases containing details of trauma patients.
Methods: From January 2011 to December 2012, we collected details of all trauma ICU admissions in a level 1 trauma care facility in Mumai, India. The patients were followed up to time of discharge or death.
Results: We had 841 admissions in 2011 and 733 in 2012. Age and gender preponderance were similar. Road traffic injuries were the most common and rail traffic injuries the most fatal. About 25% of patients arrived with hypotension. Almost 50% of patients had moderate or severe head injury [GCS 3-12]. Mortality in 2011 was 32% [268] of which 26% [70] died within 24 hours. In 2012, 220 patients died [30%] and 30 [13%] succumbed within 24 hours. We were unable to collect data on pre-hospital management, complications, morbidity, rehabilitation and follow up data post discharge. There were difficulties in establishing this kind of registry due to staff shortage, high workload, no permanent data collectors and difficulty in establishing this new idea in the minds of faculty. Also the data on patients brought dead goes to a different list and combining these databases would give us a comprehensive registry
Conclusions: We were able to compare data over two years in various aspects. It helped us to get a wide perspective of the trauma scenario at our centre. It is easy to understand how a detailed trauma registry can improve our quality of care and reduce our high mortality rate.

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ID 365: Unsafe Injection Practices in India: Potential Weapon for Community Outbreak of Blood-Borne Viruses

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Background: Unsafe injection practices like needle and syringe reuses, along with unnecessary use of injections are quite common in India. They are responsible for transmission of blood borne viruses (BBVs) in healthcare workers (HCW) and community in large. Outbreaks of parenterally transmitted viral hepatitis are uncommon. We report an outbreak of acute Hepatitis B attributed to unsafe injection practices from Modasa District, Gujarat.
Method: Blood samples were collected from 25 cases during the ongoing outbreak. Samples were screened for all serological markers of hepatitis A-E by ELISA. Molecular testing included HBV DNA quantitation by RT-PCR. Genotyping and mutational analysis was done by direct PCR sequencing.
Results: All patients gave history of receiving injection 2-3 months prior to developing symptoms. 17 patients were males and 8 females. Mean age of the patients was 33.4 years (SD 12.9 years). All were HBsAg positive. IgM HBc was positive in 22/25 (88%). HBeAg was positive in 11 (44%). HBV DNA levels were high (Range: 1.18×10^2 to 6.7×10^6 IU/ml). There was no significant co-infection with other hepatitis viruses, anti HCV (0/25), HIV (0/25), HAV IgM (2/25), HEV IgM (2/25), HDV IgM (0/25), HDV IgG (0/25). 45 HCW were tested for antiHBs and 80% had sufficient immunity to HBV ($\geq$10 mIU/ml). All the isolates were Genotype D, wild type HBV with no detectable mutation.
Conclusion: The study confirms HBV etiology in this acute hepatitis outbreak. The results linked the outbreak to the use of unsafe injections. The findings emphasize the importance of inadequately sterilized needles and syringes in the transmission of hepatitis B in India.

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ID 366: Simulated Training Course on Preparedness of Nurses to Do Pre-Hospital Triage in Disaster

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Introduction: The key to successful management of large number of victims with limited resources is triage, which without preparedness of nurses as the largest group of health care providers seem to be impossible. The aim of this study was to determine the effect of simulated training course on preparedness of nurses to do pre-hospital triage at Razi psychiatric hospital 1390.
Methods: This is a quasi-experimental study on 60 nurses in psychiatric hospitals who randomly divided into two experimental and control groups equally by 30. The study tools were questionnaire for knowledge and precision which has been evaluated in terms of content validity by related experts and reliability through test-retest. A one day workshop has been done for the intervention group and two groups were assessed by study tools before and after intervention. Data was analyzed using Spss16 software by T-independent, T-paired, ANOVA and repeated measurement.
Results: The mean score of nurses, Knowledge and precision to do triage between intervention and control group was significantly different before and after the intervention ($p < 0.001$). The difference between mean of preparedness of nurses to do triage between the two groups was significantly different ($p < 0.001$).
Discussion: The results of the study showed, using the simulation method on triage training improved the nurses preparedness to do triage. Therefore it is recommended to do this training program for nurses and assess this educational program in a large sample size study.
Keyword: Disaster triage, Simulated training course, preparedness

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ID 367: Comparison of Road Traffic and Rail Traffic Injuries in a Level 1 Trauma Centre in Mumbai, India

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Background: In Mumbai, at Lokmanya Tilak Municipal general hospital, rail traffic injuries are almost as common as road traffic injuries. In a city where the local suburban trains are heavily used as a means of transport, safety issues loom large. We studied the profile of severely injured patients with life and limb threatening trauma in a level 1 trauma centre due to road traffic injuries and correlated it with rail traffic injuries.
Methods: From October 2010 to December 2011, a single researcher collected data in all patients with life or limb threatening injuries arriving at our Trauma centre The patients were followed up to discharge or death.
Results: We received 1119 patients of which 357 [32%] were road traffic related and 299 [27%] were rail traffic related. Male gender was predominant and so was young age [15-45]. More rail traffic patients were directly admitted compared to road traffic injured. Average systolic blood pressure and Glasgow Coma Score on admission were lower in rail traffic injured patients. Mortality was higher [42%] in rail traffic injured.
Conclusions: Railways are a quick and reliable mode of transport but the resultant injuries are severe and mortality rates very high. Primary preventive measures like closed doors, manned railway tracks, compulsory use of subways or foot over-bridges are more likely to improve the rail traffic injury scenario as compared to secondary or tertiary preventive measures.

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ID 369: Pattern, Injury Severity and Probability of Survival of Patients Who Expired in the Emergency Department of a Level 1 Trauma Centre in India

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Aims: To study Pattern of Injury, severity and Probability of survival of Patients who expired in Emergency Department of a Level 1 Trauma Centre.
Methodology: Retrospective analysis of a prospectively maintained database from Trauma registry and Post mortem reports was done.
Results: From 1st January 2011 to 31st December 2011 there were 11752 patients who were triaged as red or yellow patients in the Trauma Emergency of AIIMS. Male: Female ratio 7:1. Major mechanism of injury was blunt (89.79%), followed by penetrating (6.26%) and mixed (3.7%). The mode of injury was RTI (57%) followed by unintentional accidents (29.74%), assault (8.23%), Railway track injury (4%) and suicidal injuries (1.05%). We analysed Injury severity score (ISS), New Injury severity score (NISS), Revised Trauma Score (RTS), and TRISS and NTRISS (for probability of survival) for 121 patients who expired in Emergency Department during the period of study. The avg. ISS and NISS in this non-survival group was 22.98 and 27.19 respectively showing more severe injuries in the non-survivor group. The number of patients having probability of survival <0.5 by TRISS were 27 and NTRISS were 33, signifying expected deaths whereas probability of survival >0.5 by TRISS were 92 and NTRISS 88 respectively, signifying preventable deaths which happened in ED. Out of these preventable death patients (according to TRISS and NTRISS), 51 patients were having isolated head injuries.
Conclusion: ED Mortality rates amongst red triaged patients are generally very high. In our center the ED mortality was 121 out of 2283 patients (5.3%). The mortality rates of severely injured patients are very high and can be attributed primarily to the neurosurgical trauma, lack of systems approach and absence of Pre-hospital care which delays the transfer of the patients to the hospital.

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ID 370: Patterns of Burn Injury in a Tertiary Care Centre in Mumbai, India

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Background: Burns are one of the commonest mechanisms of unnatural injury in India. We have studied the admissions in a burns unit over the period of one year in 2012.
Methods: From January to December 2012, we collected demographic data on all burns unit admissions. The mechanism of burn, details of patient, details of injury and physiologic parameters on admission, time and place of burn, agent of burn and survival data were collected. Patients were followed up to time of discharge or death. The burns unit preferentially admitted females and children below age of 14 years and salvageable adult males.
Results: We got 236 admissions of which 76 were children. 191 patients were female. The most common place of burn was home [225], most common agent was flame [167], and most common mechanism was accidental [200]. Water was used as first aid in 155 patients. 52 [76%] children suffered scald burns. Percentage of burns was widely distributed and mortality increased as the percentage of burn increased. Mortality was maximum in burns at home [95%], burns due to flame [92%], and accidental mechanism [71%]. 84% of patients who died had a percentage burn of more than 50%. 95% patients with a percentage burn more than 75% succumbed.
Conclusions: The data prompts further research into accidental, home burns. The question of ignorance or inadequate parental supervision in cases of burns in children needs to be handled. Even though standard treatment protocols were followed, the high morbidity and mortality numbers reveal the true epidemic of burns.

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ID 372: Motorized Two Wheeler Accidents, a Major Cause of Mortality and Morbidity on Indian Roads

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Aims: To study the pattern and severity of Injuries sustained by victims of Motorized two wheeler accidents from a Level I Trauma Center in India.
Methodology: Retrospective analysis of a prospectively maintained database from Trauma registry was done.
Results: In 2011, there were 11752 patients triaged as red and yellow, of which (49.62%) were due to Road Traffic Incidents. Majority of RTI were due to Motorized Two Wheelers only (44.06%). Males were (88.29%) and Females were (11.70%). Majority of patients 64.89% were between 21-40 yrs of age. Most common mechanism of Injury was Blunt 89%. There was no other vehicle involved in 609 cases and in 861cases there were other vehicles involved in RTI. Multiple region injuries were present in about 45% of patients. There were 2864 injuries noted in 1470 patients. Majority of patients injured on 2 wheelers had head injury followed by extremities, face, chest, spine and abdomen. Patients wearing helmet were (54.96%). Head injuries for patients wearing helmets was

270 [33.41%] (ISS > 15 = 35.92%; <15 = 64.07%) and for the patients not wearing helmets was 385 [58.15%] (ISS >15 = 32.46%; <15 = 67.53%). Incidence of Severe head Injury was higher in patients not wearing helmet (20.25%) as compared to those wearing helmet (17%).
Conclusion: Unlike developed world, motorized two-wheeler is a major culprit of RTI in developing world. The age and sex distribution of the patients is similar to the other victims of RTI. Blunt mechanism of Injury is seen in majority of patients. Nearly 40% of two wheeler accidents occurred due to non-collision indicating the inherent instability of the vehicle like skidding, falling and hitting the abutment. Injury to multiple organs and head was seen more often in patients not wearing helmet. Hence, strict safely and preventive norms should be set up for motorized two-wheelers.
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ID 373: Assessment of Reasons of Mortality in Thoracoabdominal Injuries of a Single Level 1 Trauma Centre in India

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Background: Worldwide the most common cause for civilian trauma deaths is head injuries. Pure head injury deaths occur mostly after 24 to 48 hrs. Early deaths (<24 hrs) in trauma most commonly occur due to hypovolemic shock which are due to thoracoabdominal and extremity trauma.
Methods: A retrospective analysis was done of all trauma victims admitted to level 1 trauma centre in Mumbai, India from October 2010 to December 2011. These patients were then divided into two groups of pure thoracic and pure abdominal injuries based on their injury profile. All other injury regions with an Abbreviated Injury Scale (AIS) score of two or more were excluded. These patients were then compared in terms of age, sex, mechanism of injury, transfers, Glasgow Coma Scale (GCS), early and total number of deaths.
Results: A total of 39 pure thoracic injuries and 82 pure abdominal injuries were found. The ratio of blunt to penetrating injury was 12:1 for thoracic injuries and 2.1:1 for abdominal injuries. The average age was 38.3 and 28.5 respectively. Transfer rates were 58.97% and 75.6% in thoracic and abdominal groups respectively. Railway accidents (13/39) were the most common mechanism of injury in thoracic group whereas in the abdominal group assault (37/82) was the commonest mechanism. The average GCS was 12.82 and 14.24 respectively. Both the early (5/39) as well as the total number of deaths (16/39) were more in the thoracic trauma group compared to the abdominal trauma group [(2/82) & (11/82) respectively].
Conclusion: Those with thoracic injuries need early intervention (intercoastal drainage, intubation, resuscitation) as there are more early deaths compared to those with pure abdominal injuries. Also the number of thoracic injuries entering the emergency level I trauma centre are less probably due to more deaths taking place at the scene or during transfers, suggesting thoracic injuries are more fatal.
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ID 374: Pedestrians Sustain More Severe Injuries with Higher Mortality Rates in Civilian Settings in India

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Aims: To study the pattern and severity of Injuries sustained by pedestrians injured in RTI's.
Methodology: Retrospective analysis of a prospectively maintained database Trauma registry maintained at JPN Apex Trauma Center, AIIMS.
Results: In 2011 there were 11752 patients who were triaged as red or yellow at our Trauma Emergency. Amongst the victims of RTI 1601 (27.5%) patients were pedestrians. A total of 1114 pedestrian patients were analyzed in the present study. The average time gap from the time of injury and the time of arrival to Emergency department was 2 hour 08 minutes. Injuries were predominantly Blunt (99.6%). Common vehicles causing pedestrian Injuries were; motorized two wheelers (33.9%) and Light motor vehicle/Car (33.7%). Commonest Injury in pedestrian group was to Soft tissue (32.8%) followed by Extremities, Head, Chest, Face, Pelvic girdle and Abdomen. In-hospital mortality of pedestrians was 18.76% (Avg. ISS- 19.94) was much higher than overall In-hospital mortality of 10.66%.
Conclusion: Road traffic Injuries form nearly half of the patients admitted/brought to our trauma centre. Pedestrians form a significant group of patients injured in Road traffic incidents (27.5%) in our study. Pedestrians were commonly hit by motorized two wheelers and LMV/Cars. Our study concludes that pedestrians involved in RTI have more severe injuries and a higher mortality rate (18.76%) than the average overall mortality at our Level I Apex Trauma Center. This is primarily due to multiplicity of road users and no dedicated corridor for pedestrians on our roads. The study highlights the need for proper road designing and segregation of traffic users on Indian roads.
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ID 375: Quantitative Capillary Refill Time (Q-Crt): A Novel Technique for the Measurement of CRT with Its Excellent Diagnostic Accuracy of the Status of High Blood Lactate Level in Critically Ill

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Background: Capillary refill time (CRT) has been used as one of simple methods to grade shock status. As the confirmation of timing of the skin blanched and the return of color to baseline depended on the examiner's eye measurement, the conventional procedure by compression of nail bed had a limit to measure CRT with objectivity and reproducibility. In addition, there were very few reports that have investigated the relationship between CRT and circulatory status especially in the adult population. We therefore developed a new equipment to quantify CRT by applying the principle of the pulse oximeter, and designed an interventional study to evaluate the correlation between quantitative CRT (Q-CRT) and hypoperfusion status represented by blood lactate levels in critically ill patients.
Method: Prospective clinical trial was conducted to 25 adult patients during from August 24, 2009, to January 9, 2010 at an intensive care unit (ICU) in a tertiary emergency medical center in Tokyo, Japan. Twenty five patients staying in the ICU on every morning during the period were enrolled in this study. After patients were assigned to receive SpO2 sensor at the nail bed of index or middle finger, Q-CRT was measured by modified pulse oximeter (OLV-3100, Nihon Kohden Corp., Japan). Blood lactate level was simultaneously obtained from routine analysis of arterial blood gases in the ICU.
Results: Q-CRT was measured at 238 times in patients. Based on the value of Q-CRT above 7.0 seconds to explain the hypoperfusion (blood lactate level $>$ 2.0 mmol/L), sensitivity, specificity, positive predictive value, and negative predictive value were 92.3%, 90.3%, 80.0% and 96.6%, respectively.
Conclusion: Q-CRT was well correlated to high level of blood lactate level in critically ill patients. Further study will confirm to place Q-CRT as one of non-invasive predictors of hypoperfusion at ER, ICU and OR.

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ID 376: The State of Art of Crises and Disaster Management in European Union: Baseline Results of DITAC Project

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Background: Worldwide, there is a rise in the number of natural and man-made disasters, causing loss of lives and damage to properties and environment. This is also seen in the European Union; therefore, establishing a sustainable disaster management system is a necessity in European Union countries and requires a clear understanding of the situation in the particular countries. This study was conducted to comprehensively evaluate the state of art of disaster management in EU countries. It represents the baseline results of the FP-7 founded DITAC project, which aims to develop a holistic and structured curriculum for responders and strategic crisis managers.
Method: In 2012 we used a standardized questionnaire, based on a WHO toolkit, to assess the healthcare system capacity in 27 EU-countries, with respect to disaster management. Eighty eight questions, classified in eight groups, were sent to three disaster management experts from each relevant country. Based on a scoring system (range: 0-100%), the level of preparedness for disaster management was categorized in three levels: acceptable (66-100%), insufficient (36-65%) and failed (0-35%).
The work leading to these results has received funding from the European Union seventh Framework Programme (FP7/2007-2013) under grant agreement n° 285036.
Results: Response rate was 79%, with at least one response per country. Total Level of preparedness in EU was acceptable (68%). By category, the highest level was reported at health information (86%), and regional plans (85%). The lowest levels were at logistics (46%), education (55%), and hospitals (56%). It was 77%, 75% and 71% for medical products, leadership, and pre-hospital medical operations, respectively.
Conclusion: Although the preparedness level of EU was almost sufficient, three critical elements (logistic, hospital and education) should be improved. Installation of a comprehensive and standardize management plan for whole EU, with regard to all elements, will improve disaster management system in all EU countries.

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ID 377: Preparedness for Short-Term Isolation among Queensland Residents: Lessons (Actually!) Learned after Disasters

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Background: In 2009, a survey of residents in Queensland Australia found most respondents (93.6%; CI:92.2%-94.9%) believed they would have enough food for three days of home isolation, but only 53.6% (CI:50.9%-56.4%) would have sufficient food and potable water if they were isolated for three days with interrupted power and water. In the 2010 summer over 90% of Queensland was affected by disaster with devastating floods and a category 5 cyclone. This study sought to determine if preparedness for short-term isolation improved following the 2010 summer.
Methods: Data on levels of preparedness for short-term isolation were collected as part of the Queensland Social Survey (QSS) 2011 using identical questions to those in QSS 2009. Results were compared and associations between demographic variables and preparedness were analysed using chi-square, with $p < 0.05$ considered significant.
Results: 95.5% (CI: 94.2% - 96.5%) of respondents indicated they would have enough food to last three days, but only 59.8% (CI: 57.0% - 62.4%) would have sufficient food and potable water if they were isolated for three days with interrupted utility services. Both demonstrated increased levels of preparedness over 2009, with a significant increase in preparedness for isolation with an interruption of power and water. At least some minimal increase in preparedness was seen in every demographic subgroup however many of the significant associations persisted: older people and those living outside of South East Queensland remained more likely to be prepared for short-term isolation with an interruption of utilities, while households with children and those working in health or community service remained less likely to be prepared.
Conclusions: Preparedness for short-term isolation improved following disaster experience but existing patterns persisted. Of concern is people employed in health were less likely to be prepared suggesting future efforts need specific focus on this group to preserve the health workforce.

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ID 378: Tropical Cyclone Yasi: The Impact of a Major Cyclone on the Demographics and Casemix of Emergency Department Presentations

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Background: Tropical Cyclone Yasi was the largest cyclone to cross the Australian coast with the 600 km diameter meaning much of North Queensland was affected. The Townsville Hospital is the tertiary centre for North Queensland and this study reviews TTH Emergency Department activity following Yasi, specifically whether there are characteristic or altered patterns of presentation or casemix.
Methods: The period of study was 2 days before (31/01/2011) to 6 days after (08/02/2011) Yasi crossed the coast (02/02/2011). Data collected included arrival and departure details; gender; age; triage category; diagnosis (ICD10); and disposition. The 2011 dates were matched to previous years (2009, 2010) day of the week. For demographics and ICD-10 codes, levels of importance were defined as at least 50% variation from both control years to account for year-to-year variation.
Results: There was an approximately 40% increase in daily activity (36.7% vs 2010; 41.0% vs 2009). Morning and evening peaks persisted as did decreased attendances overnight. There were increased attendances across all age groups, but proportionally more for older age groups, increasing with advancing age. There was a trend toward decreased higher acuity presentations (Cat 2, 3) and increased lower acuity presentations (Cat 4, 5) but none reached levels of importance. While numbers increased the percentage admission and discharge rate remained consistent.
The most common diagnostic presentations were consistent across all years with injury (S00-T98) the most common. For groupings with $> 2\%$ of presentations, levels of importance were reached for increased skin problems (L00-L99) and factors influencing health care status (Z00-Z99) and decreased attendances by mental and behavioural disorders (F00-F99), genito-urinary system disorders (N00-N99) and abnormal clinical and laboratory findings (R00-R99).
Conclusions: There was approximately 5 days increased activity, which showed predictable patterns of presentation. This information can be used to help guide future preparedness.

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ID 379: Myths and Misconceptions in Disaster Medicine: From America and Italy to Australasia

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Background: Disaster medicine is a young science with many practices based on long held beliefs rather than evidence. Even as evidence emerges to the contrary, many of these beliefs persist as 'disaster myths'. Alexander (2007) undertook surveys of American undergraduate and postgraduate students and Italian trainee

emergency managers, which showed many of these misconceptions are strongly held. The aim of this study was to identify the levels of belief in common misconceptions about disasters by Australasian Emergency Physicians and trainees.
Methods: A convenience sample of Emergency Physicians and trainees attending the ACEM Annual Scientific Meeting was used. The same 19 questions and Likert scale used by Alexander to assess levels of agreement or disagreement were administered to allow direct comparison of results.
Results: There were 33 score sheets returned (from 50 distributed; response rate 66%) with 19/33 (58%) Emergency Physicians, ten trainees (30%) and four not stated (12%). A number of widely held misconceptions about disasters were similar to the findings by Alexander (survivor panic, looting, unburied dead as a health hazard), however there was much more disagreement with other statements than found by Alexander, particularly in the areas of systemic management of disasters and the benefits of aid and technology. Emergency Physicians also tended to disbelieve more of the incorrect statements to a greater level of disagreement more than other participants. This suggests the value of their greater disaster experience.
Conclusions: While this is a small study it supports Alexander's findings that some disaster myths are widely held internationally and need to be addressed for disaster preparedness and management to improve in the future. The lower levels of agreement with many statements in this study may reflect increasing awareness of disasters generally or differing levels of knowledge in a more experienced group.
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ID 380: The WADEM Oceania Chapter: Progress and Lessons

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Background: The Oceania Chapter of WADEM was formed in November 2008 as the first WADEM regional chapter. It includes Australia, New Zealand and the South Pacific Nations and roughly parallels the Oceania region of UNOCHA. The aim of this paper is to report on the progress of the Oceania Chapter and to describe lessons observed that may assist other regions considering Chapter formation.
Methods: The minutes of the Chapter Council meetings, the Oceania Chapter newsletter and the WADEM website were used to identify progress while experiences of the current and previous Chapter Council were used to identify lessons.
Results: Progress from 2009 to 2011 included the establishment of an administrative base (generously provided by Monash University); a membership list and promotion of both WADEM, and non-WADEM but discipline related activities, to members. A Chapter website was also established on the WADEM website, a regular newsletter commenced and a number of regional activities completed including Chapter co-branded workshops/seminars. Despite this there was a perception that the Chapter had not yet been effectively operationalised. Possible reasons included the over commitment of Council members, a lack of ability to co-badge seminars held in the Region; and the significant costs of supporting a Chapter.
To address this a strategic plan was developed by the Council for 2012-2013 which identified key areas of activity supported by a statement of purpose, and defined responsibilities, measurable outcomes and scheduled dates and timelines. The key areas are university liaison; conferences; communication; education and training; research and regional engagement.
Conclusions: The core of the WADEM Oceania Regional Chapter has been established and continues to progress. Key to success is not just the drive of individuals but a planned strategic approach to improvement supported by responsibilities, outcome measures and timelines.
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ID 381: Training and Educational Initiatives for Crises Management in European Union

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Background: Education and training are key elements of disaster management. Despite national and international educational programs in disaster management there is no standardized curriculum in the EU member states. The DITAC project aims to develop a holistic and highly structured curriculum for responders and strategic crisis managers. The aim of this study was to assess the disaster educational initiatives at postgraduate level in Europe Union countries.

Methods: An internet-based search was conducted in 2012 to identify and analyze the current training programs in disaster management. Inclusion criteria were postgraduate courses; delivered by an academic center; approved certificate. The courses characteristics were evaluated, as follows: curriculum, teaching and learning methods, modalities of delivery, duration, credit system, languages, students' prerequisites, funding, and fee.
The work leading to these results has received funding from the European Union seventh Framework Programme (FP7/2007-2013) under grant agreement n° 285036.
Results: The study identified 140 training and educational initiatives, most of them (78%) in United Kingdom, France, Germany, Spain and Sweden. No training program was found in 37% of EU countries. Master Diploma (57%) was the main granted certificate. Face-to-face education was the most common method (73%). Around 80% of the training initiatives offer multidisciplinary disaster management content. Competency based approach has been considered by 61% of the programs. Most of the courses (75%) take at least one academic year being completed. In half of the programs, target population is emergency responders at tactical level. Almost all programs were self-funded.
Conclusion: Although there are some training initiatives in EU, they are either located in some specific countries, or not cover all key elements of disaster management in a standardized structure. There is a need for a standardized training program for EU to cover all aspects of disaster management in a realistic and didactic manner.
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ID 382: Injury Surveillance Analysis of Paediatric and Adolescence Trauma from Level 1 Trauma Centre of India

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Background: In India, literature is available only regarding Road Traffic Injuries. Hardly any study is done on other injuries.
Methodology: A retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry forms maintained at AIIMS.
Results: 1671 cases were registered between 1st January and 27th August of 2011; Paediatric (1102, 66%) & Adolescent 569 (34%). Red triaged were 395 (24%), Yellow 1250 (75%), Brought Dead 21 (.08%), Green who were later up triaged 5 (0.02%). Different mechanisms of injury were blunt (1637, 98%), penetrating (14, 0.8%) and others (20, 1.2%). Causes of injuries were; RTI (445, 27%), unintentional (1119, 67%), assault (93, 5%) and others (17, 1%). Mostly, unintentional injuries were due to falls from height (846, 76%). Single region injuries were present in 1524 (91%) and multiple injuries were noted in 148 (9%). The frequency of the region injured were as follows; head (883, 53%), soft tissue injuries (331, 20%), lower limb (205, 12%), upper limb (154, 9%), face (90, 5%), abdomen (54, 4%), chest (19, 1%) and other (79, 5%). The Emergency Department disposition of patients was as follows; discharged (714, 42.73%), transferred out (586, 35.07%), admitted (227, 13.58%), absconded (52, 3.11%), brought dead (21, 1.26%), ED death (15, 0.90%) and LAMA (7, 0.42%). Most of the patients were admitted to neurosurgery (156, 56%) followed by trauma surgery (86, 31%) and orthopaedics (35, 13%). Out of 277 patients admitted, 115 (41.52%) were managed conservatively and 162 (58.48%) required surgical interventions. Out of the total, 21 (8%) had in-hospital mortality (Avg. ISS –18.13) and remaining 256 (92%) were discharged.
Conclusion: The analysis revealed that paediatric and adult groups are at risk of blunt injuries, with the most affected region being the head. This can be preventable if people pay more attention.
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ID 383: Hospital Co-ordination During Mass Casualty Emergencies: Lessons Learnt from the 2008 Mumbai Terror Attacks

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Background: During mass casualty incidents hospitals are the frontline of the response with different actors jostling for space, information and resources making co-ordination within the hospital and different agencies crucial. During the 2008 Mumbai Terror Attacks four public hospitals handled the entire emergency, making co-ordination vital to ensure an efficient response. This paper tries to understand the how co-ordination was maintained between the different actors and looking at scope of improvement based on the experiences of health-care providers.
Methods: 52 qualitative in-depth interviews of staff were conducted in the four hospitals present during attacks, regarding detailed accounts of interaction within and outside the hospitals, constraints faced and recommendations for measures to be taken ensuring efficient co-ordination between different agencies.
Results: With no standard procedures to follow, the different departments acted independently improvising measures to ensure the safety of the staff and prompt response to the patients purely on instinct during the attack. The interactions between the four government-run hospitals were based on ad hoc decisions all made by government officials, without any participation of the staff who had to follow the orders. Civic-run hospitals and Private hospitals in the vicinity were not utilized optimally which could have enabled more efficient management of the emergency rather than pooling all the patients in one public hospital. Activities of police and the hospital were often not synchronized, leading to indiscriminate delays. Poor utilization of the surge of donors, voluntary organizations and individuals bringing material and financial resources added to the confusion.
Conclusions: The study highlights key issues of affecting response to emergencies such as lack of guidelines, protocols for hospital staff to co-ordinate amongst themselves and with external agencies. More comprehensive guidelines addressing

these issues, backed with regular training and mock-drills in hospitals along with other actors is thus imperative for successful responses.

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ID 384: Demographics of Mortality and Injury in Small-Intensity Conflict: Findings from the Manipur Micro-level Insurgency Database 2006-2007

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Background: Epidemiological studies of casualties are crucial in understanding conflict as a public-health imperative. The state of Manipur in north-eastern India, has been experiencing violent insurgency and civil unrest since the 1960s, however there is little academic study or documentation of the conflict. This paper analyses the demographic trends and patterns of the injuries and fatalities trying to throw light on the micro-level human impact of the macro-level processes of complex emergencies on the affected populations in Manipur.
Methods: A retrospective study was conducted on the Manipur Micro-level Insurgency Database 2006-2007, created by daily micro-level recording of event-based data from local newspaper archives to measure the nature of incidents, characteristics and demographics of the victims, and trends in injury and mortality of the violence experienced in the state over that period.
Results: A total of 698 fatalities and 527 injuries were identified in the 2-year study period with a crude death rate of around 14.42 per 100,000 of population. More than half of the casualties were civilians, 88.6% were males and 58.4% below 35 years. The armed groups were involved in 76.8% of the cases and security forces in 46.51% of the cases while most of them were by "unknown perpetrators". The case-fatality ratio was 51.7% with the highest fatalities among armed groups (40.83%) followed by civilians (35.95%) and then security forces (12.46%). In the injuries the highest was among civilians (81.78%) and then security forces (25.04%) and lest among armed groups (3.4%).
Conclusions: The study highlights the fact that civilians bear a disproportionate impact of the conflict in Manipur with the highest burden on young men which would lead to grave socio-economic consequences. The high casualties are evidence that the insurgency in Manipur needs serious policy attention at least as an urgent health priority.

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ID 385: The Experiences Specific to Foreign Victims of The Great East Japan Earthquake

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Purpose: To verify the experiences specific to foreign victims of The Great East Japan Earthquake (GEJE), and to obtain the suggestions of support for foreign victims.
Method: Content analysis, with the participants' words on the record at "A meeting for foreign victims to look back GEJE" held by Miyagi International Association (MIA) 5 months after the disaster.
Ethical consideration: Obtained the permission of MIA to use the record.
Results: Two hundred and three foreign victims participated in the meeting and 492 experiences were extracted from their descriptions. The experiences were categorized into behavioral experiences (196), physical/mental experiences (190), situational experiences (88), and experiences related to homeland family (18). The experiences specific to foreign victims were as follows: Behavioral experiences were temporary return (5), being supported to return (1), and loss of passport (1). Mental experiences were favorable view of Japanese (37), conflict to return or not (9), rediscovery of view of homeland (4), and homesickness (2). Situational experiences were communication disturbance with homeland family (7). Experiences related to homeland family were appeal by homeland family to return (9) and homeland family's anxiety (9).
Discussion: It was confirmed that foreign victims fell into conflict to return or not, especially by homeland family's appeal. It might have been effective to provide them with mental support. Many foreign victims expressed that his or her view of the Japanese became favorable. This may bring about a good influence in rebuilding their lives.
Conclusion: Foreign victims have experienced a conflict of whether to return or not after the disaster. Their view of Japanese became favorable.

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ID 386: Suicide Attempt Presentations in a Taiwan Community Hospital Emergency Department

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Background: Suicide is a complicated social and public health issue, yet suicide attempters are usually managed in the emergency department (ED) where medical staff and resources are frequently overwhelmed. The dispositions of suicide attempters after management remain another problem as some of them may be sent back to the ED due to another attempt. Although a mandatory report system has been established and required in every emergency department in Taiwan to report their suicide presentations to local health authorities, the effect of this system in recurrent suicide attempt prevention remained to be examined. The aim of the study was to explore the current status of suicide attempt presentations in a Taiwan community hospital ED.
Methods: A retrospective data review of all suicide attempt presentations to a Taiwan community hospital ED in 2011 was performed.
Results: There were 252 ED presentations made by 222 suicidal individuals. There were 19 repeat suicide attempters,

with the highest attempts being 9 in the same year. The repeat suicide attempt rate in 2011 was 7.5% in this study. Most of the repeat suicide attempters had complicated affective and personality disorders. Despite the mandatory reporting system and prompt psychiatric intervention, either in ED or in outpatient setting, after the index suicide attempt, recurrence seemed inevitable for some individuals.

Conclusions: As a serious threat to the whole society, suicide should be included as an ED issue. Although recurrent suicide attempts seem inevitable for some individuals, comprehensive evaluation and management plan, except for brief psychiatric intervention, might be helpful in risk stratification.

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ID 387: Effect of "a Meeting for Foreign Victims to look back the Great East Japan Earthquake"

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Purpose: To verify the effect of "A Meeting for Foreign Victims to look back at The Great East Japan Earthquake", and to obtain the suggestions of support for foreign victims of the disaster.

Program: Exchanging disaster experiences by mother tongue; advice by policeman, lawyer, and clinical-psychologist; massages by beautician; a present of a radio.

Method: Content analysis, with the participants' words on the record at the meeting held by Miyagi International Association (MIA) 5 months after the disaster.

Ethical consideration: Obtained the permission of MIA to use the record.

Results: Two hundred and three participants stated 251 opinions about the meeting. The opinions were categorized into intellect (95), emotion (121), and volition (35). Intellect contained recognition (34), significance (31), learning (28), and admiration (2). Emotion contained positive feelings (114) and negative feelings (7). Positive feelings were thanks (48), strong impression (33), pleasure of reunion/new-meeting (21), enjoyment (8), and comfort (4). Negative feelings were grief (3), complexity of the feeling (2), and fear/anxiety (2). Volition were eagerness (26), wish (3), hope (3), encouragement (2), and courage (1).

Discussion: Many participants were satisfied with the meeting. Regards to participants and exchanging the disaster experiences by mother tongue might have made them feel lighthearted. And it seemed that advice by professionals was helpful to prepare against the earthquake and remove the anxiety.

Conclusion: After a disaster, talking by mother tongue within a compatriot group was helpful. The disaster prevention education, especially for earthquake, was effective at chronic phase of the disaster cycle.

Prehosp Disaster Med 2013;28(Suppl. 1):s127
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ID 388: Treatment of Burn Injury Patient In Sardjito General Hospital, After the Merapi Volcanic Eruption in 2010

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Background: After the Merapi volcanic eruption in November 2010, there was a severe wide destruction of the environment, huge loss of properties, more than 350 people perished, hundreds of injured local citizens, and more than 100000 people became refugees. Among the injured people, there were forty-three victims who suffered severe burn injuries. Treatment of a severe burn injury is characterised by a complicated and costly procedure, with a high morbidity and mortality rate; and the situation will become worse in a disaster setting. All burn victims of the volcanic eruption were therefore admitted to the Sardjito General Hospital, where burn specialists equipped with a standard burn unit was available.

Objective: To report and evaluate the treatment of victims with burn injuries after the Merapi volcanic eruption in November 2010.

Methods: Case report. Data was collected from the Medical Record and the Report of the Sardjito General Hospital's Disaster Response Team.

Results: During the acute phase, there were 43 patients with burns, ten of them (23, 26%) with burns $< 20\%$ of body surface area (BSA), 13 (30, 23%) patients with 20% – 59% of BSA, 20 (32, 56%) with 60% - 79% of BSA, and 6 (13, 95%) with $> 80\%$ of BSA. An inhalation trauma occurred in 33 (76, 74%) victims, and the overall mortality was 40, 46% (20 of 43 patients), where the survival rate of patients with $> 80\%$ BSA burn injury was zero.

Conclusion: Despite better preparedness and responses of the Sardjito General Hospital, the mortality rate of severe burn injury patients remained high. Prevention from being injured would be the best way to reduce the mortality.

Key word: severe burn injury, volcanic eruption, disaster, mortality rate, burn unit

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ID 390: One Proposal and One Year Report of New Pre-hospital Patient Information Sharing System, Using "Digi-Pen," "Paper" and "Phone"

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In April 2012, one of the local governments of Japan (Kagawa Prefecture, one million residences) introduced new pre-hospital patient information system with IT. This information system uses "digital pen," "paper" and "tablet phone". All ambulances in Kagawa (43 cars/teams) are equipped with a digital pen, "paper (medical sheet) on clipboard" and tablet phone. When Emergency Medical Technicians (EMTs) write patient's conditions on pre-hospital medical sheet on their own

hands, these data will automatically transmit via the tablet phone and will be shared all emergency hospitals in Kagawa (80 hospitals). (Reveal the trick 1: There is tiny camera at the top of digital pen and that camera will trace ink on the specially prepared paper, using IT.) All emergency doctors in Kagawa can check patient's conditions simultaneously and also can decide "We will accept!" or not, responding the request of hospitalization by EMTs. When the doctor(s) decide hospitalization, these decisions will send back to all ambulances automatically through tablet phone, too, and next EMTs will be able to choose appropriate (and/or not busy) hospitals. (Reveal the trick 2: EMTs can avoid sending patients to busy hospital, because tablet phones indicate the situation of hospitalization in recent 3 hours of all emergency hospitals in Kagawa.)

In Japan recently, a similar information system was also introduced. This system uses ipad in both sites, EMTs at scene and emergency doctors in hospitals. This paperless "ipad to ipad" system may have some advantages. However our digi-pen system has strong advantages. Our digi-pen system can combine analog (flexibility of handwriting on paper) and digital (simultaneous information sharing among all related personnel's). In this proposal and report, I as concept maker of this digi-pen system, will compare and analyze these new pre-hospital patient information sharing system and our one year experience in Kagawa.

Prehosp Disaster Med 2013;28(Suppl. 1):s127–s128
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ID 391: A Model to Evaluate Preparedness of Pharmaceutical Services for Disasters on Military Institution in Brazil

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Introduction: The pharmaceutical services must be prepared for disaster situations in order to provide medicines and health supplies to the affected population. In Brazil the military corporations must work complementarily in emergency situations. The state of Rio de Janeiro will host three major events in 2013 (World Youth Day), 2014 (FIFA World Cup) and 2016 (Olympic Games). These events will receive the support of the armed and auxiliary forces, both in security actions as in additional shares, among them those related to health. This study proposes a method to analyze the preparedness of the Pharmaceutical Services for disasters in Military Police of the state of Rio de Janeiro, and its capacity to deal with disasters situations.

Methods: The literature was searched to subsidize the development of a comprehensive model for preparedness of pharmaceutical services in disasters applied to military corporations; a review of health actions in disasters developed by professionals of the military policy of Rio de Janeiro in the last five years was conducted; an indicator framework based on the model was built to support the data collection.

Results: A logic model was developed using components of pharmaceutical services: selection, planning, acquisition, donation, storage, distribution, use, and human resources. Were elaborated further 22 indicators divided into external context (4) and pharmaceutical care (18). The data collection instrument based on the indicators was designed with qualitative and quantitative questions, checklists to assess Good Transport Practices and Good Storage Practices was made.

Conclusion: The present proposal is considered to be a useful tool to analyze the preparedness of pharmaceutical services in military corporations and may provide technical information to support the implementation of measures of disaster preparedness in these contexts.

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ID 392: Golden Hour of Response in Mumbai Serial Bomb Blast 2011 a Case Study

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Introduction: Triage, even though life-saving, is not always possible to operate at ground levels especially in situations like bomb-blasts; this is mainly due to lack of skilled manpower, operational problems or low volume of victims. This paper tries to find what other options we have to save the lives through scientific examination of July 2011 Mumbai bomb-blast.

Methodology: Systematic gathering of information, triangulation with fact narrated by victims and witnesses and identification of gaps was done.

Results: There was delay in mobilization of victims. Main efforts were started by local respondents. Systems, including police and ambulances reached the site of blast when most of the injured were mobilized. Witnesses and bystanders on the ground played a significant role in mobilizing the victims but due to lack of domain knowledge in lifting and delivering patients, it led to chaos. Considerable time was wasted in referral of the patients and actual initiation of treatment in the hospital. There is a possibility that emergency departments could have initiated treatment early even with this sudden burden of needy patients.

Conclusion: Response time in this case was considerably high compared to developed countries and there is a significant scope to improve in this regard. First examination by any medical or paramedical staff was done 45 to 60 minutes after the incident and that to in the emergency department of the hospital, may be leading to more deaths and disabilities. Some of the identified ways which can reduce the loss of golden-hours are by means of bystanders' training, priority identification training of security and traffic staff, operating a mini-triage system at emergency department which will help in early treatment intervention.

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ID 393: Results of Operative Fixation of Fractures of the Femur at a Tertiary Hospital in a Developing Country

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Background: Operative fracture treatment is gaining popularity in developing countries. The concerns however, are complications, chief among which is hardware infection. We have employed the AO methods of internal fixation in our centre in the last 18 years.
Objectives: We evaluated the outcome of internal fixation of fractures of the femur at our centre with a view to determining whether operative treatment of fractures should be encouraged in our environment.
Methods: All cases of internal fixation of the femur done at the University College Hospital (UCH), Ibadan between September 1995 and December 2008 were reviewed. The indications for surgery, techniques of fixation as well as outcome measures like time to union and complications were recorded.
Results: Two hundred and fifty nine femurs operatively treated in 236 patients were reviewed. Twenty eight (10.8%) were open fractures (25 Gustilo type IIIa). The femoral shaft constituted 60.2% (156 cases), supracondylar region 32 cases (12.4%), subtrochanteric region 21 (8.1%), femoral neck 21 (8.1%), pertrochanteric fractures 20 (7.7%) and other sites 9 (3.5%) cases. Mean age was 37.2 ± 18.4 years (peak 21-40 years; range 5–100 years) with male: female ratio of 1.3:1. Seventy four percent were road traffic injuries and 28 (10.8%) were open fractures. Average follow up duration was 14.5 months. Plate osteosynthesis was employed in 189 (73.0%), intramedullary devices in 5.4%, and interfragmentary screws 2.7%. Time to union averaged 5.2 months. There was a 22.0% complication rate; contiguous joint stiffness in 4.6%, chronic osteomyelitis in 5.0%, loosening and failure of implant in 5.4%.
Conclusion: Chronic infective complication is comparable to that obtained from similar studies. Efforts at reducing infective complications and improving post-operative rehabilitation are necessary. Open reduction and internal fixation is a viable option in treatment of fractures of the femur in the 3rd world if the cases are properly selected.

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ID 394: Health Response to the Earthquakes in Van Province, Turkey 2011 and Lessons Learnt

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On 23 October and 9 November 2011, two major earthquakes hit eastern Turkey measuring, respectively, 7.2 and 5.6 on the Richter scale. Van Province was severely affected.
In this paper we assess the medical response to these earthquakes. The assessment was done through reviewing the registrations; site visits including a visit with WHO team and interviews with responders.
The medical response was quickly and effectively coordinated by Health Disaster Coordination Centre - SAKOM of MoH. Nearly 6000 personal, including Medical Rescue (UMKE) and 112 emergency teams, out of Van province were involved in response activities in different periods. Damaged and collapsed medical facilities were evacuated and mobile hospitals erected. Injured people or patients were rapidly evacuated to other cities. The continuity of basic health services, including immunization and treatment of chronic diseases (e.g. diabetes and cardiovascular disease) was assured. The early-warning alert-and-response system for public health surveillance was activated. Reporting procedures were simplified and daily reporting of routine and certain additional diseases related to the disaster commenced. Psychosocial support was initially given in the field and later in the Community Mental Health Centre, which refers patients for hospital care if required.
The earthquakes and the response have shown that a standing referral hospital plays a critical role in earthquake situations. It was seen that accommodation possibilities for affected health personnel should be planned beforehand. The earthquakes opened opportunity windows in some subjects due to the focused interest on the area. New practices were developed. For example, a hotline for the community was deployed with the purpose of responding to the health problems, which are out of the content of 112 emergency services, of the affected community.

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ID 395: Mass-burns Casualties; Time to Re-think Pre-hospital Treatment Protocols for Remote Responses

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Background: To describe the clinical lessons learned from the medical response to treat 44 seriously injured asylum seeking refugees injured in an explosion aboard their vessel 800 km from the nearest moderately sized hospital.
Methods: Of the 49 passengers and crew onboard Suspect Illegal Immigrant Vessel (SIEV) number 36 April 16th 2009, 44 survived an explosion on board. These survivors had an average burn surface area of 25%, with several having burn areas in excess of 60%. 6 required intubation by a medical response team in the field, and at least 8 others had intubation on arrival at the treating health facility. Response procedures were reviewed in the wake of this incident, and several recommendations for future delayed and remote access responses will be presented.
Results: Notification and response co-ordination in a remote Australian context will be briefly discussed. Rates of intubation and the need for field escharotomy were decreased by careful titration of small aliquots of intravenous fluid. The use of thin sheets of protective plastic film was useful, but caused minor difficulties with treatment later, due to long retrieval times. Consideration of silver based burns dressings and antibiotics in certain situations may be useful for very long transit times.

Conclusions: No patients died after the initial rescue phase, despite an average retrieval time to hospital of over 27 hours. Burns management many hundreds of kilometres from the nearest burns unit requires some specific changes in management, especially in instances of mass casualty. Careful titration of fluids rather than working to a specific formulae with remote consultation with burns specialists as required is a model of care that has worked for multiple responses from the Royal Darwin Hospital and National Critical Care and Trauma Response Centre.

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ID 396: The Evolution, Key Features, Current Status and Challenges of Australia's First National Strategy for Disaster Resilience

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Background: Following Australia's Black Saturday Firestorm in February 2009, the Council of Australian Governments released its *National Strategy for Disaster Resilience* in February 2011. While the inception of this *Strategy* began prior to the Black Saturday Firestorm, its release was timely and significant. Australia had its first Federal Government policy that recognised and articulated the requirement of a national, coordinated and cooperative effort to strengthen Australia's capacity to withstand and recover from emergencies and disasters. This paper describes the evolution, key features, current status and challenges of Australia's first *National Strategy for Disaster Resilience.*
Methods: A chronological analysis of key policy documents provides the basis for exploring the evolution, key features, current status and challenges of this *Strategy.*
Results: A series of think-tank reviews, political policy statements and government documents clearly outline the evolution of this *Strategy*. Key features include an all-of nation and all- hazard approach, shared responsibility and disaster risk reduction. Currently, the *Strategy* is influential in guiding disaster resilience strategies at a National level, and influencing change at State level. An increasing number of National approaches include risk assessments, critical infrastructure, emergency warnings and research. Challenges include managing a cultural shift to accommodate key philosophical changes to move an entrenched and traditionally slowly responsive system to a contemporary context in the setting of competing policy and budget challenges at National and State levels. Specific challenges include understanding risk and developing behaviour change to support community initiatives towards greater resilience; and revising emergency management frameworks and interoperability at a State level.
Conclusion: In the first instance, these results will contribute to broader discussions about the *National Strategy*. The *National Strategy* has provided unified direction at a National level and is influencing State policy with some success. The ultimate success will depend on how Australia responds to the challenges.

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ID 397: Snapshots of The Services Provided by Voluntary Based National Medical Rescue Team of Turkey: UMKE

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Background: The vital importance of the first response to all kind of disasters and emergencies are still visible globally and every moment a large amount of the population are getting effected all around the world. Unfortunately, the lack of a large medical rescue team had emerged after the Marmara Earthquake in 1999, in Turkey. There has been 9 years since the establishment of the voluntary based National Medical Rescue Team of Turkey (UMKE) in Ministry of Health and their major role was confirmed in all humanitarian operations that they have attended in Turkey and abroad.
Methods: The retrospective selected data, such as the statistics of policlinics, laboratory services, surgical operations and personnel, gained from the humanitarian operations are major indicators of the contributions provided by UMKE for each humanitarian operation.
Results: Turkey has one of the largest medical rescue teams of the world with its 4909 voluntary health professional participants and for instance; more than 1000000 patients examined, more than 23000 patient were operated, more than 110000 laboratory tests and radiological imaging had been applied by UMKE during the humanitarian operations.
Conclusion: In order to strengthen the emergency preparedness capacity, to establish a voluntary based medical rescue team, can have a major supportive role in national or abroad humanitarian aid operations.

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ID 398: Strategic Planning in Mass Gathering. Health Care Assistance Actions of the Municipal Council of Health and Civil Defense of Rio de Janeiro During the New Year Event at Copacabana from 2009 to 2012

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Outline: Mass gathering has been a challenge for all public services involved, and it reflects on the area of health care through pre-hospital treatment. Underlying study analyses the period from 2009 to 2012 for one of the events on the official calendar of Rio de Janeiro, New Year at Copacabana, hosting a community of 2 million people each year on an area of 7 Km. It is an open air event, with consumption of alcohol, music, attractions and fireworks. At the end of each episode, 'hit and misses' worksheet and SWOT matrixes have been established

to help in analysis. The Municipal government is responsible for medical assistance, using in its planning variables recommended by local State legislation.
Method: Application of "hit and misses" worksheet associated to a SWOT matrix, to analyze the event.
Results: The study has caused a tactical change and an evolution in technique in the strategic planning, delivering health care support to a total estimated public of 8 million people over a period of 4 years, with 4523 cases treated. The proposal of this study is to engender discussions of the analytical process of each event, punctuating year by year technical and tactical changes and in that way to directly impact on the strategic development of delivered health care assistance.
Conclusion: The most important point in the strategic planning and executing of health care assistance during mass gathering is the preliminary situational analysis and a disciplined revision afterwards, when all is evaluated and assessed as a whole, reviewing hits and misses, strong and weak points, opportunities and threats, intervening in possible vulnerabilities in a dynamic way with constant restructuring of the logistics of delivered assistance, so providing, through lessons learned, support for a safe event.

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ID 399: 72 Hour Post-Disaster Self Reliance Programs: Learning Lessons from International Comparisons

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Background: The Council of Australian Governments released its first *National Strategy for Disaster Resilience* in February 2011. The development of this *Strategy* commenced prior to the devastating Black Saturday bushfires in February 2009. While the *Strategy* was not a result of the bushfires, it became a significant policy statement for anyone involved in preventing, preparing, responding or recovering from the Black Saturday devastation. For the first time, Australia had a Federal Government policy that recognised and articulated the requirement of a national, coordinated and cooperative effort to strengthen Australia's capacity to withstand and recover from emergencies and disasters. Central to this approach is the adoption of a whole-of-nation resilience-based approach to disaster management. While the Strategy fails to define disaster resilience, there is an expectation that communities and individuals share this responsibility.
Australia has no 72 hour Post-Disaster Self Reliance Program. One way forward to help communities and individuals is to promote lessons learned from international comparisons where 72 hour Post-Disaster Self Reliance Programs exist.
Methods: A targeted website review to identify Post-Disaster Self Reliance Programs was conducted with a particular focus on five countries with comparable emergency management arrangements
Results: A review of the Post-Disaster Self Reliance Programs in Canada, New Zealand, the United Kingdom and the United States identified 72 hour Post-Disaster Self Reliance Programs that shared common elements between these countries as well as specific innovative approaches in the emergency management profile. One country had evaluated its program.
Conclusion: Australia could benefit from considering the adoption of international programs into the Australian *National Strategy for Disaster*. Such programs may be beneficial for encouraging Australian citizens to 'be ready' for frequent minor events such as power outages or storm damage as well as more extensive natural disasters. There is a need to systematically evaluate programs for improvements.

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ID 400: Real-time Tracking of MCI Victims and Hospital Evacuees; Using Technology to Our Advantage

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Background: During a Mass Casualty Incident (MCI) or Disaster, sharing key information about patient numbers and their triage categories is time critical for effective healthcare. Historically human error, difficult communications, rumour and confusion have hampered the speed and accuracy of this data reaching commanders and clinicians.
Methods: The National Critical Care and Trauma Response Centre (NCCTRC) in Northern Australia has created a ruggedized handheld Electronic Disaster Management Device (GPS enabled Bar-code scanner) to assist in the sharing of patient data from the scene of a Mass Casualty Incident or Disaster.
Results: The system is composed of 2 core parts: Handheld Device – the physical device was selected for its ability to operate in rugged, wet and dusty conditions. Software & Server Component – this software was developed using a commercial and stable platform, secured and tailored for medical applications. A proof-of-concept trial was undertaken in conjunction with a Police, Urban Search and Rescue & Fire training event simulating a shopping centre collapse with mass casualties. Statistically significant differences in time to reporting were recorded, with scans taking an average of 6 seconds and results becoming available with 80 seconds versus over 20 minutes via the traditional paper and radio based system. Further development and alpha and Beta testing have now been completed with a usable system now available in Australia to manage patient tracking during MCI responses. Further work has allowed expansion of uses of the device to include areas of evacuation of patients from health facilities, Disaster Victim Identification, national registration of survivors (NRIS), overseas repatriation of evacuees or injured & remote retrieval incidents.
Conclusion: The trials have proven the system to be timely, accurate and efficient in its transmission of crucial information during an MCI.

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ID 401: Prevalence Study of Health Problems on the Field Hospital Post Flash-flood Disaster at Wasior, West Papua - Indonesia

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Introduction: When a hospital collapses or its functions are disrupted, lives that depend on emergency care can be lost. Interruptions in routine services can also be deadly. On 4 October 2010, a flash flood stroke Wasior District, West Papua and claimed 159 lives, left 123 missing people, severely injured 250 people, lightly injured 535 people, left 4,000 people homeless, forced 4,423 residents to seek refuge and destroyed 90% of the town. The flood was triggered by incessant, heavy rains that had fallen from 3 to 4 October 2010. All hospitals had lost as much as 100% of its hospital capacity, right at the time when life-saving services were most acutely needed.
Methodology: Our Disaster Action Team was deployed 7 days after the flash-flood struck. We were assigned to set up a Field Hospital with satisfactory emergency medicine care within the hospital. The hospital had been run for 7 days. The purpose of this study is to identify the health problems in the population after the flashflood disaster. We conducted data analysis from all patients registered to the hospital, involving 45 patients, ranging from 2 months to 61 years old.
Results: Surprisingly none of the cases were directly related to the disaster (n = 0). Our study shows a high prevalence of upper respiratory infection among all of the health problems (n = 45), placed in 42.2% (n = 19).
Conclusion: We need to understand and to set up our role during the disaster. Good planning and execution of emergency department systems in daily practice can help maintain hospital disaster preparedness & critical functions. In view of the high prevalence of upper respiratory infection among all of the health problems that occurred in Wasior post flashflood disaster, knowledge of emergency medicine in general and specific for this condition is important and crucial for the government and Disaster Action Team.

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ID 402: Critical Review of the Centralized Accident and Trauma Services (CATS) in New Delhi, India

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Background: In the National Capital Territory of Delhi, India - Pre-Hospital Emergency Care is primarily provided by the Centralised Accident & Trauma Services (CATS) which was conceptualised as a plan scheme by the Govt. of India in 1984.
Methodology: This study was done to review the operational status of CATS and to critically analyse its capacity to handle the pre-hospital care needs of New Delhi. The organizational structure of CATS and its operational characteristics were reviewed. Central Control Room call logs of CATS from June 2011 - May 2012 were analysed with respect to various parameters like total calls received, percentage of calls refused, response times, morbidity profile, peak & lean times, etc.
Results:

* CATS refuses approximately 28% of the total calls received per month
* The Avg. Site Response Time i.e. the time from receiving the call to reaching the site is approx. 10 min.
* The Avg. Hospital Response Time i.e. the time taken in transferring the victim from the site to the hospital is approx. 30 min
* The Avg. Total Call Time i.e. the time from dispatch from base to returning back to base is approx. 57 min.
* 66% of Calls Attended relate to Trauma (Accidents, Fall, Injuries, Blasts, Stabbing, Collapse, Clash, Hanging, etc.)
* The CATS Control Room on an average receives 178 Calls per hour with the number of calls almost doubling between 8pm - 12am (peak time) and almost halving between 2am - 8am

Conclusion: Going by the Govt. recommendations, the NCT of Delhi would need 280–300 ambulances across its geographic territory. Keeping this in view, the Centralised Accident & Trauma Services in Delhi is grossly ill-equipped, under staffed and over worked vis a vis the geographical requirements. Medical Direction is totally lacking and is in turn affecting the quality & standard of care offered by the existing service in Delhi.

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ID 403: Determination of Preparedness of 112 Emergency Health Personnel for Serious Winter Conditions

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Aim: The 112 emergency personnel and core ambulance personnel continue to work in all hard and serious weather conditions so their preparedness is very important.
Methods: The descriptive study was carried at Çanakkale 112 Emergency Service and its 17 district stations. Data was collected using a questionnaire sent in closed envelopes; 167 staff accepted to answer the questions (69.58%). CDC's suggestions were used to prepare the questionnaire form in order to measure the preparedness of individuals, their houses and cars for serious winter conditions. CDC's suggestions were turned to a score in order to make two categoric groups: ready for the serious winter conditions and not ready. Descriptive statistics and chi-square test were used to analyse data using SPSS 15.0 Statistical Package program. Ethics committee had approved the study in December 2012.

Results: In the study, mean age is 29.8 ± 7.9, 52.7% are women. More than half of them (54.75%) are emergency medical technicians and 53.3% are married. Nine percent of them had a chronic disease for which they are using medication. In the study 10.4% of the natural gas users had gas detectors and 8.4% had had a traffic accident, 8.4% were faced with freezing. Of the participants, 17.1% had prepared an emergency bag. Preparedness of individuals and homes were measured; marriage, age and working at the districts were significantly related ($p < 0.001$). Men had hauling cable; district workers had substitute dress and snow tyres ($p < 0.05$). Absenteeism were higher at center personnel because they weren't prepared for the hard winter situations ($p = 0.016$).

Conclusions: The serious winter conditions preparedness of the emergency health personnel is insufficient for themselves, their houses and cars. As they're important in emergency responses they should have been more sensitive for disasters. Education especially for hard winter situations should be provided routinely.

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ID 404: Mobile Health Units: Way Forward in Mass Casuality Events

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Background: India is highly prone to Mass Casualty Events (MCE) which includes both natural as well as man made events. 59% of land area of India is liable to seismic damage. The super cyclone in Odisha in Oct 1999 caused more than 9000 deaths; the Bhuj earthquake in Jan 2001 resulted in 14000 deaths; while the tsunami in Dec 2004 left behind 15000 deaths in India. Provisioning and availability of resources is not a constraint but effective planning & deployment of resources is a major issue in ameliorating the effects of Mass Casualty Events. One of the effective preparedness strategies is to provide effective Medical care delivery at the site of event.

Methods: This study aimed to assess the suitability of deployment of Mobile Health Units (MHU) during Mass Casualty Event (MCE). The study also planned design considerations based on terrain and accessibility by various modes of transport. Various challenges were deliberated.

Results: Necessary strategies for effective deployment like terrain analysis, role of local health care providers, type of MHU, capacity building of personnel, Intersect oral coordination has evolved as the need of the hour.

Design customisation of Mobile Health Units has resulted in a combination of containers & modern tents which can provide onsite OPD, OT, Post op, ICU, Support services, Administrative and staff quarters. These are self contained logistically in terms of power, waste disposal, food, water, sanitation/hygiene, toilet facilities as well as lifting & lowering facilities. Role of MHU by air, water and land have been delineated.

Conclusion: It was observed that moving casualties to the site of medical care delivery during Mass Casualty Events was extremely difficult and compromised early delivery of health care, alternatively medical care should reach the needy. This need is bridged by MOBILE HEALTH UNITS

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ID 405: Combined Government Civil-Military Humanitarian Response Teams: A New Australian Model

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Background: In August 2010, the Australian government deployed a joint task force JTF 636, in response to devastating floods affecting Pakistan. After initial needs assessment and in consultation with Pakistani authorities and military, JTF 636 was tasked to provide humanitarian medical aid to the people of Kot Addu, Punjab, Pakistan. This was the first Australian large scale joint civil-military mission, combining large numbers of defence health personnel with an Australian Medical Assistance Team (AusMAT) made up of senior doctors, nurses and paramedics from several states and territories.

Methods and Results: Several medical humanitarian interventions not normally used by military medical teams were used, with excellent outcomes for the over 11,000 patients treated during the $2\frac{1}{2}$ month mission. These included use of Mid-Upper Arm Circumference screening of all children, and clinical lessons used in indigenous health-care in Northern Australia including mass worming, particularly of those families with malnourished children, and management of over 4,000 cases of malaria. Ondansetron and its use in humanitarian public health response will be described after its successful use in over 400 children on the mission. This was used after a recent successful double blind placebo randomised controlled trial in remote Northern Australia. Fewer children required i/v fluids, NG fluids or admission after successful oral rehydration. Several important lessons were identified related to training and skills, particularly in global and public health among military clinicians, and in the approach of combined teams to local Government and Military, NGO's and the Health cluster.

Conclusion: The medical mission Operation Pakistan Assist 2 was a successful mission with multiple valuable lessons and models to learn from for future civilian and military (or combined) humanitarian missions representing the Australian government.

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ID 406: Pre-hospital Paramedic or Physician laryngoscopy?

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Background: The Greater Sydney Area Helicopter Emergency Service (GSA-HEMS) deploys a critical care physician and paramedic to pre-hospital missions.
We are one of several services where the laryngoscopist in pre-hospital rapid sequence induction (PH-RSI) may be a physician or a paramedic.
With published evidence of greater PH-RSI success rates with physician versus paramedic laryngoscopists, we decided to evaluate the success rates of the first attempt at laryngoscopy provided by our team.
Methods: We conducted a retrospective database review of the Ambulance Service of New South Wales Airway Database (ASNSW-AD) to identify "successful" attempts at laryngoscopy.
Results: GSA-HEMs performed 490 RSI's between August 2009 and May 2012 of which 255 were pre-hospital missions and 225 (88%) were trauma cases
161 (63%) of patients had one indication for PH-RSI and 67 (26%) had two.
208 (82%) of patients had one attempted laryngoscopy
If a doctor carried out the first attempt (95) it was successful 86 times (91%)
Whereas with a paramedic (160, 63%), it was successful in 122 (76%.)
The overall success rate of doctors "first laryngoscopy" was 79%; reflecting this might be the second, third or fourth *attempt* at laryngoscopy.
9 patients (0.35%) had failed intubation with LMA (7) or Surgical Airway (2) deployment.
Conclusion: Multiple attempts at laryngoscopy are deleterious and preclude failed intubation.
An integrative team approach has led to GSA-HEMS using paramedics as first laryngoscopist unless there is a clear indication otherwise.
As we have identified a clear difference in success rates at first laryngoscopy, can we still justify this practice?
We are now in the process of determining what factors increase the likelihood of multiple laryngoscopy or failed intubation in our service.
With this information we will then be a position to determine whether the educational and team benefits of using paramedics as laryngoscopists can continue in its current form.

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ID 407: Emergency Management Plan for Mass Casualty Incidents: From the 2009 L'aquila Earthquake to the Evolution of Hospital Emergency Preparedness in the Marche Region, Central Italy

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Background: Assuming that Emergency Management Plan For Mass Casualty Incidents (PEIMAF) are only prepared to meet the requirements of the law and they are not calibrated, tested and updated to reflect the changing needs of hospitals and the local area, they are useless and doomed to fail. This study aimed to research the issues and problems related to the response of a real mass casualty incident like the L'Aquila earthquake of 2009, whether they were present in the plans of hospitals in the province of Ancona and thus improve the PEIMAF the Marche Region in an optical uniformity and integration.
Methods: First case study: we sent questionnaires with open and closed questions and/or interviews with staff in the hospital San Salvatore, coordinators of MEDEVAC, the leaders of four Operations Centres in 118 'Abruzzo responsible for the emergency departments in hospitals in the Abruzzo region. Second case study: we sent questionnaires with open and closed questions to the staff of hospitals in the province of Ancona, performed data processing and a briefing with representatives hospital to highlight the issues, made a command post exercise followed by a debriefing, accomplished scale exercise at the emergency departments in Ancona.
Results: In the first case study the problems were mainly related to the lack of planning and/or disclosure thereof. In the second case study it highlighted the lack of training of the staff even if you noticed a problem with raising the awareness of the importance of planning. The major problems have occurred on early warning, communication, coordination and press releases.
Conclusion: Given the path taken in the Marche region it is important to continue to work whilst maintaining a continuous feedback between the components of the emergency response delegated to areas such as Civil Protection, Disaster Medical Assistance Team (ARES –ITALIA-), hospital coordination groups; make annual exercises, stimulate ongoing development of contingency plans

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ID 408: Competency Assessment of Combat Healthcare Leaders: Countering Battle Stress

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Background: Combat is a state of conflict wherein the soldiers are exposed to sudden, intense, and life threatening situations. The soldier comes face to face with the most difficult paradox of human life that is to kill to survive. Health care delivery on site in combat zone is a herculean task. An in depth understanding of the operational scenario and constant update of dynamic environment is needed for health leaders to optimally deploy their resources based on sound planning and soulful insight. The fight for medical personnel is not only to survive the vagaries of battle but also to deliver their core competency in a hostile environment. It is imperative that the leader has the requisite competency to lead his troops with strategic vision and enterprise knowledge. Combat healthcare Leaders must plan the deployment from pre combat stage to intense combat scenario.

Methods: This study aimed to assess the desired competency of a combat healthcare leader in discharging his multifaceted role. Extensive literature review and cross sectional study of healthcare leaders has been done to assess the needs. Semi structured interviews and personal interaction was the methodology adopted.
Results: Effective Combat Healthcare leadership requires a combination of both Technical and Non Technical skills. Technical skills include the ability to manage information and technology, financial resources, and human resources. Financial resource management requires skills such as budgeting, asset management, and monitoring financial resources. The soft skills were considered important. Effective decision making, continued capacity building and being connected to civil populace is found to be extremely important.
Conclusion: Visionary leadership (envisioning a future state and influencing movement toward it), strategic thinking and a sound understanding of the larger context of health care needs will result in effective health care delivery in combat zone.
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ID 409: To Study the Diagnostic Accuracy of Ultrasound When Compared to X-ray in Detecting Foreign Bodies in Soft Tissue Injuries in Patients Presenting to Emergency Department (ED) of a Level -1 Trauma Centre

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Background: Trauma with penetrating wound is a common complaint in ED. Plain radiography can detect radiopaque foreign bodies. CT and MRI can detect radiolucent foreign bodies, but it is time consuming, costly and provides static images.
Ultrasonography (USG) has no radiation risk, provides dynamic imaging and can be done at the bedside.
Objectives: To study diagnostic accuracy of USG when compared to X- ray in identifying foreign bodies.
Method: A prospective study was done during June to December 2012 in ED of AIIMS Trauma Centre. Patients with soft tissue injuries first underwent USG scan then X- rays. Finding of X- rays and USG were blinded to the interpreters. These USG studies were saved and later reviewed by an ED consultant and X- rays were reviewed by a senior resident in orthopaedics. Data analysis was done by SPSS version 16.
Results: 104 patients with blunt and penetrating injuries were recruited. 13(12.50%) patients had blunt injuries, 22 (21.50%) had penetrating injuries and 69(66.35%) had both mechanisms of injuries. Foreign body sensation was present in 26(25%) and 78(75%) were without sensation. 100(96.15%) patients had lacerated wounds and 4(3.85%) had puncture wounds. Foreign body were confirmed by exploration in all these positive cases. Finding of X-rays with respect to USG as gold standard – sensetinity-88.90%, specificity-100%, PPV-100%, NPV-96.20%. Case detected by X-rays was 24(23%) and by USG were 27(26%). So 3% cases were missed by X- rays.
Conclusion: USG is highly sensitive and specific in identifying and guiding in removal of foreign bodies when compare to X- rays.
Limitation: Small sample size
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ID 410: Managing Cerebral Malaria During Disaster with Minimum Equipment and Tools: A Challenge for Disaster Action Team

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On 4 October 2010, a flash flood stroke Wasior District, West Papua and claimed 159 lives, left 123 missing people, severely injured 250 people, lightly injured 535 people, left 4,000 people homeless, forced 4,423 residents to seek refuge and destroyed 90% of the town.
Introduction: The flood was triggered by incessant, heavy rains that had fallen from 3rd to 4th October 2010. All hospitals had lost as much as 100% of its hospital capacity, right at the time when life-saving services were most acutely needed.
Methodology: Our Disaster Action Team was deployed 7 days after the flash-flood struck. We were assigned to set up a Field Hospital with satisfactory emergency medicine care within the hospital. A male was referred from primary health service post, brought by ambulance. History of fever since 4/7, loss of consciousness 4/24, & seizure x1 for 30 minutes and lives in a malaria endemic area. GCS was E1V1M4, respiratory distress with rate 30x/min, BP 90/70 mmHg, pulse 110x/min, axilla temp 40.5°C, cyanosis, SaO2 76%, severe dehydrated, absent of focal neurology, and in an epileptic state.
Results: Despite minimal equipment and no diagnostic tools, we diagnosed Cerebral Malaria. We decided to perform Rapid Sequence Intubation with Succynilcholine, assist breathing with manual positive pressure ventilation, to rehydrate with IV NaCl 0.9% 2L, to stop the seizure with IV Midazolam & IV Phenytoin, to administer IV loading Kuinin 1 gr & IV drip Kuinin 1 gr within 24hrs, antibiotic, antipyretic, to give enteral feeding via NGT & to insert urine catheter. His condition was improving, and we discharged him home after 3 days of admission.
Conclusion: We need to understand and to set up our role during the disaster. Good planning and exercising emergency department system in daily practice can help maintain hospital disaster preparedness & critical functions.
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ID 411: Predictive Value of Telenursing Complaints in Influenza Surveillance: A Prospective Cohort Study in Sweden

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Background: Data source alternatives to mandated reporting by microbiological laboratories and sentinel physician practices have been sought to improve the timely detection of influenza outbreaks and to subsequently position medical and hospital resources for precipitous levels of patient surge. The aim of this study was to investigate the predictive value of telenursing complaints in influenza outbreak surveillance.
Methods: Data from two influenza seasons were collected using a county-wide electronic patient record system to determine which telenursing chief complaint grouping had the largest correlation with influenza case rates and offered the longest lead time. The best performing alerting threshold for this grouping was established using ROC curves. The complaint grouping and alerting threshold were prospectively evaluated in the three subsequent seasons.
Results: The complaint grouping with the largest correlation strength on a daily basis ($r = 0.66$; $P < 0.001$) and longest lead time (14 days) to influenza case rates in the retrospective data was fever (child, adult) and syncope. The retrospective performance of 14-day outbreak predictions based on this grouping was very strong (AUC = 0.94; PPV = 0.92). In the prospective evaluation, the correlation still showed large strength ($r = 0.59$; $P < 0.001$). The performance of 14-day predictions was acceptable for part of the evaluation period including the 2009 pandemic outbreak (AUC = 0.84; PPV = 0.58), while it was strong (AUC = 0.89; PPV = 0.93) for the remaining period including only seasonal outbreaks.
Conclusions: The telenursing complaints fever and syncope showed large strengths for correlations with influenza case rates and strong discriminatory performance in predicting seasonal influenza outbreaks. The method achieved poorer results during the 2009 pandemic outbreak when health behaviors did not follow anticipated patterns. Internationally standardized telenursing complaint codes would facilitate valid and reliable recording and comparisons between systems. We recommend use of telenursing data in surveillance of seasonal influenza.

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ID 412: Resilient Health Systems for Drought and Disaster Prone Areas in Western and Eastern Africa

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Sahel and Horn of Africa regions in respectively western and eastern Africa are for several years prone to recurrent drought, food insecurity and flood crises, with tremendous public health consequences that compromise efforts toward health MDGs. Since the major drought crises in Niger and Eastern Africa in 2005-2006, humanitarian and development partners are voicing hopes for more sustainable response approaches.
In that perspective we started a project aimed at analysing the particular context, learning from past crises with beneficiaries, humanitarian and development stakeholders and experts, to find a way of making health systems resilient to these natural disasters.
As methodology, we used a qualitative approach including wide consultations involving beneficiaries, public health and nutrition national and international experts. Secondary data analysis, field missions in eleven countries, lesson learnt exercises in the two regions were also used. WHO's models and frameworks on Health Systems, Social Determinants of Health and Emergency Response helped in analysing weaknesses and making recommendations for a more resilient health system.
Results showed that: these crisis prone regions do have poor health services and indicators; the health system should be revisited with a more innovative approach taking into account the particular geographic, climatic, socio-economic and cultural context to improve health indicators; integrated community level multisectoral interventions targeting determinants of health would make communities more resilient to the crises; a global disaster risk management approach that is institutionally grounded with response and preparedness components from national down to community level will help to improve response and mitigate impact of recurrent crises.
There is no fatality in regard to these disaster prone areas for health consequences. As described in the suggested model, it requires resilient health systems aimed at changing the way of providing basic multisectoral services targeting determinants of health and responding to crises to improve individual resilience.

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ID 413: Training Health Personnel for Disaster Humanitarian Responses: The Power of Immersion

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Background: The offer and deployment of Foreign Medical Teams (FMTs) from one Government to another after a sudden onset disaster has escalated in recent years. Various papers and forums have found returning civilian responders to health disaster missions described little relevant humanitarian and disaster response teaching undertaken prior to their deployment. There are increasing calls worldwide, particularly after the Haitian earthquake response, to end the deployment of untrained medical staff into disaster zones.
Methods and Results: FMTs deployed from high income countries, particularly Military and Government teams, may have little experience in global health or the health context into which they may be deployed. Specific training and experience programmes are required to train these very competent and senior clinicians to adapt their skills for the context of their deployment, rather than day to day or disaster management in their own country. Failure to train these doctors, nurses and paramedics appropriately will expose those patients the team

treat to potentially inappropriate interventions while lack of knowledge of humanitarian principles and practice, safety and security procedures and the strategic coordination of a response to a health disaster outside of a high-income country, could contribute to ineffectual, inappropriate and dangerous missions for a team. The National Critical Care and Trauma Response (NCCTRC) in Northern Australia have developed a series of team member and specialist team courses and texts to attempt to bridge the gap in knowledge and experience of high-income country teams without global health experience. These methods, in particular the immersion phases will be described.
Conclusion: Immersion courses allow assessment of candidates under stressful conditions, and provide a useful learning tool, as well as an opportunity to fully understand the risks and stresses of internationally deploying post disaster, prior to volunteering. Their goal remains a safer and more effective mission for staff and their patients.

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ID 415: Women After disaster in Iranian Context: A Qualitative Study

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Background: Men and women are part of the society and equally affected by disasters, but they experience a disaster in a different way, and also their ability to recover from it differs too. Women are portrayed as the victims of disasters although it is not necessarily true.
Disasters can affect women's health directly or indirectly. Research regarding women's specific needs in recovery from posttraumatic events has been less well represented and it is based on research that included gender as a quantified variable. To provide new knowledge and ensure women's inclusion at all phases of disaster cycle researchers decided to get the perspectives and experiences of the women themselves. The first step is to know how the everyday lives of women are shaped after a disaster. This study seeks to explore this relatively understudied area, the Iranian women's status after disasters.
Method: This study is designed based on qualitative content analysis. Participants including twenty individuals, all have experience in providing or receiving disaster health care was selected by purposeful sampling. Data were collected by in depth and semi-structured interviews. All interviews were transcribed, and data was analyzed based on qualitative content analysis.
Results: This study explored three main themes regarding women after disaster entitled: personal impacts of disaster, women and family, and women in community.
Participants experienced emotional impacts of human losses, livelihood chaos after deep destruction and physical injuries challenges.
After disaster strikes, women experienced changes in family function due to family separation and family conflicts which created challenges and needed to be managed.
In the community physically injured women expressed some challenges. Because of difficult living conditions in the temporary houses women's most urgent request was to be settled in their own permanent house. So they became more motivated to help reconstruction.

Keywords: Disaster, Special groups, Women
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ID 416: Beyond Leaning - Can the Principles of International Humanitarian Practices in Disaster Preparedness, Response and Recovery be Considered for Inclusion in Domestic Emergency Management Practices?

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Background: Leaning (2008) reviewed the evolution of the "disaster response community" and the "humanitarian community" and the changing nature of disasters and emergencies, both domestically and internationally" and identifies a common theme of internally displaced persons. This trend of displaced persons is apparent in recent Australian natural disasters such as the Victorian bushfires (2009), the Queensland and Victorian floods (2010/11), and, in New Zealand, the Christchurch earthquakes (2012). Leaning suggests that the humanitarian community and the disaster community will be called upon soon to work together. 'Would the national disaster response community benefit from incorporating some of the principles and practices developed and embraced by the humanitarian community'?
Methods: The authors selected a range of international standards and guidelines by consensus. Participants at two Melbourne Seminars for a multidisciplinary emergency management audience, which included a session on this general theme, were asked to complete a short evaluation questionnaire.
Results: Approximately 50 participants responded to the questionnaire - 50% of the participants. Greater than 90% of the respondents agreed or strongly agreed that each of the following international standards/guidelines could be adapted for domestic use: International Health Regulations (2005); "IDRL Guidelines" (2010); International Operational Guidelines on the Protection of Persons Affected by Natural Disaster (2011); The UNOCHA 'cluster approach'; Hyogo Framework for Disaster Risk Reduction; The UN "Resilient Cities Program"; The International Sphere Project Handbook; and,

The WADEM Utstein Template, for reporting post disaster assessments (2010) (87%).
Conclusion: There was generally strong support that all standards/guidelines may have domestic applicability. Limitations are the convenience nature of the sample, there may be additional International Standards/Guidelines applicable and some seminar participants may not have been previously aware of the International Standards/Guidelines. This preliminary study requires more detailed and systematic examination of the key proposals.
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ID 418: Life Recovery After Disasters in Iranian Context

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Background: Planned and organized long term rehabilitation services should be provided to help victims of a disaster to be socially integrated, economically self-sufficient, and psychologically competent. There are a few studies on recovery and rehabilitation issues in disaster situations, so this study intends to explore rehabilitation processes from the perspective of the participants.
Method: This study is designed based on qualitative content analysis. Participants including 18 individuals (eight male & ten female) - with experience in disaster health care providing or receiving - were selected by purposeful sampling. Data were collected through in-depth and semi-structured interviews. All interviews were transcribed, and then content analysis was performed on the data based on qualitative content analysis.
Results: The results of the study explored three main concepts regarding recovery and rehabilitation after disaster entitled: Needs for health recovery, tendency to delegate responsibility, and desire for a wide scope of social support. The participants of this study indicated that to provide comprehensive recovery services some important basic needs should be considered: Need for physical rehabilitation, social rehabilitation, and livelihood health, need for continuity of mental health, and need for family re-unification. Besides, providing social activation can help affected people to be re-integrated to community.
Conclusion: Effective rehabilitation care for disaster victims requires making a clear picture of rehabilitation processes in different levels of communities. Involving a wide set of those most likely to be affected by the process helps provide a comprehensive, continuous, culturally sensitive, and family centered plan.
Keywords: disaster, recovery process, rehabilitation
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ID 419: Terror Attacks at Cama Hospital: Responses of Hospital Staff

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Introduction: On the night of November 26th 2008, Cama and Albless hospital, Mumbai, became the target of a terror attack that left two of its employees dead and others injured. This was unexpected and unprecedented in the history of the hospital.
Method: This paper is based on 10 in-depth interviews with staff who had a role to play in the response of the hospital.
Results: Findings suggest that there was no centralized system for informing everyone in the hospital about the attacks. During the attack, the primary concern of the staff was that of ensuring security. Respondents devised ways to ensure security of patients as well as themselves. This included closing/barricading gates, turning off lights and cell-phones, advising mothers to breastfeed their infants so as to avoid being targeted. Problems encountered while doing so are discussed. Treatment of injured staff and existing patients was the second most important task. Doctors and nurses worked creatively under pressure and in many cases without the required materials and instruments.
In the aftermath of the attacks, almost all employees reported facing some sort of psychological problems such as being frightened easily, not being able to sleep well, nightmares and fear of coming to work. While the employees managed the stressful situation well, it is important to note that they were unaware of a plan for managing any sort of disaster such as fire, or other natural disasters, either.
The study throws up some important issues of preparedness of hospitals to respond as the systems that constitute life-lines in a post disaster scenario could themselves be affected. This study provides pointers towards the steps that the government and individual hospitals need to take in order to ensure better preparedness of the hospital to deal with incidents of disaster of this kind.
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ID 420: N'oublions Pas les Impliqués

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Le concept de triage, dans un contexte d'événement catastrophique, catégorise les victimes (hors décédés ou morituri) en trois grandes classes. Les urgences absolues nécessitent des soins dans un délai le plus court possible. Les urgences relatives vont pouvoir supporter un délai d'attente plus ou moins long. Les impliqués constituent la dernière catégorie. Il s'agit de patients qui ont assisté à l'événement catastrophique, mais sans a priori en subir de conséquence.
Cette catégorisation se heurte, pour ce qui concerne les impliqués, à un certain nombre d'écueils:

- La frontière entre impliqué et urgence relative peut dépendre, en cas d'accident catastrophique à caractère chimique, de nombreux facteurs difficiles à appréhender rapidement

(nature du toxique, réalité du contact avec le toxique en fonction de facteurs météorologiques notamment)
- Le délai d'apparition des premiers symptômes, pouvant être retardé, peut fausser l'évaluation initiale
- Les réactions de panique peuvent, au contraire, créer artificiellement une situation clinique mimant une véritable pathologie

La prise en charge des impliqués va soulever plusieurs questions:

- Ces victimes étant par définition indemnes vont néanmoins devoir être catégorisées et identifiées avant de pouvoir quitter les lieux de l'événement. Des réactions de panique ou d'insubordination sont susceptibles de se produire, aboutissant à une situation tendue entre forces de l'ordre ayant sécurisé le périmètre et victimes catégorisées « impliquées »
- La prévention des manifestations de stress post-traumatique est basée principalement sur un suivi psychologique plus ou moins retardé. Mais encore faut-il avoir pu informer ces victimes des modalités pratiques de mise en œuvre de ce suivi
- Dans le cadre d'un toxique à effet retardé, la question des manifestations cliniques apparaissant secondairement nécessite de définir finement les modalités de suivi de ces impliqués et de la diffusion de l'information via les media

Les exercices de grande ampleur récemment réalisés, ainsi que les expériences réelles d'événements catastrophiques, ont ainsi fait revenir cette question de la gestion des impliqués au premier plan.

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ID 422: Assam - Kokrajhar Migration Leading to Ethnic Violence, a Aisastrous Conflict

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Migration is a very common demographic phenomenon, more in the resource poor developing countries; which can take the shape of disaster especially in the countries where racial and cultural identity matters a lot in social life. The ethnic conflict in India July 2012 (Assam-Kokarjhar district) is an apt example of migrating population leading to the present longest ever conflict between Bodos and Bengali speaking Muslims in India. This conflict is taking the shape of a major political distress and armed territorial battle for land within the communities.
Delivering Humanitarian aid itself raises the question of safety of the volunteers and their sustainable/ prolonged involvement. Many of the times communities look upon the intervening agency as a biased one and do not cooperate properly or resist aggressively. The main challenge in intervening in such conflicts is that there are no quick fixes at all. Any solution needs prolonged time. The helping agencies get involved in dealing with the problems of migrated population rather than solving the cause of the migration and eventually efforts become fed up as they see no end to the problem.
As history defines when indigenous Bodo community and Muslim immigrants from Bangladesh who settled in Assam during the Indo-Pak war and distribution. The migrant community started holding land occupations and the state became the issue of concern to Bodos and violent outbreaks of a small land clash was mixed up with evolution of all communities together and survival of the fittest and native became to the present condition its almost the 7 months of the ethnic violence still countnious violence effecting more than 5 lakh population and more 250 relief camps are run by state and Government of India to make ahault. Migration of the Muslim community in the state has made this ethinic clash a serious shape in the history of man-made conflict leading to a disaster.

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ID 423: Psychiatric Aspects in Patients Undergoing Amputation Following Trauma: A Neglected Entity in Developing Nations

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Introduction: Amputation following trauma is emerging as a major health burden not only on the hospitals but also on the family and the society. Loss of limbs causing inability to support self and the family drives many patients towards psychological disturbances.
Aim: The present study aims at assessing psychiatric aspects in patients undergoing amputation following trauma admitted at level 1 trauma center.
Method: The consecutive trauma amputees were assessed on socio-demographic and clinical details with MINI and other scales
Results: The majority of the patients were males and belonged to younger age group of 15-35 years. Children constituted a significant number leading to long term morbidity and disability. Unusual to western countries, Railway track accidents was the commonest mode of injury followed by industrial, domestic injuries. The most common psychiatric morbidity seen was depression or anxiety.
Conclusion: It is significant to have psychiatric evaluation and its appropriate management in patients undergoing amputation following trauma. It has major implications due to lack of resources including trained mental health professionals in developing countries

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ID 424: Emergency Preparedness for Exposure and Public Health Risk Assessment of Cross-border Chemical Incidents

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Background: The EU-funded project 'Cross-border Exposure characterisation for Risk Assessment in Chemical Incidents' (CERACI) aimed to strengthen public health risk assessment and facilitate cross-border cooperation for the acute phase of chemical incidents by improving exposure assessment and interoperability of exposure assessment guidelines, tools and practices.
Methods: The exposure assessment capability, capacity and organisation in EU Member States (MS) were investigated though a literature and project review. More detailed information was gathered and analysed through a web-based survey and telephone interviews. Delegates at two international workshops tested the findings.
Results: CERACI identified good practices in emergency preparedness and response for chemical incidents. These included practices to engage incident response stakeholders and to maximise exposure assessment capabilities, such as training first responders and emergency department staff to use toxidromes. For a transboundary incident, practices were identified to optimise cross-border collaboration, e.g. between different countries' ambulance and hospital staff and poisons centres. A self-assessment methodology was developed to identify gaps in capability and to apply and develop these good practices.
Conclusions: A wide diversity in MS organisation, good practices and capability was found. A fragmented approach to emergency preparedness for chemical incidents is a major obstacle to improving cross-border exposure assessment. The different organisations and networks involved in chemical incident emergency preparedness need to be drawn together. CERACI proposes the initiation of a network of experts in this field, led by public health risk assessors and informed by experts in exposure assessment.
Emergency preparedness for chemical incidents requires a holistic focus on all phases of response and must address areas of universal importance such as roles, responsibilities and sharing of information. For a chemical incident, especially one with cross-border impacts, the coordination of communication, response and decision-making offer great challenges and CERACI's outputs provide a means of evaluating and targeting improvements in preparedness.

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ID 426: Analgésie et Médecine de Catastrophe

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La prise en charge de la douleur en contexte aigu est une notion qui a progressivement émergé dans le cadre de la médecine d'urgence. Sa mise en œuvre au cours d'un événement catastrophique s'est heurtée à plusieurs facteurs limitants, principalement la crainte d'effets secondaires graves et la question de la décision médicale de prescription des antalgiques.
Les progrès récents de la pharmacopée ont fait progresser la sécurité et la simplicité d'administration de certaines catégories d'antalgiques (lipophilie réduite, délais d'action diminués, modalités d'administration simplifiées).
Les techniques d'anesthésie loco-régionale ont bénéficié de progrès pharmacologiques (réduction de la toxicité neurologique et cardiovasculaire des anesthésiques locaux) et de progrès techniques (apparition d'échographes portables produisant des images de bonne qualité).
L'administration d'antalgiques de palier 1 de l'OMS a vu sa prescription pouvoir être très largement simplifiée et déléguée à des soignants non-médecins. De nombreuses expériences tant françaises qu'internationales ont pu confirmer que dans un cadre d'emploi bien défini et périmétré, il était possible d'étendre cette modalité d'administration à des antalgiques de palier 2 voire 3.
L'ensemble de ces éléments pourra significativement contribuer à une meilleure prise en charge de la douleur dans un contexte d'événement catastrophique. Le contrôle des phénomènes douloureux est un facteur d'amélioration du pronostic à court et long termes des victimes de ces événements.
Ces éléments positifs n'autorisent toutefois pas à s'affranchir des règles de sécurité habituelles, afin de ne pas risquer d'inverser le rapport bénéfice/risque dans ce contexte.

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ID 427: The Human Impact of Natural Disasters 1980-2009: A Historical Data Review

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Background: Population growth and increasing urbanization in disaster-prone areas suggest that impacts on human populations will increase in the coming decades. The objectives of this review are to describe the impact of natural disasters on human populations in terms of mortality, injury and displacement and, to the extent possible, identify risk factors associated with these outcomes.
Methods: Data on the impact of earthquakes, volcanoes, cyclones, floods and tsunamis from 1980-2009 was compiled from the CRED International Disaster Database (EM-DAT) and other publicly available databases, including the National Oceanic and Atmospheric Administration's National Geographic Data Center Significant Earthquakes and Volcanic Eruption Databases, United States Geological Survey Earthquakes Hazards Program Global Databases, Northern California Earthquake Data Center, National Hurricane Center, and Dartmouth Flood Observatory. Multiple data sources were sought to ensure a complete listing of events and inclusion of both human and geophysical factors. Analysis included descriptive statistics and

bivariate tests for associations between event mortality and characteristics using Stata 11.
Results: In the last 30 years, almost 1.6 million deaths and a similar number of natural disaster-related injuries were reported, with an estimated 87.9 million people displaced. Floods accounted for nearly one-third of all reported deaths (539,811), followed by cyclones (414,732), earthquakes (372,634), tsunamis (28,365) and volcanoes (28,635). Earthquakes accounted for the majority of injuries (995,219) and displacement (61 million). The distribution of deaths and injuries varied by type of disaster, region and economic development level with greater severity and lower economic development of affected areas associated with increased mortality in most events.
Conclusion: Expanded monitoring, attention to preparedness and early warning, improved mitigation measures, and effective communication with civil authorities and vulnerable populations has potential to reduce loss of life in future natural disasters.
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ID 428: Management of Dead in Mass Disasters – Are Forensic Pathologists geared to the task?

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Mass Disasters have become a major threat to human life and existence in the modern world. Management of a mass disaster in contemporary standards is a multidisciplinary effort and the forensic pathology as a specific field has a definitive and non-delegatory task to perform.
As reiterated by the Royal College of Pathologists United Kingdom, from the pathologist's point of view, the definition of a Major Disaster is an episode in which the number of fatalities is in excess of that which can be dealt with using the normal mortuary facilities. Accordingly effective contribution to manage dead and their related issues is the role of a forensic pathologist. The management of dead in a mass disaster is a medico-legal emergency for a forensic pathologist and he/she must be an essential partner of the preparation and activation of an emergency plan dealing with multiple fatalities of a major disaster. In a disaster situation survivors are given priority over deceased in any health care system. However as the survivors have rights for health care assistance, the deceased also have the right for proper identification and dignified disposal. In the current context a mere disposal of dead is not advisable after a major disaster as many other physical, psychosocial, religious and cultural issues related to them and survivors need to be resolved urgently. The whole process of handling deceased appropriately in a post-disaster period to minimize the impact of above issues is comprehensively termed as "management of dead".
It should be remembered that proper management of dead is one of the main pillars of a successful disaster response. It has gained marked significance during Asian Tsunami 2004. This paper intends to analyze deeply the role of a forensic pathologist in managing dead in a mass disaster and its ramifications in Asian context.
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ID 429: Need and Impact Assessment of Referral System for RCH Services as a Part of MISP in Ethnic Violence Affected Relief Camps of Assam, India

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Objective: To assess the health needs focusing on maternal and child health and to develop a model referral system chain as a part of MISP (Minimum Initial Service Package) for safe and institutional delivery in the relief camps of during ethnic violence.
Methods: Descriptive and qualitative study with a first phase involving the analysis of primary information gathered through semi structured interviews of the institutional actors in the public health sector responsible for disaster response and users of the health system who acted as leaders and/or managers of the response and focus group discussions among the inmates of various relief camps. The outcome of pregnancy in the intervened and non intervened camps was analysed using Chi square test. The study was conducted between August and December 2012, and information-gathering focused on the Dhubri, Kokrajhar, and Chirang districts of Assam, India.
Results: The health system was overwhelmed due to sudden increase in the number of delivery cases from relief camps. There was need for extra resources for transporting and handling the cases at hospital. Though the state response was good, there was lack of facilities at the time of need. The accessibility to the hospital was severely decreased due to ethnic hostility. The outcome of pregnancy was compared between the targeted and non targeted camps using chi square test. The result showed a significant positive impact of the intervention on safe and institutional delivery ($p < 0.0001$).
Conclusions: There is extra need of resources for catering proper maternal and child health care for inmates of relief camps. Setting up a referral chain for delivery as a part of MISP in the relief camps increases the rate of safe and institutional deliveries.
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ID 430: Suicide, Attempted Suicide and Suicide Threat in Prehospital Emergency Medical Care: A 2-Year Analysis from the Urban Setting in Dresden in 2008 and 2009

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Backround: Psychiatric emergencies play a considerable role in prehospital emergency medical care. Suicide, attempted suicide and suicide threat are especially demanding as very few emergency physicians are trained in psychiatry. Relevance and characteristics of such emergencies could be used to derive demands and stress factors for the medical staff.
Methods: Data of all emergency cases by ambulances in the city of Dresden (capital city of Saxony, Germany) between January 2008 and December 2009 were collected (Husky Fex 2.1) and transferred to a central system. All cases related to suicide, attempted suicide and suicide threat were extracted and analysed. In these cases, we got detailed information about the emergency situation, patient related and socio-demographic data, as well as the patient's clinical status and medical interventions.
Results: There was a total number of 52827 emergencies with an emergency physician on scene. We detected a total of 1022 emergency cases related to suicide (39 suicides, 329 attempted suicides, 654 suicide threats), representing 13.2% of all psychiatric and 1.93% of all emergencies in this period of time. The mean age of the patients was 42y [12-98], (46% male, 54% female). In 28.2% conflicts in family and partnerships were specified, but most reasons for suicide and suicidal behaviours were unknown. Most common methods were medical drug intoxication, self-cutting and jump from high. Cases were often related to alcohol, social problems and psychiatric comorbidity. 43.6% of the cases were supported by the police. Often time consuming emergency cases with little medical intervention (mostly crisis intervention).
Conclusion: Upon these results, main demands from emergency physicians and paramedics can be deduced and assessed. Also requirements for the training in psychiatric and psychological emergencies can be derived. Within the limits of these studies conclusions for suicidal prevention can be made.

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ID 431: Ethnic Violence and Its Impact on Nutritional Status of Children Aged 6-59 Months Between Tribal and Ethnic Minority Community in Assam, India

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Objective: To compare the difference in the prevalence of malnourishment among children aged 6-59 months between the Bodo tribal camps and ethnic minority camps during the ethnic violence in Assam.
Methods: The list of the children in the age group 6-59 months was obtained from secondary sources (Government appointed Camp leader) and the nutritional status of the children aging 6-59 months was assessed by MUAC (Mid Arm Circumference) test in the three ethnic violence affected districts of Kokrajhar, Dhubri and Chirang of Assam during August to December 2012. Validated standard MUAC tape was used to conduct the test. Proper consent from the respective parents was obtained. The results were compared using chi square test.
Result: There was a significant difference in the nutritional status of the children living in the Bodo camps and the ethnic minority camps ($p < 0.0003$).
Conclusion: There is scope for intervention to improve the nutritional status of children aged 6-59 months living in both sections of relief camps with special emphasis on the minority camps. There is need for further research to evaluate the causes resulting in this disparity in the nutritional status between these two sections of the community.

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ID 433: An Utstein Style Based Report of Cardiopulmonary Resuscitation in an Emergency Department

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Backgrounds: Different Utstein based reporting systems are used for research purpose in resuscitative medicine worldwide. Such a system is used in "St. Pantelimon" Emergency Hospital in Bucharest; it also has a web dimension, with prospective for correlation with other euro-regions.
This study was conducted to describe the cardiac arrest event characteristics in our ED and to identify factors associated with the outcome and the event itself.
Methods: This descriptive study refers to the resuscitation attempts performed in the ED of our hospital between the 1st of January 2011- 31st of December 2011, following the ERC 2010 Guidelines. A number of 81 cases have been included in the study.
A medical doctor involved in the research, using data from the observational sheets, gathered the information. The reporting form used is Utstein-based, having as main sections data referring to patient characteristics (demographic, known co-morbidities), event (including resuscitation algorithm) and outcome.
Results: A total number of 81 cardiac arrest cases have been analyzed; in 33 cases (40.74%), the cardiac arrest occurred out of hospital. ROSC occurred in 25 patients (30.86%), but only 3 of them were discharged alive (12% of the resuscitated cases). All three patients had a CPC of 1.
The most common cause of cardiac arrest was found to be the myocardial infarction.
The first monitored rhythm were non-shockable rhythms in 92.59% cases. However, 24 patients developed a shockable rhythm at some point during the resuscitation and 37.5% of these (9 patients) had pulse after the electric shock.
Discussion: The Utstein- based reporting system used provides a standardized, comprehensive method for data collection. However, it is subject for improvement and further

research is needed in order to obtain valuable data with statistic relevance.
Conclusions related to aspects of the population in the area the hospital serves can be drawn.

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ID 434: Pre-Test and Post-Test Evaluation of a Pilot Train - The-Trainer Program on Injury Management at Delmas Medical Clinic in Port-au-Prince, Haiti

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Formal emergency medical services do not exist in Haiti. Even prior to the earthquake in 2010, family or friends generally transport injured/sick patients from the outskirts of Port-au-Prince to the central hospital in nonmedical vehicles, prolonging the time to medical attention.
We piloted a "train-the-trainers" curriculum at a clinic addressing identification of patients who need emergency care and stabilization for transport via nonmedical vehicles to facilities beyond the clinic. We conducted a pre-and-post-test-evaluation to determine appropriateness of content and acquisition of knowledge.
Methods: A five-day-hands-on curriculum addressing acute medical conditions and stabilization was utilized for this study. A questionnaire was administered to assess basic knowledge and education level at the beginning of the training. At the conclusion of the program, another questionnaire was administered to determine knowledge acquisition and review adequacy of the teaching material. The same seventeen clinical questions were asked on each survey.
Results: There were seven participants: two physicians, five students. Four attended all education sessions; three missed one session. All participants had previous experience working in not-for-profit-hospitals/clinics. Two participants had public health/government hospital experience; one was a physician.
Five participants' clinical test scores improved (12.9%, mean). All participants stated they learned new injury management skills, especially managing trauma and bleeding (4/7). Two participants would have liked more disaster response information.
During the post-test-evaluation, an actual comatose patient was brought to the clinic. Study participants assessed and stabilized the patient and flagged a motorcycle driver who transported the patient to the nearest hospital.
Conclusion: Despite a small sample size and no long term follow up to determine adherence of acquired knowledge, this study demonstrates that the curriculum addresses some gaps in clinical management that healthcare providers in Haiti can benefit from. Further refinements in content organization and evaluation could help to ensure knowledge transfer regarding injury management/stabilization.

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ID 435: A post-earthquake Community Emergency Preparedness Assessment in Delmas, Port-au-Prince, Haiti

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Background: Haiti is at risk for a variety of natural disasters such as earthquakes, hurricanes, flooding, and disease outbreaks with potentially catastrophic consequences due to its location, geography, and environmental degradation. The main objectives of this study are to learn, through a pilot survey tool, about post-earthquake attitudes, knowledge, beliefs, and perceptions regarding disasters and disaster preparedness. This will be determined at the individual, household, and neighborhood levels to reveal gaps in disaster preparedness that can be addressed by community level interventions.
Methods: Survey data were obtained through face-to-face interviews with community members during a one-week-period in Delmas, Port-au-Prince in March 2012. Cluster sampling of neighborhoods with subsequent systematic random sampling of households in Delmas was utilized. The structured survey consisted of 27 quantitative questions that included topics relating to disaster knowledge, resource availability, evacuation plans and community involvement, with one open-ended question.
Results: 162 surveys were done with 100% response rate. There is a gap in knowledge of natural disasters that may occur in Haiti, disaster warning signs, and where to get emergency assistance. Most households do not stock emergency supplies nor have they reinforced the structure of their homes. The majority of respondents have taken steps to limit effects of falling objects and have discussed a family plan of what to do in a disaster. There is a perceived lack of community-wide disaster mitigation and response services, but community members have strong neighborhood and family support networks.
Conclusions: Survey results support the need for and receptiveness to an integrated, community-based approach in Delmas, including individuals, NGOs, and government agencies, to close gaps in disaster knowledge, preparedness, and information diffusion. Mobilizing the community will help build capacity for reducing adverse effects of future disasters. Further data analyses can help guide appropriate intervention programs for particular groups in this community.

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ID 436: Off-Site Disaster Preparedness Towards Nuclear Power Plant Emergencies

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Background: India has an enviable and impeccable record of safety and virtually fail-safe arrangement in its all Nuclear Power plants regarding handling of on-site emergencies. However, in the wake of Fukushima nuclear disaster caused by the earthquake and tsunami of 11th March 2011, it was imperative to take stock of this facet of preparedness status.

Methods: In order to assess the capability of the District Administration to deal with an off-site emergency emanating from a Nuclear Power Plant, Mock Drills were conducted in these complexes in the middle of 2011.
Results: The Mock Drills so conducted were found to be extremely useful by the respective State/District stakeholders in identifying the gaps in the existing off-site emergency plans giving them an opportunity to contemplate the necessary steps to cover them including development plan of villages/habitations in areas falling under the Plant's Emergency Planning Zone. The Mock Drill was also an attempt to create confidence amongst the local populace and make them aware of the safety aspects.
The Ministry of Health's road map to deal with nuclear and radiological emergencies, so initiated, encompasses enhancement of human resource development to handle radiation injuries, pre-postioning, quick response medical team in such vulnerable areas with requisite drugs and equipment, upgradation of existing health facilities in districts, strengthening of government hospitals and centres for tertiary level medical management and ongoing research programmes, awareness generation among medical functionaries, and psycho-social care.
Conclusion: Every disaster is to be seen as an opportunity. The Triple Disasters of March 2011 are also to be seen in the same way. There are lessons to be learnt for the whole world towards disaster risk reduction in order to build resilient societies by awareness and capacity building

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ID 437: EMS and Patients with Cancer Related Problems: A New Challenge

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Introduction: The EMS could play an important role in the treatment of patients with cancer, in particular in countries where the emergency physician (EP) is on the ambulance. Especially for patients, who are at the end of life care, for improving the quality of their life and for avoiding repeated transportation to the hospital for things that can be done at home (management of the pain, changes on the therapy, hydration). Secondly, in optimizing the resources of the healthcare system. This research is a review and an analysis about what is the role of the EMS in the management of patients with cancer related problems.
Methods: We performed a systematic review of PubMed database since inception to November 2012. The research terms are: prehospital, cancer, "end of life", "terminal care", "palliative care", EMS, cancer. Giving a total of 479 different results.
Results: Only 15 articles remain after the screening. All these articles underline how limited the role of the EMS now is. At the same time it shows how an EP with specific knowledge about palliative medicine can provide relevant outcomes.
Conclusion: In many cases the EMS system which provides an adequate service of palliative care by an EP has recognizable benefits. It underlines how essential it is to have an EP who is educated and specialized concerning the palliative care needs. A palliative treatment plan set up by a physician together with a caregiver helps ensuring that acute problems can be solved quickly and satisfactorily in the patient's customary surroundings. An EMS system that is able to guarantee treatment of the patients at home has a lot of benefits for patients, relatives and caregivers ensuring a satisfactory service. In particular, if the main related problem is the management of the pain, the treatment and changes of the therapy could be done at home by an EP avoiding transportations.

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ID 438: Bridging the Gap Between Knowledge and Practice of Disaster Preparedness in Delmas, Haiti

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Background: Two years after the Haiti earthquake in 2010, limited information exists on the responsiveness of local government and health care facilities to the needs of Haitians and how the public has learned to prepare for future catastrophic events. In this study, we investigate current views of disaster knowledge and practice to better delineate the needs of the community and help future planning.
Methods: In March 2012, we conducted a community assessment and key informant interviews in Delmas, Port-au-Prince. Interviews were conducted with members of the Mayor's office and healthcare staff at a local clinic to elucidate priorities, disaster planning, relationships with pertinent agencies, and communication with the public. The community assessment consisted of 27 quantitative questions and one open-ended question that evaluated disaster knowledge and preparedness from an individual, household and community level. This was conducted by cluster sampling of neighborhoods with systematic random sampling of households in Delmas.
Results: We completed six key informant interviews and 162 community surveys (100% response rate). Key informant interviews revealed concerns about lack of coordination with external agencies, resource and infrastructure deficiencies, a need to disseminate education and training, and a perceived leadership role in public disaster response. In contrast, community respondents noted few city-wide emergency response services, verbalized concerns about future risk, expressed a desire for disaster preparedness knowledge, and had a strong sense of community building with a desire to receive and give help.

Conclusion: Although Delmas leaders cite difficulties coordinating with external agencies and lack of resources, they recognize the need for public training and education. However, community members feel that they have not received support from government entities and rely on existing social support networks. Community-based disaster preparedness (CBPD) principles, including community engagement programs may be an effective mechanism for knowledge transfer and diffusion of regional disaster plans.

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ID 439: Learnings from a Massive Fire in a Tertiary Care Hospital in India

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Background: At least 93 people died in a huge fire that broke out in the early morning hours in a tertiary care hospital in India. While most nurses, doctors and other staffers were able to get away, critically ill patients suffocated to death in their hospital beds.
Methods: A record based review of the incident & audit reports of the incident published by various Govt. agencies was done and root cause analysis was done with reference to the existing regulations.
Results: Important findings of the review were as under:

- The fire broke out at 0200 am in the basement of the hospital.
- The hospital staff started fire fighting on their own without initiating a fire alarm to avoid incident reporting.
- Internal sprinkler system was nonfunctional & the staff on duty was not trained to operate the hydrant system.
- The hospital security staff did not allow local residents to enter for rescue work after the fire was detected.
- Fire brigade was informed the fire was out of control and they too arrived unprepared without any breathing apparatus.
- The approach route was halved due to DG set and Gas Bank installation and the fire tenders could not turn through the narrowed passages.
- The fire alarm system for the building was found SWITCHED OFF to avoid false alarms.
- In the absence of a fire alert, the central air conditioning did not trip automatically and this resulted in smoke spreading to the higher floors
- External glass façade made of double glass panes were very difficult to break and the building had no operable windows to dissipate smoke.

Conclusions: Despite the fact that the said hospital has all necessary clearances from the fire department, this incident exposes the practice of meeting compliances on the paper and not in spirit. Learnings from this incident in reference with the local regulations will be shared during the presentation.

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ID 440: The Human Impact of Natural Disasters 1980-2009: A Historical Systematic Review

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Background: The objectives of this review are to describe the impact of natural disasters on human populations in terms of mortality and injury, and to identify risk factors associated with these outcomes.
Methods: Key word searches in MEDLINE, EMBASE, SCOPUS and Web of Science were performed to identify articles published before July 2007 that described natural hazards and their impact on human populations. Two reviewers screened 9,958 articles titles, of which 4,873 articles were retained for abstract review, yielding 3,687 for full review. Following the systematic review, a hand search was conducted to identify relevant articles published thru to October 2012.
Results: A total of 211 articles provided in-depth information regarding the mortality and morbidity patterns described in natural disasters. 78 articles focused on Earthquakes. Crush injuries were the most commonly reported injury type. Higher injury and mortality rates were related to building characteristics, being indoors, construction quality, distance from epicenter, time to rescue and low socioeconomic status. Cyclones (62 articles) were associated with low injury rates between 3.8 and 4.5%. Drowning was the most common cause of direct death, accounting for 57% of deaths. Tsunamis (30 articles) and Floods (24 articles) resulted in higher death rates, mostly due to drowning, in females, and extremes of age. Injury rates in both remained low however were complicated by wound infections. 2 major volcanic eruptions (17 articles) contribute to 90% of the total deaths. Secondary morbidity was due to smog causing ocular irritations, respiratory eruptions and transient increases in motor vehicle collisions.
Conclusion: There is significant heterogeneity in the patterns of injury and mortality for different natural disasters. This is due to the differences in underlying risk factors and mechanism of impact. This review suggests that a targeted post disaster response is best suited to reduce the burden of injury and mortality.

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ID 441: Fracture Surgery Most Important to Reduce Burden of Injuries After Earthquake: Analysis of hospital Data following from 2008 China Earthquake

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Background: Knowledge of burden of injuries following earthquakes is essential for adequate trauma care provision after such events. However, to date sufficient information is

lacking. The overall aim of this study is to calculate the burden of injury following an earthquake expressed in Disability Adjusted Life Year (DALY), and to estimate the efficacy of surgery in averting burden of injury.
Methods: This study is based on data from patients treated for injuries at the Peoples Hospital of Deyang City (PHDC) in China following the 2008 earthquake. Data from medical files of 1,878 trauma patients treated at PHDC after the earthquake was extracted. For DALY calculations, we used data on patients age, gender and injury defined according to ICD-10 AM. The efficacy of surgical treatment was defined as ability to avert DALYs, and was calculated by combining the severity of an injury and the efficacy of the corresponding surgical procedure. We included 146 injury types, embracing 2,864 injuries. The injury types were then grouped by type and body region affected.
Results: The burden of injuries in the PHDC patients corresponded to 10,396 DALYs. According to our estimates, close to half of these (46%) could have been averted by surgery. The large majority of the burden of injury was caused by fractures, and in particular fractures of the lower extremities. Femur fractures caused a surprisingly substantial burden of injury despite being relatively uncommon. Interestingly, they appeared highly efficacious to treat since surgical treatment of femur fractures averted the largest amounts of DALYs of all the injury groups.
Conclusion: DALY calculations proved to be a transparent and accessible method for estimating burden of injury following an earthquake. Adequate fracture surgery is the most important treatment to reduce burden of injury after earthquake, especially surgical treatment of femur fractures.
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ID 442: Assessing Local Capacity: Resources and Providers for a Disaster-Resilient Community in Delmas, Haiti

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Background: While efforts in disaster recovery and preparedness policy are being established at the national level in Haiti, the degree to which preparedness strategies have been implemented at the community level is largely unknown. Sustainable disaster preparedness strategies must be feasible and acceptable at the community level. The objective of this study is to evaluate current local resources, disaster preparedness plans, and first responder needs in Delmas, Haiti. Findings will help develop effective disaster plans for the community and training programs for responders.
Methods: In November 2012, site visits were made to local health facilities and a displacement camp in Delmas. We conducted an inventory assessment of ambulances and supplies at the Mayor's office and one of the area hospitals. In addition, a questionnaire of 16 open-ended questions was administered to assess knowledge, expectations, and concerns of first responders. Informal interviews of camp managers were conducted to gain better understanding of community disaster preparedness capacity.
Results: Hôpital de la Paix is the area hospital where accident victims are referred. Delmas has two ambulances that are deployed daily. However, supplies are extremely limited in the hospital, ambulances, and the government disaster storage containers. Twenty-one members of the Mayor's office and civil protection completed the provider survey. Many have previous disaster training through Red Cross or other agencies. Within the camp, there is a paucity of basic subsistence supplies, with a disproportionate and poorly coordinated distribution of aid. There is a desire to improve community awareness and preparedness for future disasters.
Discussion: Resources are limited at the community and government levels. However, there is a shared interest among the groups to improve capacity for disaster preparedness. While disaster risk reduction strategies often focus on minimizing vulnerabilities, shifting efforts to creating a disaster-resilient community can draw on collective strengths and existing capacities.
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ID 443: Disaster Preparedness in Chronically Ill and Pregnant Populations – A Synthesis of the Evidence

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Background: The Intergovernmental Panel on Climate Change project that extreme weather events are likely to become more frequent and increase in severity, worldwide. The World Health Organisation states that non-communicable diseases are the biggest cause of mortality worldwide and the most difficult and challenging to manage. Pregnancy is a uniquely vulnerable state and many strategies for preparedness from this population are applicable to those with chronic illnesses, and *vice versa* - but have not formed the basis of any combined research to date. The aim of this study is to use evidence to identify solutions and inform policy to enhance disaster preparedness, increase resilience and reduce heath inequalities in the chronically ill and pregnant populations, focusing on cost effective and simple interventions, using existing technologies adapted for the population of interest.
Method: An extensive search of databases and other literature sources were made to identify primary pieces of research documenting solutions to issues in disaster response and preparedness in the chronically ill and pregnant populations.
Findings: Key themes emerged both as barriers to care and areas for improvement such as: continuation of care, education and training, nutrition, disaster planning, communication and co-ordination, critical infrastructure, evacuation and displacement.
Conclusion: Changes can be cost prohibitive and challenging to implement successfully in a society unused to the idea of climate change and the effects of extreme weather. Improvements can be costly and so must be proportionate. Reviewing the evidence shows, that by taking different aspects and

existing technology from the care of the chronically ill and pregnant populations in disaster and non-disaster settings. Inexpensive and simple interventions can be applied to the care of these vulnerable populations to increase resilience, improve preparedness and reduce health inequalities. This will only be achieved following effective planning, exercising plans and evaluation, which is a cyclical process.

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ID 444: Ambulance Disinfection Practices in India: A Critical Review

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Background: Emergency Medical Services in India have seen a renewed focus and resurgence under the National Rural Health Mission (2005-2012). The state governments have purchased thousands of new ambulances and paramedics. However, the maintenance and turnover rates of these vehicles is too high which has been attributed to wrong disinfection practices by manufacturers.
Methods: An observation study was done from January to December 2012 to document the existing ambulance disinfection practices prevalent across various states in India. The practices were observed without informing the operator to avoid bias and a comparison was made against the manufacturers recommended practices if any.
Results: It was observed that the practice of using water/water jets for cleaning the vehicle interiors was rampantly present. This was resulting in damage to the Ambulance Fabrication, electronics and other interior structures. In cases where disposable consumables were being used, waste management was found to be an area of major concern.
Conclusions: There are no existing guidelines by manufacturers of ambulances regarding disinfection of interiors. The operators with no domain knowledge in automotive engineering are issuing their own SOP's or the maintenance staff are using their common sense in this regard. Hence there is a need to develop standard guidelines regarding disinfection of Ambulance interiors keeping in view the special concerns of manufacturers and users alike.

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ID 445: Emergency Department (ED) Cardioversion for Acute Atrial Fibrillation (AF), a Prospective observational study of an Emergency Physician (EP) and a Cardiac Nurse Specialist led service

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AF is the most common dysrhythmia in the Emergency Department. In Ireland AF is usually managed by Cardiologists with most patients requiring anticoagulation and hospital admission. Recent international studies have shown that aggressive rhythm control in selected patients in ED is a preferable option. Early cardioversion for acute AF increases likelihood of remaining in sinus rhythm, reduces symptoms and reduces the need for anticoagulation.
The aim of our study was to assess the effectiveness and safety of cardioversion for recent onset AF in a service led by an Emergency Physician and Cardiac Nurse Specialist
Results: 29 ED cardioversions were performed over the study period, 28 of the 29 were completed using electrical therapy, mean age of patients was 56 years. The chief complaints were shortness of breath (n = 3), chest pain (n = 4), palpitations (n = 6), dizziness (n = 7)
Conclusion: Cardioversion for acute onset AF patients in the ED is both effective and safe when led by EP and Cardiac Nurse Specialists. ED early cardioversion reduces patient length of stay. Experience gained has led to the development of a guideline for the management of AF in the ED with emphasis on EP led electrical cardioversion for acute uncomplicated AF.

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ID 446: A Rare Cause of Massive Haemoptysis: Transdiaphragmatic Migration of Gossypiboma Post Nephrectomy

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Background: Retained surgical gauze has been given different names: Gossypiboma, a word derived from a Latin word "gossypium," which means cotton, and the Swahili word "boma," which means place of concealment and refers to retained sponge in the surgical bed, textiloma cottonoid, gauzeoma and muslinoma. The reported incidence is about 1 in 100–5,000 for all surgical interventions and one in 1,000–1,500 for intraabdominal operations; though it may be underreported due to legal and ethical reasons. It can occur in any body cavity and can elicit an exudative and aseptic fibrous reaction. Its natural cause can be asymptomatic or may lead to serious complications of sepsis, intestinal obstruction, fistulisation or perforation & haemoptysis. Very few cases of transdiaphragmatic migration have been reported. None of the reported cases presented with massive haemoptysis.
Methods: We present a case of massive haemoptysis due to transdiaphragmatic migration of retained gauze following nephrectomy in a patient with a left tubercular kidney. He had left posterolateral thoracotomy for a suspected Post TB sequalae. We present here a case in which an abscess cavity with a foul smelling surgical sponge at the base of the lung was eroding into the lower lobe resulting in bleeding from the lower lobe vessels.
Result: Left Lower lobectomy was done and patient recovered satisfactorily.

Conclusion: Several cases of gossypibomas after surgical operation have been reported. Most of the times it can lead to the perforation, erosions, haemoptysis, haematemesis & sepsis-like life threatening conditions which should be diagnosed early. Due to the problems this mistake can cause a surgeon and its medicolegal consequences, prevention becomes an ultimate issue. More often avoiding such mistakes we can save the precious life.

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ID 447: Profile of Patients Visiting an Apex Trauma Centre in India

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Background: Jai Prakash Narain Apex Trauma Centre (JPNATC), All India Institute of Medical Sciences is India's only Level 1 Trauma Centre. This trauma centre with a bed strength of 186, caters to approximately 131 new patients per day.
Methods: A retrospective record based review of the profile of patients visiting the Trauma Centre was done during the year 2012 for the following parameters: Age, Gender, Criticality, Medicolegal status, Mode of reporting in the emergency, admitting speciality & the mode of injury
Results: The following important observations were made:

- 74.17% of the patients were in the productive age group of 19–59 years while 11.66% were children between 1-12 years of age.
- 76.32% of the patients were males
- 5.14% of the patients were triaged to the red area while 77.49% were triaged to the Green Area
- 49.97% of the patients were road traffic accident victims
- 92.3% of the patients sustained blunt injury while 7.7% sustained penetrating injuries
- 47.43% of the patients were brought by bystanders while the EMS carried in just 2% of the patients
- 56.91% of the patients were medico-legal cases
- 89.02% patients belonged to Delhi itself followed by 4.92% & 3.79% from the neighbouring states of Uttar Pradesh & Haryana respectively
- Only 5.9% of the patients were admitted (2.1% under Neurosurgery, 2.5% under surgery & 1.3% under Orthopaedics)

Conclusions: The analysis has shown that while more than three quarters of the patients are adults a sizeable number of patients are in the paediatric age group also (11.66%). A thought towards the facilities available for paediatric patients is worthwhile, considering that there is no separate paediatric facilities demarcated in JPNATC. Other inferences drawn from the above observations and detailed profiling will be shared during the presentation.

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ID 448: Effects of Faulty Software on Unplanned Return Rate (URR) in Emergency Department (ED) of a UK hospital

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We conducted this study to benchmark our current Unplanned Return Rate (URR) after checking accuracy of automated URR report provided by EDIS system.
All returns to the Emergency Department (ED) within 7 days of index visit were identified for the month of February 2012 in this retrospective study. The crystal report generated from EDIS was utilised for the purpose.
Out of a total of 4964 ED attendances in Feb 2012, 450 (9.1%) were returns within 7 days of initial visit as per report generated by EDIS system. After removing duplicates in the crystal report the URR reduced to 344 (6.9%). The numbers further reduced to fraction of 5.1% after removing clearly documented 92 planned revisits captured by software.
The initial URR of 9.1% generated by IT software vs URR of 5.1% (close to target of <5% as per CQI criteria) depicts the variations which post a challenge to hospitals. Our data is representing only one month and of February when many junior less experienced doctors start their new position. The study is restricted to one district hospital of UK.
We recommend that hospitals establish a software system for identifying genuine unplanned returns as defined by the Care Quality Indicator (CQI) criteria.

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ID 449: A Study of Waiting Time in the Emergency of a Tertiary Care Hospital in India

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3. All India Institute of Medical Sciences (India)

Background: The study was conducted in the Emergency Department of a 2200 bedded tertiary care hospital in India for a duration of 2 months starting from May 2012. All 13200 patients who arrived during the study period were taken as the sample.
Methods: 13,200 samples registered during study period were observed for the arrival pattern. Real-time mapping of 500 randomly picked samples was observed for calculating time taken to initiate (delays) various patient care activities. Waiting line model was applied and the waiting line, server utilization, waiting time, and the Poisson distribution of the patients arriving at the New Emergency Department were calculated.
Results: (All values in Minutes)
Avg. Delay in the first interaction with doctor-21.4257
Avg. Time spent in screening-4.473896
Avg. Delay in going for getting registered-1.008032
Avg. Time spent in registration-7.483936

Avg. Time spent in traveling from registration counter to ER Department-2.126506
Avg. Delay in initiation of clinical examination -8.680723
Avg. Time spent in clinical examination-10.94574
Avg. Time spent in withdrawing sample from the patient for investigations-1.65261
Avg. Time delay in initiation of the treatment by nursing staff-28.40361
Conclusions: The main action points contributing to delay in delivery of emergency services were:

- First interaction with the Emergency Physicians.
- Time spent in getting registered.
- Initiation of nursing care after the prescription was written by Emergency Physicians.
- Reporting of investigations.

Details of the above findings and further analysis shall be presented.

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ID 450: Surgery for Pulmonary Tubercolosis: Our Experience at Tertiary Center

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Background: Introduction of successful anti-tubercular chemotherapy decreases the need of surgical intervention in Pulmonary Tuberculosis. In spite of this the need for surgery in developing countries like India always remains considerable because of sheer number of cases, non compliance of anti Tubercolar drugs and poor socio economic status. Also with MDR-TB and HIV, the west rediscovered interest in the role of surgery in Pulmonary Tuberculosis.
Material and Methods: All the diagnosed and clinical suspected cases of Pulmonary Tuberculosis selected for surgery were recruited till August 2012. Prerequisites were informed consent of the patient, cardio-respiratory assessment, pre operative-respiratory exercises and pre operative broncoscopy. Various procedures like Pneumonectomy, Lobectomy, Thoracoplasty, Pleurocutaneous window etc. were performed as per as the indication of surgery.
Follow up was done right from immediate post operative period to one year or even years together. Results were analyzed and conclusion was made about role of surgery in Pulmonary Tuberculosis.
Results: Out of 90 operated cases of MDR-TB/Sputum (+ve), 76 became Sputum (-ve) after surgery. Out of surgery done for 605 hemoptysis cases, in majority of cases control of bleeding was achieved. Total 15 death occurred out of which 5 early and 7 late death. Surgical management of Empyema was done in 2235 cases with various procedures like Thoracoplasty, Percutaneous window and sometime Decortication. Follow up of these cases found to be with significant decrease in morbidity & mortality.
Conclusions: Surgery is the one of the main stay of treatment in managing complications and sequel due to Pulmonary Tuberculosis especially in developing countries like India. Also it has some role in converting Sputum (+ve) MDR cases to Sputum (-ve) cases.

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ID 451: The Evolution of Threats from Terrorist Attacks Against Non-Governmental Organizations

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The recent attacks on aid workers in Pakistan yet again raise concerns for humanitarian action in the new security environment. Several incidents of terrorist attacks against non-governmental organizations (NGOs) have been highlighted in the media, during recent years, displaying aid personnel's exposure to such threats. In the light of these developments, the purpose of this study was to highlight how the trend of terrorist attacks against NGOs have evolved in space, time and execution, through the years 1970-2011, compared with the development of terrorist attacks in general. The open source Global Terrorism Database was used to uncover cases of terrorism against NGOs, geographical distribution, the number of casualties and type of modus operandi of these attacks compared to the total 104 689 cases registered in the database. The number of terrorist attacks against NGOs (N = 691) increased during the last 40 years with almost half of the incidents having occurred since 2002. Meanwhile, the number of terrorist attacks in general remained relatively stable through the decades, since the 1980s. The last decade NGOs were mostly affected in the regions of Sub-Saharan Africa and Asia, and compared with terrorism in general attacks in Sub-Saharan Africa were disproportionately directed against NGOs. The attacks against NGOs after 2002 caused more deaths and injured than the previous decade, a negative trend also observed for terrorism overall. Terrorism against other targets caused more casualties per incident, possibly due to the more common use of bombings as modus operandi, while NGOs suffered hostage takings four times as often. In conclusion, there are indications that terrorism especially against NGOs has increased slightly during the last decade and although attacks against NGOs only represent about 1% of terrorist attacks in total the morbidity and mortality of contemporary terrorist attacks against NGOs and other targets has also increased.

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ID 452: Hijacking of an Aircraft by Terrorists: Observations and Recommendations from the EMS Perspective Following an International Airport Disaster Exercise

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Background: The Hellenic National Centre of Emergency Care runs the Emergency Medical Service at the Athens International Airport covering emergencies treatment and transport 24/7. A field functional exercise is organized every two years in order to test the latest revised disaster plan and to achieve preparedness for all emergency responders involved in dealing with any Mass Casualty Incident at the airport
The 2012 scenario involved the hijacking of an airplane with 64 passengers and 6 crew on board. We examined the EMS response as well as interoperability issues between the airport responding services and the "external" responding services.
Methods: A previously described (by Ingrassia et al) three-part evaluation tool comprising of three data sets (triage, medical maneuvers, and radio usage) accompanied by direct anecdotal observational methods were used in order to examine if it can provide a method to evaluate functional mass casualty incident exercises.
Results: 23 medical responders (including doctors, nurses and rescuers) managed all passengers and crew from the hijacked airplane and one injured bomb squad member. 82% of victims were initially triaged correctly and evacuation transport was performed according to post initial-treatment triage. Airway and C-spine protection maneuvers were performed correctly in all but one case and ventilation maneuvers were performed correctly in all but three cases. Radio communication encountered problems since two radio communication routes were used with no means of interoperability.
Conclusion: All issues identified will be presented including the erroneous initial order for EMS personnel to approach the scene before the area was cleared of all explosive devices and the problems encountered attempting to treat the bomb squad injured officer wearing the full bomb proof uniform. The testing of the three-part evaluation tool was successful and has indeed the potential to become a recognized tool for evaluating exercises.

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ID 453: Evaluation of Psychosocial Aftercare and Health Outcome Assessment after a public shooting in Alpen aan den Rijn, The Netherlands

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Background: On April 9th 2011, a shooting incident took place in a shopping mall in Alphen aan den Rijn, The Netherlands. Six people were killed and seventeen wounded. It was an incident without any precedent in the Netherlands.
In the aftermath the Regional Public Health Service (GGD) was responsible for organising the aftercare (psychosocial care and health outcome assessment). The director of the GGD asked the National Institute for Public Health and the Environment (RIVM) for advice.
Methods: Based on the advice of the RIVM, the GGD conducted a health study (questionnaire) aimed at providing insight into the effects of the shooting on physical and mental health and into the aftercare-needs of victims and their relatives, witnesses and emergency services personnel. Simultaneously, the GGD started monitoring pre-existing health registrations.
A year after the shooting, questions were raised in Parliament about the quality of the aftercare. In response, the local government and the GGD started an evaluation study (interviews), focused on the quality of the aftercare delivered and the aftercare that was still needed.
Results: About a quarter of the witnesses and relatives described their healthcare as 'less than adequate'. It was shown that these people had more physical and mental health problems. A third of this group felt they didn't receive the required help for their problems. The results were used to inform the local health professionals and to adjust the aftercare plans where needed.
Conclusions: One of the main conclusions of the evaluation study was that although the quality was good, the level of aftercare had been scaled down too quickly.
In our presentation the RIVM and the GGD would like to present the research findings from all three studies, show how they affected policy decisions and at the same time show what lessons we learned through this incident.

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ID 454: Automated Measurement and Analysis of Triage Process in a Mass Casualty Incident (MCI) Drill with a New IT Support Solution

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Background: MCI drills are conducted regularly these days and are considered mandatory in preparation for professional disaster management. The recent introduction of performance indicators in disaster medicine drills lead to a more objective way to evaluate process quality. Still most parameters are merely "yes-no-decisions" within certain time limits judged by observing experts.
In order to automate and broaden data recording and evaluation we established the ALARM system - a wireless

IT solution to support MCI management and training that collects all relevant process parameters.
Methods: We tested the ALARM system in a series of comprehensive MCI drills. The main drill scenario was a train crash in the city of Berlin involving 33 passengers.
Two teams of two paramedics used handheld computers to perform a modified simple triage and rapid treatment (mSTaRT) algorithm. Results of this procedure were a brief determination of identification characteristics and an injury severity category displayed by a colour (red = life-threatening, yellow = severe, green = minor, black =lifeless).
Procedure results were logged together with a time stamp. After the exercise all data was transferred into a data base (IBM SPSS Statistics 19) and matched with the predetermined injury patterns of all simulated adult patients.
Results: The first preliminary triage was done six minutes after arrival of the triage teams. Triage of the last patient was finished 17 minutes later. One patient was not triaged at all (3%). Median time for each triage procedure was 45 seconds, 66 seconds for patients grouped into the red category, 78 seconds for patients grouped into the yellow category, 12 seconds for patients grouped into the green category and 34 seconds for patients identified lifeless. Additional time needed for movement between patients was 15 seconds and 26 seconds respective for the second triage team.
Conclusion: The ALARM solution provided data to support retrospective performance assessment. We could objectively analyse the automatically generated data to create a precise and detailed triage evaluation.

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ID 455: A Qualitative Assessment of Emergency Care Documentation in Mass Casualty Incidents by Explosives in Pakistan

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Objectives: This study assessed the emergency care documentation in Mass Casualty Incidents (MCIs) by explosives in Pakistan.
Methods: This qualitative study assessed MCI reporting in the Lahore city area. Information from available documentation and key-persons interviews were categorized using Disastrous Incidents Systematic Analysis through Components, Interactions and Results (DISAST-CIR) methods.
Results: The absence of central control and command in the case of such events explained the absence of documentation for coordination at MCI site as well as dissemination of multiple timings for a given event. Documentation lapses were more significant in the hospital setting than the pre-hospital setting allowing limited information on the injury type, severity and resources utilized in MCI case treatment. Available data made it difficult to assess in hospital outcome assessments of injured cases as well as follow-up of secondary transfers because of *resource limitations.*
Conclusion: Documentation of emergency care in MCI event and of those involved may benefit from standardization of interagency, intra-agency proformas, staff training, defining MCI in hospital information system, and standardizing documentation in control and command centers expected to coordinate responses in these situations.

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ID 456: From WADEM's Damage Probability Formula to the Conflict Damage Probability Formula

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Background: The Task Force on Quality Control of Disaster Management of the WADEM conceived a generic, non-quantitative, mathematical formula describing the main determinants of the probability that an event causes damages to facilitate the understanding of disasters and the planning of prevention and reaction. The aim of this study is to adapt this formula to the specificities of armed conflicts to support a systematic approach to the comprehension and evaluation of such events.
Methods: Following a deductive and inductive methodology, all formula parameters were analysed taking into account armed conflict's environment as defined by the Uppsala Conflict Data Program and, where necessary, modified to better describe conflict specificities. Results were compared to existing literature to verify the pertinence of the different formula components and to identify, where necessary, new determinants.
Results: $Pd = f\ (\text{benefits (losses)/risks})\{(Hnat+Rnat+\Delta Rnat)+(\Omega+A)[(\Phi+\Delta E+Ac1^{*}(a1+a2)+Ac2^{*}(b1+b2)]^{*}D\}$
This new formula defines the probability that a conflict causes a damage (Pd) as a function of the benefit-risk ratio (Benefits (losses)/risks), the natural hazards (Hnat), the existence or reduction of natural resources (Rnat+ΔRnat), the ecosystem fragility and status (Φ+ΔE), the human rights issue (Ω+A), the absorption capacity (Ac1-2), the human activities before/during/after the conflict (a1+a2), the counterproductive and the productive response to the conflict (b1+b2), and the duration of the conflict (D).
Conclusions: The Conflict damage probability formula is a flexible tool allowing, with a holistic approach within the general framework of human sustainable development, an extensive analysis and a comparative assessment of armed conflicts explicitly rooting them in their geographical, temporal, cultural, political, economical and subjective settings. With the inclusion of some of its parameters in WADEM's Damage Probability formula it may also contribute to a better analysis of hazards and their consequences in general.

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ID 457: Fukushima Nuclear Disaster-Behind the Scene, Medical Perspective on Turkey's Awareness

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Background: Fukushima Daiichi disaster is the largest nuclear disaster since the Chernobyl disaster of 1986. Radioactive materials were released by the Fukushima I Nuclear Power Plant, following the Tohoku earthquake and tsunami on March 11, 2011.
Materials and methods: After the release, many residents were evacuated from the accident area. The day after the accident, The Ministry of Foreign Affairs (Turkey) recommended Turkish citizens to leave the accident area as a safety measure. Meanwhile, Turkish Government took some measures both in airports and hospitals for contaminated passengers/airplanes which could come from Japan. An expert team including professionals from Ministry of Health (Turkey) and Turkish Atomic Energy Authority (TAEK) was sent to Tokyo, Japan in order to command and to control the evacuation of Turkish citizens. The team carried potassium iodide pills for potentially contaminated victims.
Results: Aircrafts which came directly from Japan to Turkey were controlled at airports. Passengers and their baggage were screened for radioactive contamination. Civil defense teams were deployed at airports for vehicle and personnel decontamination. Designated ambulances and hospitals were included into the plans of medical management of contaminated patients. Decontamination units were set up and medical CBRN defense teams were assigned at hospitals. A short preparedness course was designed in order to train emergency department health providers and to increase their awareness.
Conclusion: Emergency departments and providers should be ready for the medical management of radiation casualties. Awareness and preparedness are important keys in effective medical CBRN defense.

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ID 458: Emergency Care Resources and Services in the North East Department of Haiti: A Cross-sectional Survey

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Background: The North East department of Haiti is the most resource constrained area of the nation. Emergency healthcare in the department is provided by three national hospitals however, no reference information exists for regional emergency services.
Objectives: To assess Emergency Care resources including physical structures, personnel, equipment and policies in the North East Department of Haiti.
Methods: During October 2012 a modified version of the WHO Tool for Situational Analysis to Assess Emergency and Essential Surgical Care was completed at all Ministry of Health hospitals in the North East Department of Haiti.
Results: Three hospitals were assessed: Trou du Nord (TDN), Ouanaminthe (O) and Fort Liberte (FL). All centers had a designated emergency ward with 24 hour staffing by physicians. Staff physicians and mid-level providers ranged from 6-10 and from 17-76 respectively. All facilities had electricity with generators and running water; however, none was potable. All hospitals had x-ray and ultrasound capabilities. No CT scanners exist in the region. Supplemental oxygen and invasive airway equipment with intubation medications was accessible at all hospitals however not available in the Emergency wards. TDN had equipment for defibrillation and epinephrine. Obstetrical kits were present at all sites. Basic supplies for trauma were stocked at all hospitals. No blood products, chest tubes, or cervical immobilization supplies were available. All sites had labor and delivery and pediatric. Surgical services were available at TDN and FL. Inpatient capacity ranged from 13-24 for adult beds and 2-8 beds for pediatrics. No hospital reported awareness of regional resources or contacts for inter-center communications. Ouanaminthe had a protocol for patient transfers and reported intermittent access to ambulance services.
Conclusions: Gaps in relation to supplies of essential emergency equipment and regional protocols for patient transfer exist in emergency care in the North East Department of Haiti.

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ID 459: Public Health Legislation and Emerging Threats to Population Health: Should Best-Before Dates be Introduced?

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Background: Legal and ethical considerations required to preserve individual rights and protect community health may come to contradictions when considering under what circumstances can electronic health records (EHRs) be used for infectious disease control. The aim of this study is to identify gaps within the legal and ethical constructs in Sweden that may impede timely identification and containment of a disease outbreak or other large scale public health emergencies.
Methods: A nested case study design was used for the study involving data from literature reviews and interviews. Two case issues were investigated: access from public information systems (at national, state and regional levels) to patient-specific medical overview data from EHRs and access from public health information systems to patient-specific telenursing data (Healthcare Direct 1177). Qualitative methods and cross-disciplinary triangulation were used for the data analysis.
Results: The International Health Regulations require countries to report certain disease outbreaks and public health

events to WHO in order to deal with the subject matter of global disease surveillance. In parallel, national laws and international conventions state that the rights and welfare of the individual should be respected. Legislation is here initiated to settle disputes. However, by the time legislation becomes law, public health issues may well have altered in the meantime, leading to ambiguity and public dismay at some of the decisions reached by the judiciary, including, not the least, those involving public health issues.
Conclusion: Public health legislation operates in a 'past tense' by comparing what has been, in relation to current legislation. The problem for the law is that rather than considering the whole issues or problem, the law must consider each case on the relevant facts alone. These matters are particularly timely as infectious disease outbreaks threaten populations and Sweden undertakes significant structural and organizational changes in their response systems.

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ID 460: A Force Multiplier – Sharing Emergency Patient Tracking Data Across Disparate Systems

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Background: Planning for and monitoring multijurisdictional patient movement during large-scale emergencies has presented significant challenges including those resulting from disparate electronic patient tracking systems. At the request of the National Association of State EMS Officials (NASEMSO), a practitioner steering group, the United States' Department of Homeland Security (DHS), the United States Department of Health and Human Services (HHS), and their partners have worked collaboratively to develop interoperable emergency patient tracking solutions while improving situational awareness.
Methods: An interactive patient tracking session was held during the May 2012, HHS Integrated Medical, Public Health, Preparedness and Response Training Summit in Nashville, TN (USA). Session attendees were monitored by four disparate web-based systems in real-time as they were tagged (banded), registered and moved among "locations" in the room. Attendees simulated hospital evacuees being simultaneously transferred between locations and their disparate tracking systems. Tracking systems included those from Louisiana, Maryland, Tennessee, and the federal NDMS' Joint Patient Assessment and Tracking System (JPATS). Session attendees were introduced to emergency patient tracking methodologies and the emerging Exchange Data Exchange Language (EDXL), Tracking Emergency Patients (TEP) data exchange standard.
Results: Fifteen volunteers from the session simulating hospital evacuees were scanned into the native Tennessee patient tracking system and seamlessly moved to other locations in the room representing federal, Maryland and Louisiana jurisdictions. Individual system users were able to view patient information entered in another system in their own as if it was entered directly into their application.
Conclusions: The utilization of the emerging EDXL-TEP data standard allowed the seamless exchange of data across 4 disparate patient tracking applications. The ability to electronically receive and share emergency patient manifests allows first responders, hospitals, and emergency managers to lean-forward and provide better patient care in mass patient, multijurisdictional evacuation emergencies.

Keywords: emergency patient tracking, evacuation, mass casualty, EDXL-TEP
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ID 461: Workshop: Knowledge, Training and Networks Connections

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Background: At the Targeted Agenda Program on CBRN Preparedness (2007) conclusions were drawn on how to optimize preparedness and sharing of knowledge. The main goal was the establishment of an international network to advise on how to improve education and training. The focus should be on the development of internationally standardized protocols and standards. Recently, the European Commission initiated a project on the Cross-border Exposure. It was concluded that communication is a particular issue. Member States are focused inwards and good practices tend to remain within a country. The initiation of a European 'network of experts' was proposed to drive cross-border emergency preparedness for exposure assessment in chemical incidents. Protocols and standards are primarily updated based on evaluation of exercises and incidents on a local level. Developments and improvements are hardly evaluated systematically or scientifically and tend to be experienced-based rather than evidence- based.
Methods: A workshop will be held on sharing recent experience on best practices between countries. The main topics for future development will be discussed to define basic requirements for education and training in Medical Emergencies and disaster management. The focus is on defining areas or topics which needs the development of a state of the art approach based on recent incidents and disasters. Examples: registration of casualties of various nationalities of an air crash, or, preparation of mass gathering events.
Results: An infrastructure to exchange knowledge and experience to form a basis for setting the policy agenda's

within countries. This facilitates the opportunity for setting up a methodology for and maintaining a network of experts (including policy makers) as a focal point for input to set the agenda within countries.
Conclusion: Keeping a network alive needs recurrent and frequent effort.

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ID 462: Meeting Medical Needs of the Public During a Disaster: Collaborative Shelter Planning

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Background: Emergency managers and disaster-related shelter managers have the responsibility of planning to ensure that appropriate services and facilities are accessible. Having a regionalized shelter management plan that includes triage criteria for medical special needs sheltering is important. Often, it is assumed during a disaster, that all persons with medical problems must be housed in a medical special needs shelter. However, all do not necessarily require the extent of care that medical shelters might provide. Diverting evacuees with medical issues to medical shelters can result in the separation of families and caregivers. In addition, inappropriate placement can jeopardize the health and safety of the entire community by creating unnecessary surges on emergency medical resources. Public education programs on personal preparedness are key for individuals and families with medical needs.
Methods: The purpose of this presentation is to describe the collaborative efforts for regional shelter planning for coordinated responses during disasters.
Results: The learner will be able to:

- Describe methods and benefits of collaborative and coordinated planning efforts
- Identify type of local and regional level information needed by key stakeholders to plan for shelter medical services.
- Understand the role of local emergency managers and regional shelter planners in developing a rigorous public education program on personal preparedness
- Describe methods to evaluate collaborative planning and response efforts

Conclusion: While assessment of local emergency managers may be different than those of the regional planners they are by no means exclusive of one another. Planning, collaboration and coordination of shelter medical resources can lead to more effective and comprehensive sheltering services. Collaborative planning allows local level emergency managers and regional shelter managers make critical decisions and maximize emergency medical services during disasters.

Keywords: shelters, medical needs, collaborative planning and coordinated response

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ID 463: Community Resiliency in routine and in Conflict times – What Can be Learned? Findings from the Conjoint Community Resiliency Assessment Collaboration

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Background: The Conjoint Community Resiliency Assessment Measure (CCRAM) standardizes the assessment of community resiliency. The tool was developed by 18 content experts from seven academic institutions and various governmental agencies in a collaborative effort lasting over two years.
Methods: As a pilot for the instrument's ability to monitor community resilience, residents of nine communities were surveyed using the CCRAM.
Correlations and co-variances between variables were computed and patterns of relationship were explored using factor analysis. Subsequently, residents of one small community were re-surveyed when they were under fire. Chi-Square and t-tests sought differences between the two periods.
Results: Pilot study included 886 adults. The analysis yielded five factors with good reliability: Leadership ($\alpha = .92$), Community ($\alpha = .85$), Preparedness ($\alpha = .80$), Place Attachment ($\alpha = .76$) and Social Trust ($\alpha = .85$). Individuals belonging to community emergency response teams (CERT) reported higher community resilience. Controlling for age, years in the community, education and belonging to CERT, community resilience was strongly and positively correlated with satisfaction with quality of life in the community, $pr\ (798) = 0.63$, $p < .001$, as indicated by partial correlation analysis. The instrument facilitated comparisons of resiliency profile between communities, identifying strengths and weakness, as well as potential areas for intervention in each community. The second measurement in the community under fire demonstrated that while social trust remained unchanged, all other factors, as well as the overall CCRAM score, were significantly higher during a period of collective stress.
Conclusions: The CCRAM standardizes measurements of perceived community resilience and facilitates comparisons across time and place. The quantification of factors that strengthen or weaken the community allows leaders to gain focus and justify action to enhance resiliency in the community they are accountable for. The broad use of this tool is encouraged.

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ID 464: Understanding Public Responses to CBRN Incidents: Behaviour Change, Compliance and Risk Communication

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Background: The effects of public health emergencies may be mitigated by appropriate responses and behaviour change on the part of the affected public. However, people do not consistently engage in appropriate protective behaviours. We have explored the reasons why people fail to engage in protective behaviours and identify risk communication strategies which elicit appropriate behavioural responses and compliance with expert health advice.
Methods: This presentation will provide an overview of a range of methodologies we have employed to gauge likely public responses to Chemical, Biological Radiological and Nuclear (CBRN) incidents, including telephone surveys, focus groups and large scale exercises. These studies have explored levels of compliance with recommended protective behaviours and information needs during large scale public health emergencies. The ability of different risk communication strategies to influence compliance with mass casualty decontamination procedures following a simulated emergency has also been tested.
Results: Whilst the public are willing, under some circumstances, to adopt a range of protective behaviours that would facilitate the efforts of responding agencies, appropriate behavioural changes and compliance with advice are more likely when communication strategies focus on clear and timely messaging. These messages should contain, for example, information on the properties of the threat, associated risks, and health effects of the incident. Providing clear and actionable advice was shown to be particularly effective in promoting positive responses.
Conclusion: To maximise the chances of risk communication strategies resulting in appropriate behaviour change during CBRN incidents, it is imperative that communicators pre-prepare messages that address likely public information needs concerning unfamiliar threats. Our projects have yielded a useful framework for communicators who seek to design and pre-test messages for CBRN threats.

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ID 465: Industrial Considerations for Australian Nurses Responding to Disasters

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Background: Within the Australian out-of-hospital environment, nurses have been deployed from various States and Territories to assist in the response to events such as the Victorian Bushfires [2009] and the Queensland floods [2011]. Similarly, nurses have been deployed overseas to assist in events including the Christchurch earthquake [2011] and Sumatra-Andaman earthquake and tsunami [2004]. Nurses are likely to continue in the health response to a disaster. However, consideration needs to be given to the industrial agreements for nurses when released from their normal employment arrangements to assist in disastrous events.
Methods: An integrative literature review methodology was used to collect, evaluate, analyse and integrate sources of evidence to inform this discussion on the current enterprise arrangements for nurses with respect to disaster response. Nursing and midwifery public sector enterprise agreements were sourced from each of the eight Australian jurisdictions. These were evaluated for the industrial provisions made available to nurses wanting to assist in responding to disasters.
Results: Only five enterprise agreements mentioned provisions for nurses to assist in disasters. Where these provisions exist they vary in the their consistency, terminology and the quantity of the entitlements potentially leading in inequality and variability in the financial support frameworks of nursing involved in disaster events
Conclusion: There is no national approach by nursing industrial organisations to standardise provisions related to an emergency event or disaster. Those agreements that had provisions were notable in their variability in the definition of disasters and the terminology used to define the entitlements for nurses willing to respond to disasters. This variability may leads to inequity and sustainability of nurses who are willing to respond to disaster with nurses sent from some states or territories being financially supported compared to nurses from other regions possibility not being renumerated for undertaking the same role and responsibilities.

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ID 466: Comparison Between a Countryside and an Urbanside Emergency Medical Vehicle in Portugal

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Background: In Portugal, Emergency medical vehicles (VMER) handle seriously ill pre-hospital cases. The VMER are hospital-based units consisting of a doctor and a nurse working in 8h shifts, which are dispatched by a national command centre after proper medical triage.
Methods: We collected data on demographics, time spent, diagnosis and patient transport, from two VMER during the year 2012. One based at Lisbon, Hospital São Francisco Xavier (SFX) and other located at countryside, Hospital Vila Franca de Xira (VFX).
Results: While VMERSFX covers a population of 800.000 inhabitants in a 200 Km^2 area, VMERVFX assists an area of 1500 km^2 with 250.000 inhabitants. VMERSFX had 4246 emergency events (12 events/day, 83,1% inside jurisdiction) and VMERVFX 1642 events (4,5 events/day, 95,4% inside jurisdiction). VMERVFX assisted more men (54%) and VMERSFX more women (53%). The average of ages was similar in both (50-60y) as the percentage of unit deactivation (5%). Average

time to reach the event location and to assist & transport was different: VMERSFX 8 min and 36 min versus 25 min and 77 min in VMERVFX. Both medical units had similar trauma (12%). Cardiovascular system diseases were the main cause of activation followed by Respiratory system diseases. The third and fourth causes, however, were different according to each area: neurologic and metabolic in VMERSFX versus mental/behavioural disorders in VMERVFX. Incidence of Cardiac Arrest events varied (3,4% in VMERSFX and 6,7% in VMERVFX) as the recovery of circulation after ACLS (21,7% vs 9,9%).

Conclusion: The reality of the populations assisted by these emergency vehicles is quite opposed. VMERVFX has only 1/3 of VMERSFX population but has 8 fold the area of intervention. We did not expect to find similar trauma events in the countryside as we did. Also, we found that the data collected from the Cardiac Arrest/Recovery mainly reflects the geographical characteristics of each area.

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ID 467: Managing Mass Casualty Decontamination: Optimising Operational Processes and Communication Strategies

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Background: Developments in civilian emergency response capabilities have included the ability to mount a co-ordinated, multi-agency response to mass casualty incidents involving chemical, biological or radiological threats. Options for decontaminating large numbers of affected casualties exist and whilst these have been well tested in live exercises, further work has sought to optimise the technical and operational aspects of these systems.

Methods: The UK Health Protection Agency, along with its national and international partners, has pursued a research program focusing on civilian mass casualty decontamination provision. This presentation will cover the highlights of this program, which has included 'first principles' analysis of decontamination methods in laboratory studies and the evaluation of large scale field exercises involving the decontamination of casualty volunteers with a range of challenging functional needs. The development of methods for determining decontamination efficacy with simulants has also allowed an assessment of the impact of behavioural and communication-related factors associated with successful decontamination outcomes.

Results: Outcomes from these studies have included a novel protocol which incorporates a range of optimal parameters for use in mass casualty decontamination systems. We have identified a number of practical solutions that could increase the flow rate of affected casualties through mass decontamination units and identified strategies for first responders to communicate instructions to members of the public undergoing decontamination for the first time in emergency situations.

Conclusions: This research program has provided useful insights for all responding agencies that have developed the capability to perform pre-hospital mass casualty decontamination. In future studies we will explore the potential to increase casualty throughput and improve decontamination outcomes, both physical and psychological, through the optimisation of casualty management strategies.

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ID 468: Fostering Community Capacity: Implementation of the Rural Disaster Resilience Project

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Background: The Justice Institute of British Columbia's Rural Disaster Resilience Project (RDRP), funded by the Canadian Security Science Program, developed and piloted a participatory, community-centered process for engaging rural, remote and coastal (RCC) communities in disaster risk resilience planning at the local level with a focus on enhancing local capacity and capability.

RRC communities face triple jeopardy: fewer professional and financial resources, less emergency measures infrastructure, and unique challenges created by geography, isolation and demographics. The RDRP's community-based participatory approach was designed to engage, elicit, and integrate citizens' expertise and insights in the development of resilience planning tools and processes. The initial phase developed prototype versions of an online Virtual Community of Practice (VCoP), RDRP Planning Guide, and a set of accessible, web-assisted, user-friendly tools with which to build capacity in RRC communities.

Methods: The current validation and implementation study assessed the implementation and use of RDRP process and tools, paying particular attention to how participating communities engaged with the VCoP, worked through the planning process, and used the tools and resources. Data included observation, site statistics, interviews, focus group sessions, and document review that examined key performance indicators related to effectiveness, efficiency, and user-experience. Descriptive statistics and thematic analysis identified enablers, barriers, and best practices for use of the RDRP tools.

Results: The presentation will demonstrate the operational components of the VCoP, Planning Framework, and Tools, present findings of the validation and implementation study, and discuss next steps for the RDRP project.

Conclusion: The RDRP project provides rural, remote, and coastal communities with an accessible and user-friendly set of tools and processes to support disaster risk and resilience planning. This ongoing project demonstrates the value of community-based, emergent research in developing effective and efficient processes that meet the unique needs of RRC communities.

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ID 469: Collections/Repositories of Post Emergency/Disaster Evaluation Reports – A Valuable But Unknown and Untapped Resource

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Background: With the scale of disasters around the world increasing, effective emergency preparedness and disaster management is a time critical issue. A more systematic and timely approach to "lessons learned/observed" could proactively influence policy, operations, education and research for all levels, ie government, emergency response agencies, business, and communities. The Monash University Disaster Resilience Initiative (MUDRI) was commissioned by the Australian Government Attorney General's Department to undertake a review of specified reports of recent disasters in Australia. One of the key findings was the need to establish a more systematic approach to post disaster evaluations in Australia. As a first step we asked: are there collections/repositories of post emergency/disaster evaluation reports, how accessible are they and, in general, what is available in these repositories?
Methods: A search strategy guided a literature and website review of collections/repositories of post emergency/disaster evaluation reports. The key features of these collections/repositories were examined.
Results: Nine emergency/disaster related evaluation repositories were identified. Eight are in the humanitarian domain, commencing as early as 1964 (Kamedo), continuing to current times with contemporary entries, and are substantial in size. The repositories are searchable, include a wide range of events and sub-themes, but use a variety of styles. They are hosted primarily by NGO's. A parallel and unexpected finding was an increasing number of evaluation models and frameworks applicable in this field.
Conclusion: These collections/repositories of post emergency/disaster evaluation reports are a valuable but poorly known resource. Only a few disaster health evaluation compendia/repositories are readily accessible and each has a slightly different underlying focal point. There is a significant need for a consistent framework for disaster health evaluations, including definitions, and terminology. Wider use of the WADEM Utstein Template may provide a viable solution.

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ID 470: Fires in Social Settings: An Examination of Prevention Strategies

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Background: Public social venues create opportunities for fun and relaxation yet may become one of calamity when the unexpected intervenes. These incidents can happen in nearly any jurisdiction and, while they usually are limited in scope, often their overall impacts on the community are severe. Inherent safety risks become apparent following a post incident investigation. The purpose of this presentation is to demonstrate ways that these disasters kill significant groups of unsuspecting people engaged in a social outing that turns deadly. The goal is to advance prevention efforts pertaining to safety.
Methods: A review of literature regarding fires that have occurred at public social events was undertaken and two specific fires were selected at which over 100 died as a result of their injuries.
Results: A review of literature regarding fires that have occurred at public social events was undertaken using EBSCO host with the limiters of: night club fires, full text, peer reviewed and published from 1983-2013. There were 28 and the researchers eliminated 16 by mutual agreement. Additional resources were employed as they were determined.
Conclusions: Public social gatherings provide opportunities for fun and relaxation, but when an untoward event disaster strikes it can devastating. Two incidents were compared and contrasted demonstrating the elements that led to each disaster and recommendations were noted that will mitigate future incidents using primary and secondary prevention.

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ID 471: Pre-Hospital Care and Mass Gathering Medicine During Hajj: What Has Improved?

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Background: The annual Muslim pilgrimage is one of the greatest mass gatherings of mankind on Earth. Every year, approximately 3 million Muslims from more than 180 countries around the globe gather at Mecca, Saudi Arabia to perform the Hajj pilgrimage. Saudi Arabia's capacity includes 25 hospitals with 4,427 beds, in addition to 21 mobiles teams and 141 healthcare centers in the vicinity of the Hajj area, the closest of which (Al Ajyad Emergency Hospital) the author has had the opportunity to work at.
Methods: A comprehensive literature review was undertaken with selection of pertinent articles that were analysed and compiled, to highlight both problems and improvements.
Results: A mass gathering event of this proportion inevitably has potentially grave health consequences. This has included the 2007 stampede claiming 346 lives, the 1997 fire claiming 343 lives, communicable diseases, such as the meningococcal serogroup W135 outbreak in 2001, and of course the physical demands of the five-day Hajj rituals combined with the harsh climate, where day temperatures can surpass 40°C. Therefore, to optimise healthcare, the Saudi Arabian Health Ministry has employed a multi-faceted approach including (1) ensuring all pilgrims are pre-vaccinated prior to arrival in the country, (2) the construction of new bridges with increased capacity at Mina to relieve human congestion and thus prevent stampedes, (3) distributing free water bottles at several points to all pilgrims and (4) adoption

of the Jeddah declaration on mass gatherings which aims to generate a new internationally-recognised evidence-based medical discipline.

Conclusion: The drastic reduction in mortality since the introduction of the aforementioned measures indicates a huge improvement in the healthcare of Hajj pilgrims. However, continual improvements are required to ensure safety is assured at an annual mass gathering whose size is ever-increasing.

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ID 472: Impact of a Series of Operational Interventions on Patient Access and Flow in an Overcrowded High-Volume Emergency Department

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Background: Overcrowding is especially challenging for Emergency Departments (EDs) with limited bed capacity to treat patients.

Objective: We sought to determine the impact of a series of interventions on the operational performance of an overcrowded high-volume ED in a public teaching hospital.

Methods: We performed a retrospective observational analysis of electronic medical records of patient visits during the implementation of 21 interventions aimed at improving patient access and flow in a 47 treatment space ED from 2006 to 2010. Novel interventions included positioning an ED provider as the first healthcare worker that patients encountered when they walk into the department (provider on arrival). Outcomes included the annual and monthly number of patient visits, percentage of patients who left without being seen (LWBS), mean time to provider (TTP), mean time to discharge (TTD), and the annual ED mortality rate.

Results: The monthly mean patient visits increased from 212 patients per day (95% CI: 206-217) in January 2006 to 366 (95% CI: 348-394) in December 2010. The LWBS percentage decreased from a peak of 16.0% (95% CI: 15.1-17.0) to 1.4% (95% CI: 1.2-1.7) in December 20120. The monthly TTP decreased from a peak of 203 minutes (95% CI: 196-210) to 22.2 minutes (95% CI: 21.5-22.9) in December 2010. The monthly TTD decreased from a peak of 372 minutes (95% CI: 362-382) to 174 minutes (95% CI: 171-176) in December 2010. The annual ED mortality rate decreased from 9.0 deaths per 10,000 visits (95% CI: 7.0-11.5) in 2006 to 4.8 deaths per 10,000 visits (95% CI: 3.8-6.2) in 2010.

Conclusion: This series of operational interventions was associated with significant decreases in the LWBS rate, TTP, TTD and ED mortality rate in our high-volume ED despite a near doubling of patient volume during the implementation period.

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ID 473: The Growing Demand for Emergency Healthcare

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Emergency health is a critical component of health systems; one increasingly congested from growing demand and blocked access to care. The Emergency Health Services Queensland (EHSQ) study aimed to identify the factors driving increased demand for emergency healthcare.

This study examined data on patients treated by the ambulance service and Emergency Departments across Queensland. Data was derived from the Queensland Ambulance Service's (QAS) Ambulance Information Management System and electronic Ambulance Report Form and from the Emergency Department Information System (EDIS). Data was obtained for the period 2001-02 through to 2009-10. A snapshot of users for the 2009-10 year was used to describe the characteristics of users and comparisons made with the year 2003-04 to identify trends.

Per capita demand for EDs has increased by 2% per annum over the decade and for ambulance by 3.7% per annum. The growth in ED demand is most significant in more urgent triage categories with decline in less urgent patients. The growth is most prominent amongst patients suffering injuries and poisoning, amongst both men and women and across all age groups. Patients from lower socioeconomic areas appear to have higher utilisation rates and the utilisation rate for indigenous people exceeds those of other backgrounds. The utilisation rates for immigrant people is less than Australian born however it has not been possible to eliminate the confounding impact of age and socioeconomic profiles.

These findings contribute to an understanding of the growth in demand for emergency health. It is evident that the growth is amongst patients in genuine need of emergency healthcare and public rhetoric that congested emergency health services is due to inappropriate attendees is unsustainable. The growth in demand over the last decade reflects not only on changing demographics of the Australian population but also changes in health status, standards of acute health care and other social factors.

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ID 474: Risk Factors for Early Preventable Hospital Trauma Mortality in an Urban Lower Middle-income Setting

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2. king Edward Memorial Hospital
3. Lokmanya Tilak Municipal General Hospital (India)
4. Jamsetji Tata Centre for Disaster Management, Tata Institute of Social Sciences
5. Division of Global Health IHCAR, Karolinska Institute (Sweden)

Background: A substantial part of excess trauma deaths in low- and middle-income countries today may potentially be prevented using low-cost targeted interventions. However, most research on preventable trauma mortality is from HIC settings, hindering a context-specific approach. The aim of

this study was to identify risk factors for early preventable trauma mortality in an urban lower middle-income setting.
Methods: We performed retrospective analyses of prospective data from a cohort of injured patients admitted to a level one trauma centre in Mumbai, India, during 2011. Primary outcome measure was early preventable mortality, defined as death at 24 hours from admission in a patient with probability of survival (Ps) >0.5. Ps was calculated using the TRISS methodology, using the 2009 US National Trauma Data Bank (NTDB) coefficients and by estimating Mumbai coefficients. Multivariate logistic regression, using a stepward backward approach, was used to identify risk factors.
Preliminary results: A total of 1105 patients were included in the analyses. Significant determinants in the 2009 US NTDB model were transfer from another hospital (OR 0.30), respiratory rate (OR 0.92), intubation (OR 58.63), intercostal drain (OR 4.99), and injury severity score (OR 0.94). Significant determinants in the Mumbai model were transfer from another hospital (OR 0.29), systolic blood pressure (OR 0.97), oxygen saturation (OR 0.96), respiratory rate (OR 0.92), and Glasgow coma score (0.66). All were significant at the $P < 0.05$ level.
Conclusion: Our findings indicate that risk factors differed depending on whether the NTBD or Mumbai dataset was used as benchmark. In future research, the identified risk factors could be used to develop a point-of-care tool to identify patients at an increased risk of early preventable mortality to allow implementation of appropriate interventions. This study is a first step in adopting a more context-specific approach in trauma research.

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ID 475: How the Emergency Department (ED) Changes During A Disaster Response

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Background: A disaster event creates challenges to the everyday functioning of the emergency department (ED). This is seen as a result of increased patient numbers in a short period of time, staff absenteeism and damage to infrastructure. Once a disaster has occurred or the disaster plan has been activated, certain changes will occur that will invariably affect the functioning of the ED relating to patient presentation types, changes to staffing, setting and practice.
Methods: Literature was identified through electronic databases from 2000 to 2011. Articles were reviewed if they provided discussion relevant to nursing in the ED during a disaster. Five themes emerged from the review; what nurses do, how nurses feel, preparedness, barriers and changes in the ED.
Results: This presentation will focus on one of the most significant themes that emerged; *changes that occur in the ED during a disaster*. The changes that occur in the ED will be discussed highlighting five main aspects of change; patients, staffing, setting, practice and resources. Furthermore, the implications of these changes for nursing will be discussed.
Conclusion: It seems reasonably obvious that the ED environment would be significantly impacted by a disaster. However, there is a paucity of literature which discussed the implications of these changes. Future research into this area may help guide the preparedness and training needs of health professionals working in this environment.

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ID 476: Longitudinal Trends in Early Trauma Mortality a Urban Lower Middle-income Setting – A Comparison of Three Cohorts of Severely Injured Patients at a Level One Trauma Center in Mumbai, India

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Background: About 90% of the almost six million annual trauma deaths occur in low- and middle-income countries (LMIC). Recent years of improvements in trauma systems have resulted in dramatic reductions in early trauma mortality in high-income countries. (HIC) It is poorly understood if trauma survival has improved in LMICs as well. The aim of this study was to assess if early mortality (EM) in trauma has decreased over time in an urban lower middle-income setting.
Methods: We performed retrospective analyses of prospective data on three patient cohorts admitted to a level one trauma centre in Mumbai, India, during 1998, 2002, and 2011 respectively. Primary outcome measure was death at 24 hours from admission. Proportions of EM in each cohort was compared using 95% confidence intervals (CI). A multivariate logistic regression model was fitted comparing EM in the 2002 and 2011 cohorts with the 1998 cohort. We adjusted for differences in case-mixes by including potential patient-level confounders, such as injury severity.
Preliminary results: A total of 3988 patients were included in the analyses. Proportions of EM were 8.9% (7.6-10.1%), 4.8% (3.4-6.3%), and 8.1% (6.5-9.6%), in the 1998, 2002, and 2011 cohorts respectively. Unadjusted odds ratios (OR) for the 2002 and 2011 cohorts were 0.52 (0.37-0.74, $P < 0.001$) and 0.90 (0.69-1.17, $P = 0.434$). Adjusted ORs were 0.53 (0.37-0.75, $P < 0.001$) and 0.90 (0.69-1.17, $P = 0.417$).
Conclusion: Our preliminary findings indicate that while the risk of EM in 2002 was significantly lower than in 1998, in 2011 the risk had increased again to similar levels as in 1998. In other words, recent years of improvement in trauma systems have not been mirrored in the assessed level one trauma centre. The reason for this will be assessed in upcoming studies. If our findings can be generalized to other trauma centres in the LMIC setting it warrants further research.

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ID 478: A Survey of Student Attitudes Toward and Knowledge of Emergency Preparedness

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Introduction: The possibility of natural disasters and public health emergencies coupled with the possibility of terrorism support the need to incorporate emergency preparedness into the curricula for every health professional school.
Methods: A survey methodology was employed to assess both attitudes towards and knowledge of emergency preparedness amongst health professions students which included the schools of medicine, nursing, dentistry and public health. The survey was piloted on graduating students and then administered prior to institution of a emergency preparedness curriculum and then repeated as an annual survey.
Results: The survey found that 51.8% had been present at a disaster as non-responder while only 12.1% had ever been present as a responder. With regard to baseline class room exposure over 50% reported no exposure to such key concepts as incident command, triage, all-hazards planning, surge and aspects of terrorism. In addition at baseline most students felt they had no competency in emergency preparedness. As an example, only 10% of students felt competent with personal protective equipment. While exposure both as a responder and student was low, 82.5% of students felt that emergency preparedness should be a mandatory topic in their education. Lastly, with a minimal curriculum change students showed statistically significant increases on knowledge testing.
Conclusions: While exposure was low for emergency preparedness topics and most did not recognize how information they had been taught might be applicable to emergency preparedness, there was a strong desire for additional training. In addition simple curricular adjustments can lead to significant improvements in knowledge.

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ID 479: Comfort Level of EMS Providers in Responding to WMD Events: Impact of Training and Equipment

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2. Columbia University

Introduction: Emergency medical services (EMS) providers are ill-prepared in the areas of training and equipment for weapons of mass destruction (WMD) events and other public health emergencies.
Methods: A nationally representative sample of the basic and paramedic emergency medical service providers in the United States was surveyed to assess whether they had received training in WMD and/or public health emergencies, as part of their initial provider training and as continuing medical education (CME) within the past 24 months. Providers were also surveyed as to whether their primary EMS agency had the necessary specialty equipment to respond to these specific events.
Results: Over half of EMS providers had some training in WMD response. Hands-on training was associated with EMS provider comfort in responding to chemical, biological and radiological events and public health emergencies (OR = 3.2, 95% CI 3.1, 3.3). Only a small (18.1%) of providers surveyed indicated that their agencies had the necessary equipment to respond to a WMD event. Comfort level and having equipment to respond these incidents, was not as highly associated as comfort level and having had training to respond to these incidents.
Conclusions: Lack of training and education as well as the lack of necessary equipment to respond to WMD events is associated with decreased comfort among emergency medical services providers in responding to chemical, biological, and radiological incidents. Better training and access to appropriate equipment may increase provider comfort in responding to these types of incidents.

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ID 482: Pediatric Terrorism Preparedness National Guidelines and Recommendations

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A cadre of experts and stakeholders from government agencies, professional organizations, emergency medicine and response, pediatrics, mental health, and disaster preparedness were gathered to review the 2003 pediatric guidelines and summarize the existing data on the needs of children in the planning, preparation, and response to disasters or terrorism. This review was followed by development of evidence-based consensus guidelines and recommendations on the needs of children in emergency preparedness. The methodology used to develop the guidelines and recommendations in the current report was one of a previously validated evidenced-based consensus process that has been used in prior studies, supplemented by a modified Delphi approach for topic selection. There were several goals of this process:

- Build collaboration among individuals with expertise in pediatrics, pediatric emergency medicine, pediatric critical care, pediatric surgery, and emergency management (including disaster planning, management, and response).
- Review and summarize the existing data on the needs of children in disaster planning, preparation, and response.
- Develop evidence-based guidelines and recommendations on the needs of children in disasters, and develop evidenced-based consensus guidelines for dealing with gaps in the evidence.
- Create a research agenda to address knowledge gaps based on the limited data that exist on the needs of children in disasters.

Results: The final recommendations focused on eight major areas:

- Emergency and Prehospital Care
- Hospital Care
- Preparedness and Response
- Biological, Chemical, and Radiological Terrorism Treatment
- Decontamination, Quarantine, and Isolation

- Mental Health Needs
- School Preparedness and Response
- Training and Drills

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ID 483: The Willingness of US Emergency Medical Technicians to Respond to Terrorist Incidents

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2. Columbia University

Introduction: There is a difference between prehospital providers' ability and willingness to respond to terrorist, public health emergencies and disaster incidents
Methods: A nationally representative sample of the 203,465 basic and paramedic emergency medical service providers in the United States was surveyed to assess their ability and willingness to respond to terrorist incidents.
Results: EMT's were appreciably (10-20%) less willing than able to respond to such potential terrorist-related incidents as smallpox outbreaks, chemical attacks or radioactive dirty bombs. ($p < 0.0001$). EMTs who received terrorism-related continuing medical education within the previous two years were nearly twice as likely (OR = 1.9, 95% CI 1.8, 2.0) to be willing to respond to a potential terrorist incident as those who indicated that they had not received such training.
Conclusions: Timely and appropriate training, attention to interpersonal concerns and instilling a sense of duty may increase first medical provider response rates.

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ID 484: Reliability and Indicators of EMS Provider Self-efficacy Responding to and Treating Victims of Terrorism related

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Introduction: Self-efficacy or "comfort" has been used repeatedly throughout the medical literature to assess the confidence of a healthcare provider's ability to recall or perform skills during a real or simulated patient encounter. The ability to recall knowledge and perform skills under austere conditions is essential in the effective delivery of prehospital medical care during disasters.
Methods: A representative sample of over 285,000 EMTs and Paramedics in the United States was surveyed to determine the comfort of providers responding to and treating victims of blast and radiological incidents. The outcome of self-reported comfort was measured using a 5 stage Likert scale. Independent variables were entered into a multivariate model and those identified as statistically significant predictors of comfort were further analyzed using logistic regression.
Results: The variables most often associated with the outcome of comfort included: The size of the town/city where the EMT or Paramedic works; Level of certification; Years of experience; and previous training on blast or radiological topics. These variables were consistently predictive of comfort across all response scenarios at the level of $P < 0.05$.
Conclusion: Paramedics who work in urban settings and had previous training report the highest levels of comfort responding to terror-related events. These findings are of concern since paramedics only comprise approximately one-third of EMS providers in the U.S. Additionally, over 80% of EMS in the U.S. is delivered in a non-urban setting, suggesting regional disparities which effect provider self-efficacy when responding to terror-related incidents. These disparities deserve further investigation.

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ID 485: Awareness and Training for Responders: Building on the Expertise of Community Support Organizations

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Background: Recent and historic events have repeatedly shown how people with functional limitations are at heightened risk during community disasters. The EnRiCH Community Resilience Intervention was developed and implemented to address this issue in 5 cities in Canada, using a community-based participatory research design.
Method: An asset/need assessment was conducted in each community with participation from diverse sectors, including but not limited to emergency management, health and social services. An asset-mapping intervention was then developed, based on the emergent themes from the asset/need assessment phase, which emphasized the importance of connectedness, situational awareness, and collaboration as critical aspects of community resilience and adaptive capacity. The intervention phase for each community consisted of 1) a full day orientation and relationship-building session; 2) an 8-week collaborative asset-mapping task; and 3) a full day table-top exercise incorporating the use of the database developed during the asset-mapping task. Audio recordings of each consultation session were transcribed verbatim and checked for accuracy.
Results: Qualitative content analysis revealed an important theme from each phase of the project, which was the need to recognize the expertise of community members who a) have functional limitations; and/or b) work in organizations which support people with functional limitations. Their expertise, which is largely untapped for emergency planning, represents an important asset in the community, which can be used to train the response community and inform contingency planning efforts, to ensure appropriate support strategies are readily available when needed.
Conclusion: Expertise is an important community asset embedded within high risk populations and the organizations that provide support. The opportunities which are provided by engaging these experts requires upstream leadership where

opportunities for collaboration are recognized, endorsed, and investments of time, energy and financial support to build relationships are prioritized.

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ID 486: The Syrian Crisis Continues: Long Term Planning and Challenges

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Background: The Syrian Humanitarian Crisis, now in its second year, continues to face displacement of more than 200,000 persons that have remained in country and close to 600,000 refugees that have fled to neighboring countries of Lebanon, Jordan, Turkey and Iraq, among others. This presentation discusses factors influencing the movement of refugees to these countries, the absorption capacity of these communities, and the challenges refugee camps face in meeting the needs of asylum-seekers and refugees.
Methods: Weekly data calls from humanitarian partners, peer reviewed literature reviews, independent NGO reporting, and media accounts.
Results: Security, proximity to border states, and ethnic and cultural ties were primary factors influencing Syrian movement across borders. Beyond basic supplies, medical care access and stress on critical infrastructure systems challenged receiving states. Refugee safety, protection from refoulment, greater access to social services and long-term livelihood opportunities are needed for asylum seekers and refugees.
Conclusions: Long-term planning for the receiving countries should continue to incorporate social services that facilitate the livelihood development opportunities and culturally specific mental health resources.

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ID 487: Psychological Impact of Superstorm Sandy: The Trauma Signature

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Background: In late October 2012, a tropical cyclone formed in the Caribbean, strengthened to hurricane status, moved northward, collided with a winter storm complex, and struck the U.S. Northeast coastline with ferocity. Eight nations and 24 U.S. states were impacted by Superstorm Sandy.
Methods: We used trauma signature (TSIG) analysis to examine the psychological stressors in relation to exposure to the unique constellation of hazards in Superstorm Sandy. TSIG analysis is an evidence-based method that examines the interrelationship between population exposure to a disaster and the interconnected physical and psychological consequences for the purpose of providing timely, actionable guidance for effective disaster behavioral health support that is organically tailored and targeted to the defining features of the event. For Superstorm Sandy, we created a hazard profile, a matrix of psychological stressors by disaster phase, and a "trauma signature" summary for those affected in terms of exposure to hazard, loss, and change.
Results: Superstorm Sandy was a "meteorological chimera," transforming into multiple presentations throughout its trajectory: tropical storm, hurricane, post-tropical cyclone, coastal surge event, and blizzard. Sandy was the largest-diameter cyclonic system to impact the U.S. Almost 70 million persons were affected by this storm system, most in the U.S. where Sandy became the second costliest natural disaster in history. Salient psychological risk factors included stressful warnings, severe impacts, damage to frail infrastructure, widespread loss of electrical power, disruption of mass transit, and destruction of home sites. The TSIG summary will be discussed in relation to the disaster behavioral health response.
Conclusions: TSIG analysis has characterized the pervasive psychological effects of this exceptional weather system. Psychological consequences varied in relation to the geographically-distinct exposures to an array of physical forces of harm.

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ID 488: Providing Tactical Medical Care at Mass Shooting Events

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Background: With the increased prevalence of active shooters events, Emergency Medical Services must be ready to respond in a safe, prompt, and coordinated manner with police and other allied services. While not limited to shootings, firearms are the most likely cause of mass casualty events in North America. The 1999 Columbine High School shooting was the sentinel North American event that changed how these calls are responded to both from a law enforcement and medical perspective.
Methods: Many jurisdictions have mandated that their police tactical response units have a medical component capable of providing care under fire. In turn, the medical community looked for evidence based medicine that could be applied. Most tactical medic programs across North America use the Tactical Combat Casualty Care guidelines as their best practice standard.
In Ontario, Canada a Special Operations Working Group was formed comprised of four services with specialized tactical medical teams covering approximately 4600 square kilometres and over 5 million people. The goal is to work towards common equipment, medical directives and guidelines and to train together on an annual basis so that familiarity and consistency could be achieved.
Results: Local events have shown that services with fully staffed tactical medic programs have been able to deal with events with limited magnitude. As each service has no more than two tactical paramedic ambulances on at a given time, the ability to call for additional support from identically trained and equipped tactical

paramedics provides additional resources in an environment where only they can access due to safety concerns.
Conclusion: While we have been fortunate to date to have not had to respond to such a catastrophic event, we feel prepared to deliver patient care in this austere environment following best practice guidelines to save victims where rapid medical intervention would be of benefit.
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ID 489: Sandy Hook Elementary School Shooting: The Trauma Signature

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Background: On December 14, 2012, Sandy Hook Elementary School (456 students in grades kindergarten-4th grade), Newtown, CT, USA was the scene of a school massacre. The perpetrator, Adam Lanza, killed 20 students and 6 staff with semi-automatic weapons fire, before killing himself. Sandy Hook has become a "tipping point" in a national debate regarding the array of necessary solutions to curb gun violence.
Methods: We used trauma signature (TSIG) analysis to examine the psychological impact of this landmark school shooting incident. TSIG analysis is an evidence-based method that examines the interrelationship between population exposure to an extreme event and the psychological consequences for the purpose of providing timely, actionable guidance for effective mental health and psychosocial support (MHPSS) that is organically tailored and targeted to the defining features of the event. For the Newtown shooting, we created a hazard profile, a matrix of psychological stressors, and a "trauma signature" summary in terms of exposure to hazard, loss, and change. We examined the MHPSS response and the range of possible remedies to diminish school gun violence. We also examined indicators of community resilience.
Results: The horrific nature of this intentional, premeditated event and the characteristics of the victims (young, innocent, defenseless children and heroic teachers who died shielding them) and the wholesome Newtown community, amplified the psychological impact. Salient psychological risk factors included vulnerability of children in schools to violent acts, widespread availability of high-capacity weapons, repeated "copycat" acts of mass violence, and failure of policy-makers to take meaningful actions.
Conclusions: TSIG analysis has characterized the widespread psychosocial effects of this specific school massacre scenario with a focus on what makes this a "tipping point" event.
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ID 490: Niveles de Nitratos Reducidos Como Indicador de Gravedad en los Pacientes Con Sepsis

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Objetivo: Determinar si los niveles de nitratos reducidos se correlacionan con la calificación de APACHE II como indicadores de gravedad en pacientes con sepsis/choque séptico que ingresan al servicio de urgencias.
Metodos: Estudio observacional de causa a efecto. El tamaño de la muestra fue de 43 pacientes diagnosticados con sepsis y 20 controles sanos. Los pacientes fueron calificados de acuerdo a la escala de mortalidad APACHE II, para la determinación de los NOx se utilizó la Técnica de Griess dentro a las 24 horas y 72 horas de estancia hospitalaria. Los resultados de APACHE II y nitritos se compararon utilizando las prueba ANOVA de una vía, regresión lineal y t de "student" no pareada.
Resultados: Se agruparon los pacientes en 3 grupos: sépticos ($n = 43$), sepsis severa/choque séptico ($n = 18$) y controles ($n = 20$). En los pacientes sépticos se obtuvieron niveles de NOx de 9.59-87.99 μM/L durante las primeras 24 hrs y niveles de 3.09-82.67 μM/L a las 72hrs ($p < 0.05$). En el grupo de los pacientes con sepsis severa/choque séptico los niveles de NOx a las 24 horas 7.0-311.0 μM/L y a las 72 horas de 41.22-322.90 μM/L, significativamente mayores comparados con los obtenidos en controles o pacientes con sepsis que no evolucionaron a sepsis severa o choque séptico ($p < 0.05$). Trece de los pacientes con sepsis severa o choque murieron dentro de las 72hrs, siendo la Neumonía Adquirida en la Comunidad la principal causa de la sepsis.
Conclusiones: Hubo correlación entre la calificación del APACHE II y los niveles de NOx a las 24hrs y no a las 72hrs. Se sugiere que los niveles de NO pueden orientar sobre la gravedad y evolución de dichos pacientes desde su ingreso a los servicios de urgencias.
Palabras Claves: Sepsis, Óxido Nítrico, APACHE II, nitratos reducidos.
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ID 491: Patient Perceptions Regarding a Disaster Drill in a Large Urban Emergency Department (ED)

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Background: A disaster drill involving the ED arrival of 35 simulated patients was conducted on October 24, 2012 between 8h30 AM and 11h00 AM at the Montreal General Hospital, a level 1 trauma centre in Montreal, Canada. The regular ED operations were maintained throughout the exercise.
Methods: A written survey was circulated during the drill to real patients in all areas of the ED. Three nurses provided explanations to the patients about the drill and the survey, recruited participants, and collected the completed surveys. Patients in the psychiatric area of the ED were excluded.
Results: At the time of the survey distribution, 31 patients met the inclusion criteria. Twenty-three surveys were completed

(response rate of 74%). Seven patients did not complete the survey for various reasons (judged by the nurses to be too sick or to have impaired cognitive function, patient refusal). All participants were at least 18 years old and 65% of participants were female. 70% of respondents agreed or strongly agreed that they were made aware in a timely fashion about the disaster drill and 87% understood the necessity for ED personnel to participate in such exercises. The majority did not think the drill would impact negatively the duration of their ED visit (65%) or the quality of care received (70%).

Conclusion: The patients present in the ED during a disaster drill appear supportive of disaster training exercises and the majority does not seem to fear a prolonged ED visit or a negative impact on the quality of care received. These results collected prospectively are limited by a small sample size and the fact that some of the sicker patients could not answer the survey. Nevertheless, these results tend to encourage the organization of disaster drills in the ED without fear of patient dissatisfaction.

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ID 492: Impact of a Disaster Drill on the Average Total Length of Stay (LOS) of Patients In an Urban Emergency Department (ED)

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Background: A disaster drill involving the arrival of 35 simulated patients was conducted on October 24, 2012 between 8h30AM and 11hAM at the Montreal General Hospital, a level 1 trauma centre in Montreal, Canada. The regular ED operations were maintained throughout the exercise. We sought to determine the average total ED LOS of real patients in the department in the 24 hours following the start of the drill, in addition to the mean time to ED physician assessment and the number of patients that left without being seen (LWBS).

Methods: The average total ED LOS, the number of patients that LWBS and the mean time to ED physician assessment on October 24 were compared retrospectively to the values on 4 other control dates (October 3, 10, 17, and 31) using data extracted from Med-Urge©, an electronic ED information system.

Results: The average total ED LOS from 8hAM on October 24 to 8hAM on October 25 was 11.3 hours. On the 4 control dates, the average total ED LOS was 14.4 hours. The mean time to physician assessment was 1.6 hours on the disaster drill day and 3.3 hours on the control dates. Only 1 patient LWBS on the disaster drill day as opposed to an average of 13.8 patients on the 4 control dates.

Conclusion: A disaster drill can occur while maintaining normal ED operations without causing deterioration of ED patient flow indicators. Many factors may have contributed such as the application of a specific directive in our disaster plan to have admitted patients immediately transferred from the ED to the wards, a decreased influx of real patients arriving by ambulance during the drill, live television broadcasts potentially discouraging ambulatory patients from going to this ED, and increased staffing due to effective requests for back-up during the drill.

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ID 493: Guidelines for Research and Evaluations of the Health Aspects of Disasters: THE CONCEPTUAL FRAMEWORK

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A Conceptual Framework to study disasters is essential for understanding the epidemiology of disasters and the interventions/responses undertaken, and developing the science of disaster health. Based on the Disaster Cycle, the Conceptual Framework identifies the steps involved from a hazard to a disaster. *Hazards* possess energy that may become unstable and released. An *event* is the actualization of the released energy, and may cause *structural damages*. The likelihood of sustaining damage from an event may be reduced by augmenting the *absorbing capacity* of the structures-at-risk. Structural damage may evolve into *functional damages* of one or more Basic Societal Systems. The ability to cope with structural damages without a loss of function can be enhanced by increasing the *buffering capacity*. Functional damages create *needs*, which are met by the goods/services contained within the *response capacity*. An emergency for the affected society occurs whenever resources within its response capacity must be used to meet the needs. A *disaster* occurs whenever the local response capacity is unable to meet the needs, and response capacities from areas outside the affected community are required. A disaster can occur in any one, or all of the Basic Societal Systems. All responses, whether in the Relief or Recovery phases of a disaster, are interventions that use the goods/services within the response capacity. Responses may be directed at preventing/mitigating further deterioration in functions (deaths, injuries, diseases, morbidity) in the affected population (relief responses), or towards returning the affected society to the pre-event functional state (recovery responses). Capacity building consists of interventions undertaken before an event to increase the resilience of the society to a hazard in the area-at-risk. Resilience combines the absorbing, buffering, and response capacities of a society-at-risk, and is enhanced through capacity-building efforts. A disaster constitutes a failure of resilience.

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ID 494: Mental Health Challenges in the Syrian Population

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Background: Women and children are intended to be protected under the rules of international humanitarian law (IHL), IHL

human rights law, and refugee law. In the current and ongoing Syrian crisis, January 2013 estimates place the fleeing Syrians close to 600,000, of which more than 75 per cent of the assisted refugees are women and children. Beyond basic survival needs, these individuals are minimally provided mental health services as they flee into neighboring countries.
Methods: Weekly data calls from humanitarian partners, peer reviewed literature reviews, independent NGO reporting, and media accounts.
Results: Post traumatic stress disorder (PTSD), sleep disorders, depression, nightmares and flashbacks of, among others, the 1982 Hama massacre that claimed up to 40,000 Syrian lives are among the many current mental health consequences within this vulnerable population.
Conclusions: Psychological, psychiatric and pharmaceutical resource needs will continue to increase not only as the current conflict persists but well after it ended. Children as a particularly vulnerable population, and as a second generation of traumatized Syrians, will require long-term planning and resources.
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ID 495: Nurses' Mental Health in the 2011 Great East Japan Earthquake

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In order to revea l the mental health condition of nurses who experienced the 2011 Great East Japan Earthquake, we conducted exploratory study to investigate intension of their acute stress reactions (ASR) and the factors influencing ASR. From the end of September to the middle of November in 2012, questionnaire survey was administered to 401 nurses, who work at 7 hospitals in Fukushima prefecture. They were asked about their demographic information, and asked to check items which measure the harm and damage they had or their close people suffered. And they were also ask to rate 11 items developed by Tanno, Yamazaki, Matsui, & Yamakage (2011) which are to measure ASR.
96.0% out of 401 was female. As for the work positions, staff was 79.9%, charge nurse was 11.6%, head nurse was 7.0%, and managerial staff was 1.5%. T-test comparing ASR score between two groups, nurses who had or whose close suffer the harm and those who didn't, was performed. 5 items showed significant difference: "Relatives were killed or remained missing (Yes 11.7%)", "Friends and acquaintances were killed or remained missing (18.2%)", "The house remained but unable to live in (16.0%)", "Stayed at an evacuation center (11.7%)", "The family members had to live apart (18.2%)." Those who didn't suffer scored with ASR from 22.4 to 23.6 in average, but those who suffered scored from 26.1 to 27.8. The one-way analysis of variance (ANOVA) was performed to determine whether there are any significant differences of ASR between 4 levels of age (under 20, 30s, 40s, over 50). Results revealed that nurses in their 40s (25.71) and over 50 (24.45) showed significant high ASR score than their 20s (20.68).
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ID 496: Guidelines and Frameworks for Disaster Health Research and Evaluations: A Framework for the Transectional Structure of Society: The Basic Societal Systems

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For the purposes of disaster research and/or evaluation, the complexity of a society is organized into 13 Basic Societal Systems within an overall Coordination and Control system. These 13 Basic Societal Systems include: (1) Public Health (predominantly preventive); (2) Medical Care (predominantly curative); (3) Water and Sanitation; (4) Shelter and Clothing; (5) Food and Nutrition; (6) Energy Supplies; (7) Public Works; (8) Social Structure; (9) Logistics and Transportation; (10) Security; (11) Communications; (12); Economy; and (13) Education. This organization facilitates transectional descriptions of a society or a component of a society for assessment at any given time across the longitudinal phases of a disaster. Simultaneous assessments of the functional status of all, some, or one of the other Basic Societal Systems provide a transectional picture of the situation of a society. This information is compared to the pre-event description of the functions of the affected society, and from this, needs are identified, and interventions are selected that are likely to meet defined objectives and overarching goal(s). The effects of each intervention are evaluated in reference to these goals and objectives, and to their eventual effects on other Basic Societal Systems or subfunctions of a System. Since no functional system operates in isolation from the other functions, information of the concomitant status of several Basic Societal Systems is crucial to gain a complete understanding of any functional losses as well as of the effects and side effects of an intervention. Although many Systems and their respective sub-functions share some common subfunctions and elements, for the purposes of research/evaluation, it is necessary to assign sub-functions and elements to only one of the Basic Societal Systems.
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ID 497: Guidelines and Frameworks for Disaster Health Research and Evaluations: Coordination and Control

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Any complex operation requires a system for management. In most societies, disaster management is the responsibility of the government. Coordination and Control is a system that provides the oversight for all of the disaster management functions. The roles and responsibilities of a Coordination and Control Center include: (1) Planning; (2) Maintenance of inventories; (3) Activation of the Disaster Response Plan; (4) Application of indicators of function; (5) Surveillance; (6) Information management; (7) Coordination of activities of the Basic Societal Systems; (8) Decision-making; (9) Priority Setting; (10) Defining the overarching goal and objectives for

interventions; (11) Applying indicators of effectiveness; (12) Applying indicators of benefit and impact; (13) Exercising authority; (14) Managing resources; (15) Initiating actions; (16) Preventing influx of unneeded resources; (17) Defining progress; (18) Providing information; (19) Liaising with responding organizations; and (20) Providing quality assurance. Coordination and Control is impossible without communications. For Coordination and Control to fulfill its responsibilities, it must possess the following three factors: (1) Mandate; (2) Power and authority; and (3) Available resources. Coordination and Control is responsible for the evaluation of the effectiveness and benefits/impacts of all responses/interventions. Coordination and Control Centers are organized hierarchically from the on-scene Coordination and Control Centers (Incident Command) to local, provincial, and national Coordination and Control Centers. Currently, no comprehensive regional and international Coordination and Control Centers have been universally endorsed. Systems, such as the Incident Command System, Unified Command System, and Hospital Incident Command System are described, as are Humanitarian Reform and the importance of Coordination and Control in disaster planning and capacity building.

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ID 498: Guidelines and Frameworks for Disaster Health Research and Evaluations: The Operational Framework

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The structured study of interventions/responses (i.e., interventional studies) in any disaster requires a systematic approach that allows findings to be compared and ultimately lead to best practices in disaster health. The Operational Framework provides the structure necessary for the evaluation of specific interventions provided during Relief, Recovery, or Capacity-Building phases of a disaster. It is based on the Logic Model in which each intervention is a production process that results in some change to the current status of one or more Basic Societal Systems. The Operational Framework provides a road map of a project [intervention] highlighting how it is expected to work, what activities need to come before others, and how desired outcomes are to be achieved. Use of the Operational Framework also allows the dissection of the multiple processes that are involved in identifying needs and selecting and implementing each intervention. This allows the comparisons of interventions for identification of those most successful in achieving the objectives and contributing most to the strategic goal with the greatest efficiency and the least number and severity of undesirable effects. In addition, the structure of the Operational Framework provides a sound basis for the development of interventions and demonstrates the worth of the project to the sponsors. The Operational Framework that is recommended for the study of interventions/responses consists of the following processes: (1) Assessments; (2) Data analysis/synthesis; (3) Selection of intervention(s); (4) Operational planning; (5) Plan execution (intervention implementation); and (6) Evaluation of effects and changes in levels of functions resulting from the intervention(s) being studied. Each of the sequential steps in the operational processes is described.

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ID 499: Guidelines and Frameworks for Disaster Health Research and Evaluations: Framework for the Longitudinal Phases of Disasters

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A structured, widely applicable approach is necessary to study the epidemiology of a disaster and/or to perform evaluations of the interventions provided before, during, or after a disaster that yield information that can be compared. Denoting the period of disaster by absolute times following the onset of the disaster or the beginning of a phase of the disaster, e.g., Day 1, Day 7, has not been particularly useful for studying disasters. This separation of the time course of a disaster into sequential, longitudinal times does not accurately describe what actually occurs during disasters. Rather, the phases describing the chronology of disasters overlap: one phase may begin before the previous phase has ended. The proposed Longitudinal Framework facilitates the analysis of disasters by providing a series of phases based on properties of the disaster rather than on absolute times, and allows the comparison of similar phases of a disaster regardless of the hazard involved and/or the society impacted. The phases, which may overlap, include the: (1) Pre-event state; (2) Event; (3) Structural Damage; (4) Functional Damage (Changes in function); (5) Relief; and (6) Recovery. Key to this Framework is the inclusion of the concepts of damage to structures that lead to changes in function. In this Longitudinal Framework, response is not considered as a specific longitudinal phase, as responses are interventions that can occur during any phase of a disaster; the period formerly called the response phase, has been divided into a *Relief Phase* and a *Recovery Phase*. Development is not a phase of a disaster and is addressed separately. For research, evaluation, and comparison purposes, all assessments, plans, and interventions must be described in relation to only one of these longitudinal phases of a disaster.

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ID 500: Portable Digital Field Health Information System Allowing Real Time Analysis

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Background: The logistics of planning, implementing, and sustaining the delivery of efficient health services during humanitarian emergencies are challenging. Copious data are routinely gathered at the field level and sent to various stakeholders. Most data are collected on paper on the field, and

then brought to the local office. Subsequent electronic compilation is time consuming and the data can rarely be used for real-time analysis by administrators outside the field operation. Project EMcounter addressed these issues by creating an application that is not dependent on, yet compatible with the internet, allowing data collection and analysis in a *portable, digital, web-compatible format*, with less frequent delays in transmission. EMcounter is an open source platform voluntarily developed by programmers across the US, India and Bangladesh.

Methods and Results: In November 2012, EMcounter was piloted in the out-patient department of a rural hospital in Akobo, South Sudan, capturing over 200 OPD visits over a matter of days. Data from the local hospital ledgers were entered off-line into EMcounter's tablet application. The saved forms were uploaded online when internet was available at a speed of less than 2 seconds per entry. The uploaded data instantaneously populated an excel sheet allowing their use by standard statistical software. The EMcounter tool was portable, was not dependent on the internet (though compatible with it), and was used through a device that could be solar powered. These three attributes made it highly desirable in a humanitarian setting.

Impact: Such tablet-based, web-compatible, health information systemd will allow real-time disease surveillance, resource utilization monitoring, and portability of vast amounts of data. The next iteration of EMcounter, along with an analysis tool drawing data directly from the excel sheet, will be piloted at the Kumbh Mela in India, the largest human gathering in the world, in February 2013.

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ID 501: Trauma Exposure in Internally Displaced Women in Colombia: Psychological Intervention

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Background: Within the context of 60 years of civil war, Colombia has the largest population of internally displaced persons (IDPs) of any nation. Colombia's 5,455,000 IDPs represent 12% of Colombia's population, 20% of all IDPs globally, and 94% of IDPs in the Western Hemisphere. Among Colombian IDPs, 70% are women and/or minor children. IDP women experience vulnerability compounded by an excess burden of stressors, mental disorders, and economic hardships.

Methods: With Colombian colleagues and policy-makers, we summarized the current status of IDP women in Colombia and devised an evidence-based, stepped-care mental health and psychosocial support (MHPSS) intervention model that incorporates in-home screening for common mental disorders and primary-care-delivered, evidence-based interventions. Prior to implementation, the approach will be refined by conducting and analyzing focus groups of IDP women.

Results: At the time they are displaced, IDPs experience violence and loss of home, property, and social networks. Once relocated, they face the stressors of physical and economic survival in unfamiliar places and vulnerable circumstances. Psychological consequences include elevated rates of stress, anxiety, insecurity, uncertainty, trauma disorders, depression, domestic and community violence, and substance abuse. The model that was developed for initial pilot-testing, prior to transition-to-scale, focuses on IDP women in Bogota. The proposed intervention incorporates task-shifting for a network of health teams that regularly visit IDP households. Teams will provide mental health screening, brief psycho-education, and referral to psychiatric evaluation and treatment as warranted. Technological innovations include smartphone data entry of screening data and expert psychiatric consultation via telemedicine.

Conclusions: Exposure to trauma and loss is the reality for IDPs. Culturally-competent assessment and intervention offer the promise of redressing the debilitating psychological consequences of internal displacement.

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ID 502: Guidelines and Frameworks for Disaster Health Research and Evaluations: Epidemiological and Interventional Research/Evaluations

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The two principal but inter-related branches of disaster research and evaluation include: (1) Epidemiological; and (2) Interventional investigations. Epidemiological studies attempt to define the causes of disasters and the progression from a hazard to a disaster; interventional research involves the evaluation of interventions, whether they are directed at relief, recovery, capacity building (preparedness), or performance. The five frameworks for structuring the research of disasters include the: (1) Conceptual; (2) Longitudinal; (3) Transectional; (4) Operational; and (5) Risk Reduction Frameworks. The first three of these Frameworks are useful in epidemiological research, while the Operational and Risk Reduction Frameworks are components of interventional research. Epidemiological studies of disasters utilize the Conceptual, Longitudinal, and Transectional Frameworks to define the causes of disasters, what to expect when a hazard manifests as an event, and to identify interventions that could increase resilience by augmenting the absorbing, buffering, and/or response capacities to lessen the probability of damage from the next event. Interventional studies of disasters utilize the Operational and/or Risk Reduction frameworks to codify which interventions/response worked, which did not work, and what will make the interventions/responses better in the future. The Logic Model provides the structure and the definitions for the evaluation of interventions. Ultimately, results from interventional studies will define the standards and best practices upon which disaster education, training, competencies, performance, and professionalization will be built. The structure provided by the frameworks facilitates the comparison between similar and dissimilar disasters and their respective components, and for analysis and reporting.

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ID 503: Guidelines and Frameworks for Disaster Health Research and Evaluations: Risk, Risk Reduction, and Risk Management

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Risk reduction has become an important activity in disaster health. Generally, *risk* is understood as the chance or possibility of danger, loss, injury, or other *adverse consequences*; however, risk often is expressed as "a combination of the consequences of an event and the associated **probability** of consequences." Many attempts have been made to quantify the risks for earthquakes in specific geographical areas. Unfortunately, such mathematical probabilities do not exist for most hazards or events. Thus, qualitative expressions such as "high", "medium", "low" have been used. Also, risk must be described in terms of frequency, severity, and certainty.

The risk that a hazard will result in a destructive event and/or a disaster consists of a series (continuum) of risks. Each of the steps in the cascade is part of the consequences of the precipitating event, and each can be characterized by its probability of occurrence. These steps can be conceived as resulting from a multi-factoral and incremental set of processes (economic, social, cultural, etc.); others can be influenced by changes in resilience. There are risks that a hazard may evolve into an event, that the event may cause structural damages, that the structural damages may result in functional damages (i.e., decrease in levels of function) that, in turn, result in needs, and that the needs will result in a disaster. Each of these risks is dependent upon the preceding step in the continuum from a hazard to a disaster, and each risk represents a probability having a value between 0 and 1. Thus, the risk that a disaster will result from a hazard is much smaller than is the risk that the hazard will manifest as an event. Each of the risks along the continuum is discussed, including ways to reduce each risk.

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ID 504: Does AIIMS Ultrasound Trauma Life Support Course Improves the Knowledge and Confidence Levels Among Acute Care Physicians Towards Point of Care Sonography During Primary Survey of Trauma Resuscitation?

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Background: Trauma is a leading cause of death and disability. Caring of injured person demands acute care skills and one of the skills is point of care sonography (POS). POS, emergency and trauma care is in its infancy in this part of the world.

Objective: To improve the knowledge and confidence levels among acute care physicians towards point of care sonography during trauma resuscitation.

Methods: Prospective study was conducted over two years. Acute care physicians from India, Srilanka, Nepal and Iran were trained through AIIMS ultrasound trauma life support course (AIIMS-UTLS). Provider Course is of one and half day. The content was POS of airway, breathing, circulation, disability, secondary survey of trauma and ultrasound guided CPR. Course was disseminated via interactive lectures and hands on training. Baseline and post confidence questionnaire were based on assessment on POS of airway, breathing and circulation. Likert scale (1 = not confidant, 5 = extremely confidant) were used. Statistical analysis was done by SPSS version 16.

Results: 16 AIIMS-UTLS courses were done between December 2010-12. Out of 478 participants 59% were senior residents,21%junior residents and 20% of consultants. 251 (52.51%) participants were surgeons, 95 (19.87%) were medicine, 32 (6.69%) from emergency medicine, 43 (9%) were from anesthesia and 22 (4.6%) were from other specialties. 66.52% had previous Knowledge of Ultrasonography (USG),49% had regular access to USG machine and 55.4% were using USG on regular basis = 265 (55.44%). The baseline and post course confidence levels in performing POS in airway were Likert scale (1,4.29), breathing (1,4.19), circulation were (1,3.9) and FAST were (1,3.94). The confidence level in making a clinical decision based on POS was likert scale (1,3.93). Conclusion: AIIMS-ultrasound trauma life support course improved the the knowledge and confidence levels among acute care physicians towards point of care sonography during primary survey of trauma resuscitation.

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ID 505: Guidelines and Frameworks for Disaster Health Research and Evaluations: Resilience (Preparedness) Framework

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Assessments of the outcomes and impacts of interventions designed to enhance the resilience of a community-at-risk is difficult. Often, such effects only can be assessed during or following an event that has the potential of causing a disaster or through the use of disaster drills/exercises. However, the effectiveness of capacity-building interventions can be assessed and validated following an event that has occurred. The interventions undertaken to augment the resilience of a community can be analyzed in order to validate the effectiveness of the processes used and their outcomes. The findings of such analyses contribute to effective capacity building efforts. The Resilience Framework provides the structure for the analyses of the processes implemented for augmenting the resilience of a community. It applies to interventions directed towards increasing the absorbing, buffering, and/or response capacities of a society-at-risk for an event that could result in a disaster. Capacity building is accomplished by actions that increase the society's level of

resilience. The Resilience Framework consists of 16 elements: (1) Hazard and risk identification; (2) Historical perspectives and predictions; (3) Selection of hazard(s) to address; (4) Selection of indicators; (5) Standards and benchmarks for resilience; (6) Current status; (7) Identification of resilience needs; (8) Strategic planning; (9) Selection of intervention; (10) Operational planning; (11) Implementation; (12) Termination; (13) Transition, maintenance, sustainability; (14) Documentation of effects; (15) Evaluation; and (16) Feedback. Each of the elements of the Framework is a production process and can be analyzed using the Logic Model, and benchmarks, milestones, and standards can be developed for optimizing the resilience of a community-at-risk given the resources available. The elements of the Resilience Framework are for each of these processes are described in detail, with attention directed to Coordination and Control during planning, capacity building, and evaluations of interventions.

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ID 506: Guidelines and Frameworks for Disaster Health Research and Evaluations: Preparedness, Resilience, Readiness, Capacity Building, Susceptibility, and Vulnerability

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Preparedness: is the knowledge and capacities developed by governments, professional response and recovery organizations, communities, and individuals to anticipate, respond to, and recover from the impacts of likely, imminent, or current hazard events. Confusion exists as to the scope of preparedness - some use it only in the context of preparing to respond to the needs of the affected society, while others also use it to describe the ability to mitigate the needs created by an event.
Resilience: is the ability of a system, community, or society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need. In terms of a disaster/emergency, resilience is comprised of the absorbing, buffering, and response capacities of a society. Thus, resilience has a broader scope than preparedness. Both terms describe the status of a community prior to an event. Resilience is increased by capacity building. The impact(s) of capacity building cannot be realized until the next event occurs or it has been shown to be of benefit during disaster exercises. Hence, investments in resilience have been relatively meager. Readiness describes the ability to quickly and appropriately respond.
Susceptibility: refers to the degree to which individuals or groups may respond to a given exposure to an event.
Vulnerability: is the degree to which people, property, resources, systems, and cultural, economic, environment, and social activity are susceptible to harm, degradation, or destruction or being exposed to a hazard.

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ID 507: A Prospective Comparison of Bedside Ultrasound done by Emergency Department Nurse with Supine Chest Radiography to Rule out Traumatic Pneumothorax

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Background: Early detection of a pneumothorax is important in the clinical management of a trauma patient. The sensitivity of supine AP chest radiograph is 60%. Detecting tension pneumothorax is often clinical. Point of care ultrasound can provide answer in critically ill.
Objectives: To study the sensitivity and specificity of bedside ultrasound (BUS) when compared to chest X-ray to rule out pneumothorax done by emergency nurse in the emergency department.
Method: Prospective observational study done at a Level 1 trauma from January 2011 to March 2011. All adult trauma patients with stable vitals were recruited randomly. Four Emergency department nurses (who had adequate training to rule out pneumothorax perform the study after ten positive and ten negative supervised scans) performed BUS examinations using linear probe with frequency 7-10 MHz to look for lung sliding sign and Sea-shore sign to rule out pneumothorax. They recorded their findings and the findings reviewed by trained Emergency consultant. Chest X-ray AP was done after the BUS and were evaluated by an attending emergency physician blinded to the results of the thoracic US. The CT results or air release on chest tube placement where ever feasible, were compared with US and chest radiograph findings. Sensitivity, specificity, Negative predictive value, positive predictive value and inter- observer variability calculated using SPSS-16.
Results: Out of total 60 examined hemithoraces emergency nurses were 100% sensitive (CI-92%-100%) and 100% specific (CI- 39%-100%) in ruling out pneumothorax. Positive and negative predictive value 100%
Conclusion: Emergency nurses can accurately rule out pneumothorax in a trauma patients.

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ID 508: To Study the Pattern of Injury in Geriatric Patients in a Level- 1 Trauma Centre in India

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Aim: To analyze the Injury Surveillance data of elderly trauma victims in a Level 1 Trauma Centre of India.
Methodology: Retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry forms maintained at JPN Apex Trauma Center, AIIMS for patients above the age 60 years during year 2011 was done.
Results: During the study period, there were 717 elderly patients out of 11752 total patients entered in Trauma Registry. On age wise distribution of the patients 59.41% belonged to the age group of 61-70 years, 29% were in the age group of 71-80 years, 9.62% were in age group of 81-90 years and 1.90% patients were above 90 years. Red triaged patients were 17.85%, Yellow triaged patients were 78.94%, 0.41% were Green patients, and 3.06% patients were brought dead. Male: Female ratio was 1.41:1. Blunt trauma 97.90% was the major mechanism and Unintentional 61.78% was major cause of Injury. The most commonly affected regions were lower limb (30.57%) followed by head and neck Trauma (27.62%). The average ISS and NISS were 6.30 and 6.87 respectively. Maximum No. of patients were admitted under orthopedics (43.29%) and Neurosurgery 37.11%. The average duration of stay in hospital was more than non geriatric patients.
Conclusion: Elderly trauma victims contributed a significant number of all trauma victims. The unintentional injury indicate the negligence towards theses patients which addresses serious patient safety concern and immediate remedial measures.

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ID 509: Feasibility of Screening Ultrasound of Neck Done by Nurses to Identify Airway Injury and Para Tracheal Hematoma in Patient with Multiple Injury, Presenting to the Emergency Department

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Background: Airway injury and para tracheal hematoma in patient with neck injury are often missed. Early diagnosis of airway injury and para tracheal hematoma is of paramount importance as it require low threshold for definitive airway management. Screening ultrasound of suspected patient with multiple injuries may improve the diagnostic yield.
Objectives: To check the feasibility of doing screening neck ultrasound by nurses to identify of airway injury and para tracheal hematoma.
Method: The prospective study was done in Emergency department of level one trauma centre between June 2012 and August 2012. Patients with suspected head, neck and chest injury of both sex and all age groups were recruited. The patients with other injuries such as injuries below the abdomen and limb injuries were excluded. Four nurses who were trained to identify normal and abnormal airway, normal para-tracheal structures as well as hematomas performed the scans. High frequency (6-13 MHz) linear probe was used. Break in hyperechoic airline and disruption of cartilage was considered as abnormal. An an-echoic shadow around the para-tracheal structure was considered as para-tracheal hematoma. These USG studies were saved and later reviewed by consultant emergency department (ED). As it was the part of resuscitation ethical clearance was waived off. Data analysis was done by SPSS version 16.
Results: 30 multiply injured patients with age group 7-67 yrs were selected. The mode of injury were Road traffic injury-20, fall-6, assault-3, and by machine injury-1. Screening USG of neck revealed airline nor (normal) 28, abn (abnormal) 2, thyroid cartilage (nor-29, abn-1), cricoid cartilage (nor-29, abn-1), cricothyroid membrane and oesophagus were normal in all cases. Para tracheal hematoma seen in one patient. The level of agreement between the nurses and the consultant E.D were 100%.
Conclusion: The screening ultrasound of neck in multiply injured patients to identify airway injury and paratracheal hematoma done by nurses is feasible in Emergency department.

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ID 510: A Prospective Comparison of Ultrasound Guided and Blindly Performed Femoral Arterial Sampling Done by Nurses in Emergency Department

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Background: Arterial blood gas (ABG) sampling blindly by direct vascular puncture is a procedure commonly practiced in the hospital setting. A patient with poor distal perfusion poses a challenge and increases the risk of venous blood sampling. BUS is a noninvasive technique with an excellent safety profile. The use of BUS enables more accurate recognition, delineation, and targeting of the chosen vascular structure.
Method: Prospective study done in emergency department of level-1 Trauma Centre during March 2011 to August 2012. Patients requiring arterial blood gas (ABG) and hematoma formation performed by trained nurse using high frequency (6-13 MHz) linear array probe. Femoral artery was used for ABG. Successful ABG sampling, time taken for sampling (TS), number of attempts (NS), first attempt success rate, vein

punctures, and hematoma formation were noted and compared for both the technique.

Results: Total 324 patients were recruited (162 patients in Blind technique group and 162 patients BUS guided group). Average age was 33.7years in blind and 34.2 years in BUS group. Average number of prick was 1.85 in blind method compared to1.12 in BUS group. Single prick success was 45% (73) in blind and 88.2% (143) in BUS group; Average TS was 136 sec in blind Vs 101.3 sec in BUS. Vein puncture were observed in 34% (56) in blind Vs 3% (5) in BUS group and hematoma formation in 27.7% (45) Vs 7.4% (12) in blind method and BUS guided method respectively.

Conclusion: The Bed side ultrasound guided technique for femoral arterial sampling is useful as it results in greater success, shorter sampling times, fewer attempts, and fewer complications.

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ID 511: Effectiveness of Ultrasonography in Verifying the Placement of a Nasogastric Tube in Patients with Altered Mental Status

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Background: Gastric tube (GT) placement is an innocuous procedure, it can result in misplacement of the gastric tube into the pulmonary system Objective This study was designed to compare the effectiveness of using auscultation, measurements of gastric aspirates, and ultrasonography as physical examination methods to verify nasogastric tube (NGT) placement in emergency room patients with altered mental status who require NGT insertion Methods. The study included 30 patients who were all over 18 years of age. In all patients, tube placement was verified by chest X-rays. Auscultation, analysis of gastric aspirates, and ultrasonography were conducted on each patient in random order. The mean patient age was 57.62 ± 17.24 years, and 18 males (60%) and 12 females (40%) were included. The NGT was inserted by an emergency room resident/emergency nurse. For testing, gastric aspirates check the colour and sensitivity test. Ultrasonography was performed by a trauma emergency nurse with the help of emergency medicine specialist, and the chest X-ray examination was interpreted by a different emergency medicine specialist who did not conduct the ultrasonography test. The results of the auscultation, gastric aspirate, and ultrasonography examinations were compared with the results of the chest X-ray examination.

Results: The sensitivity are 100% and for auscultation and ultra sonography 86.4% and 66.7%, respectively. The ultrasonography has a positive predictive value of 97.4% and a negative predictive value of 25%.

Conclusion: Ultrasonography is useful for confirming the results of auscultation after NGT insertion among patients withaltered mental status

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ID 512: To Study the Efficacy of Pneumatic Transport System When Compared to Human Courier System for Transport of Samples of the Patients Presenting to the Red Area of Emergency Department

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Background: In hospitals blood samples are commonly being transported by the human porters. It is important to transport these samples quickly to the laboratory especially in emergency department where every minute counts. There is a delay in transporting these samples due to lack of adequate manpower and their availability.

Aim and objectives: To study the sample transport time by using pneumatic tube system and human courier system and its comparative analysis.

Methods: Prospective observational study done between 1st July to 30th July 2012 in the ED of a level-1 trauma centre. The samples were taken during the horizontal resuscitation of trauma victims. Samples were allocated randomly for transport to either pneumatic tube system (PTS) or human couriers. Sample sending time from ED and sample receiving time in laboratory was noted for both PTS and human couriers were noted by the observer. Time taken was calculated and compared.

Results: Total 40 patients samples were sent to laboratory, 20 samples by PTS and 20 samples by human couriers. Average time taken by the PTS was 1 min. and 05 sec. (range 12sec to 3 min 35 sec.) and 6 min and 01sec (range 2 min 30 sec to 18 min.).

Conclusion: Pneumatic tube delivery system for transporting blood samples from the emergency department to the laboratory significantly reduce sample transport time.

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ID 513: Innovations in Disaster Preparedness Trainings and Evaluations

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Background: Akobo County, South Sudan, continues to see mass casualty incidents where internecine attacks between tribes leave large groups of young men suffering from gun shot wounds. An already understaffed healthcare system gets significantly overwhelmed during these periodic mass killings where patients are brought from neighboring villages to the county hospital, traveling long distances by foot or by boat. To counter this challenge, the International Medical Corps' Emergency and Disaster Care Program designed a training and capacity building program to augment the region's disaster preparedness capabilities. While disaster drills are increasingly commonplace around the world, it is not often that such trainings are conducted in remote populations with minimal literacy and meager resources. Standard classroom based didactics and comparative pre- and post-tests would have failed. We developed innovations in both our training and evaluation components to match local capacities, with reasonable success.
Method and Impact: Health literacy in the Akobo community is very basic, necessitating the introduction of simple concepts which one may have otherwise taken for granted in other contexts. In order to optimize our time with the community, we abandoned the standardized three day classroom based curriculum in favor of village-based, participatory, demonstration-based workshops, using locally procured materials to make bandages, splints and carries. Working in familiar surroundings helped the community think through key issues: stabilization, communication, and transport, compelling them to come up with ingenious and indigenous solutions. Post workshop evaluations involved small-scale simulations where participants successfully demonstrated first-aid skills, designed transport strategies, and executed communication plans. All demonstrations through the training and evaluation were captured on video and shared with the participants.
Conclusion: Knowledge retention improved significantly after the introduction of skills-based workshops. We conclude that a skills-based, participatory, workshop based curriculum may be more appropriate for populations with low levels of literacy and poor resources.

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ID 514: Prospective External Validation of a Predictive Model for Mass Gathering Events Applied to Car Racing

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Background: Mass gathering events are very common and their frequency is rising particularly quickly in the province of Quebec, Canada. The potential delays of the medical response to those events require effective pre-event planning and resource provision. In Australia, Paul Arbon and his team developed a predictive model for patient presentation and transportation-to-hospital rates at mass gatherings. The objective of this study is to assess the validity of the Arbon matrix in a different geographic location: Montreal, Canada, in the particular situation of car racing events.
Method: This prospective cohort study was conducted in Montreal, Canada, over a 2-year period. A total of 10 days of mass gathering events featuring car racing were included in the study. Data collected included number of patients treated by on-site medical teams and number of hospital transports required during the events. Comparison was made between the number of patients and hospital transports as predicted by Arbon's matrix and the actual numbers obtained during the studied events.
Results: In total, 10 days of car racing were studied. The patient presentation rate across all events was 0.34/1000 attendees and the transportation-to-hospital rate was 0.027/1000 attendees. The matrix predicted a patient presentation rate of 0.90/1000 attendees and a transportation-to-hospital rate of 0.014/1000 attendees. In all cases, the matrix overestimated the patient presentation rate. In 40% of the cases, the matrix underestimated the transportation-to-hospital rate.
Conclusion: The Arbon predictive model was used safely for Montreal's car racing events since it overestimated the number of patient presentations, therefore allowing for adequate medical staffing. A discrepancy was however observed in transportation-to-hospital rates. Further research needs to be done to validate the model in other settings.

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ID 515: Uninformed and Improper Inter Hospital Transfers: Urgent Need to Plug the Gaps in Order to Improve Trauma Systems in India

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Aims: To study the referral pattern of cases referred to Apex Level 1 Trauma Centre.
Methodology: Retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry forms for patients who were referred to JPN Apex Trauma Center, AIIMS during year 2011 was done.
Results: During the study period, total 11752 patients were registered in Trauma Registry. The total number of patients who were referred from other health care facility to Apex Trauma Centre was 2731(23.23%). Randomly 700 patients were analysed. The patients referred from outside Delhi constituted 60.28% patents whereas 39.71% were referred from within Delhi. About 44.28% patients were triaged into red category on arrival to ED. Out of all transferred analyzed patients, 60.85% were referred from private hospitals and 39.4%were referred from government hospitals. 80% of these

patients received primary care before transfer. 74.14% of patients were referred within 24 hours of injury. For patients coming from out of Delhi, the vehicle used for transfer was ambulance in 75.11% whereas on referral from within Delhi ambulance was used only in 46.76% patients. 97.42% of total referred patients were accompanied by untrained people like relatives, police, known persons etc. out of which 43.10% were triaged into red category on arrival to ED. Maximum No. of patients (73.85%) were referred by doctor due to technical reason (for need of better care) followed by due to financial reasons.

Conclusion: In our study, it is revealed that most of the patients were brought by relatives without any en-route medical care. Majority of the patients were formally referred by a doctor due to higher level of care needed by the patient. Thus this further underlines the need of a good and robust trauma system with inter hospital transfer agreement and informed transfers, to improve quality of care.

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ID 516: Uninformed and Improper Inter Hospital Transfers: Urgent Need to Plug the Gaps in Order to Improve Trauma Systems in India

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Aims: To study the referral pattern of cases referred to Apex Level 1 Trauma Centre.

Methodology: Retrospective analysis of a prospectively maintained database from Injury surveillance and Trauma registry forms for patients who were referred to JPN Apex Trauma Center, AIIMS during year 2011 was done.

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Conclusion: In our study, it is revealed that most of the patients were brought by relatives without any en-route medical care. Majority of the patients were formally referred by a doctor due to higher level of care needed by the patient. Thus this further underlines the need of a good and robust trauma system with inter hospital transfer agreement and informed transfers, to improve quality of care for trauma victims.

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ID 517: To Study Shock Index (SI) as a Predictor of Outcome in Trauma Patients

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AIIMS TRAUMA CENTER

Background: Hemorrhagic shock is the commonest cause of shock in trauma victim with 50% mortality rate. Baseline and sequential Heart rate, Blood pressure, urine output are windows of identification and assessment of response to therapy. Predictors of outcome are variable and needs to be defined.

Methods: Retrospective survey done at emergency department of a tertiary trauma hospital between October 2010 to March 2011. All trauma patients requiring immediate resuscitation were recruited. Data of 100 patients were collected randomly from hospital records. Shock Index (SI) at presentation and other clinical parameter along with outcome in the form of death or alive are noted. Analysis were done by using SPSS-16

Result: Out of 100 patients 83% were male &17% females. Average age was 36.79 years (range 12-85 years). Road traffic accidents were 67%, fall 26%; assault 2% and railway track injury 5% were the mode of injury. 29% were diagnosed to have blunt trauma abdomen, 36% head injury, 13% poly trauma, 5% blunt trauma chest, 8% long bone fractures, 9% had other injuries. Average systolic blood pressure was 81.84 mm of Hg (range 50-89 mm of Hg). 44% of the patients were responders(R), 30% transient responders (TR) and 26% were non-responders (NR). 24% (24) died out of 100 patients. 9% (9) were having SI <0.9 out of which only 1 (11%) died. 91% (91) patients had SI >0.9 out of which 23 (25.2%) were died and 68 (74.8%) were alive. Conclusion: Trauma patients with SI >0.9 have higher mortality rates. Shock index is a good predictor of outcome in trauma patients.

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ID 519: Management of Empyema: Our Experience

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Background: Empyema is very rare in the west. It continues to be widely prevalent in developing countries like India. Its causes are significant and prolonged morbidity occurs.

Mismanagement in empyema is rampant. Its management is controversial due to lack of prospective trials, availibility of new options, value of fluid analysis disputed, treatment setting dictates the option chosen. Objectives of treatments are control of the primary infection and its secondary manifestation, evacuation of the purulent contents of the empyema sac & eradication of the sac to prevent chronicity and re-expansion of the underlying lung to restore function.
Methods: We carried out a retrospective analysis of all patients who had managed for empyemaboth medically & surgically from 1997 and 2012. Data was retrieved from patients' record and analyzed. It includes both acute & chronic empyema. The management includes antibiotic therapy, needle aspiration, tube thoracostomy with or without rib resection, percutaneous window (PCW), VATS guided surgical intervention, decortication & space reducing thoracoplasty.
Results: The major procedures done are Tube Thoracostomy with or without rib resection: 1255, Open Window Thoracostomy: 935, Decortication: 250, Space Reducing Thoracoplasty: 305. The results were 4 early deaths of respiratory failure (all in thoracoplasty patients), 7 late deaths of various causes, Persisting sinus 37 cases. But about 70% closure achieved with open window thoracostomy
Conclusion: Early, proper and adequate treatment can obviate the need for complex procedures. Treatment strategy is to be based on individual assessment of the case. But deliberate procedures like percutaneous window & thoracoplasty are often life saving for terminally ill morbid patient where no other procedures can be done.

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ID 520: To Study Potassium as a Predictor of Outcome in Post-Traumatic Hemorrhagic Shock Patients

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Background: Hemorrhagic shock (HS) is a major cause of trauma related deaths in 30% to 40%. Despite hyperkalemia being recognized as a potentially lethal condition, the potassium behavior during HS has not been properly studied.
Method: Retrospective study design done between October 2010 to March 2011 at level-1 trauma centre. Data of 60 hemorrhagic shock patients (SBP <90 mm Hg) were collected randomly from hospital records. Serum Potassium level at presentation and other parameter along with outcome in the form of death or alive noted and analyzed using SPSS-16.
Results: Out of 60 patients 85% were male &15% females. Average age was 38.2 years (range 14-75 years). Road traffic accidents were 70%, fall 23%; assault 1.6% and railway track injury 5% were the mode of injury. 28.3% were diagnosed to have blunt trauma abdomen, 30.5% head injury, 13.33% polytrauma, 5% blunt trauma chest, 8.33% long bone fractures, 5.14% had other injuries. Average systolic blood pressure was 73.8 mm of Hg (range 50-89 mm of Hg). 35% of the patients were responders(R), 35% transient responders (TR) and 30% were non-responders (NR). 30% (18) died out of which 33.3% (6) were R, 16.6% (3) TR, 50% (9) were NR. Average serum potassium level in death group and alive group was 4.1meq/L and 3.97meq/L respectively.
Conclusion: Hyperkalemia is not a predictor of outcome in traumatic hemorrhagic shock patients.

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ID 521: Assessment of Ultrasound as a Diagnostic Modality for Detecting Cervical Spine Fractures in Head Injured Patients in Austere Environments

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Background: Early cervical spine clearance is extremely important in patients with head injuries and may be difficult to achieve in emergency setting. This is especially true in hemodynamically unstable unconscious patients and in low resource settings.
Aims and Objectives: To assess the feasibility of standard portable ultrasound in detecting cervical spine injuries in severe head injured patients.
Materials and Methods: This retro-prospective pilot study carried out over one month period (June-July 2011) after approval from the institutional ethics committee. During the study period the technique of cervical ultrasound was standardized by the authors and tested on ten admitted patients of cervical spine injury. To assess feasibility in the emergency setting, three patients with severe head injury (GCS $\leq$ 8) coming to emergency department underwent ultrasound examination. All these patients continued to receive standard management and underwent a head CT with CT cervical Spine up to T1. All cervical ultrasound examinations were done by a neurosurgeon (without any formal training on ultrasound) or emergency physicians on a portable ultrasound machine (Micromaxx, Sonosite Inc, WA, USA).
Observations and Results: Ultrasound examination of the cervical spine was possible in the emergency setting, even in unstable patients and could be done without moving the neck. The best window for the cervical spine was through the anterior triangle using the linear array probe (6-13Mhz). In the ten patients with documented cervical spine injury, bilateral facet dislocation at C5-6 was seen in 4 patients and at C6-7 was seen in 3 patients. C5 burst fracture was present in one and C2 anterolesthisas was seen in one patient. Cervical ultrasound could easily detect fracture lines, canal compromise and ligamental injury in all cases.
Conclusions: Cervical ultrasound may be a useful tool for detecting cervical spine injury in unconscious patients, especially those who are hemodynamically unstable. It may be particularly useful in the resource constrained setting of developing countries

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ID 522: Management Of Stab Wounds

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Introduction: Based on our own experience in Geneva, we try to manage knife's wound as better as possible
Material and Methods: Observation of one year trauma in the emergency room: 60 wounds with knives. 59 male/one woman. Each patient was managed according ATLS rules.
Results: Male were the majority with mean age of 30 years old. (16-68). The wounded body parts were mostly in thoracic part (25 cases), and abdomen (12 cases), face (9) and limbs (14). Ct scan was recommended in 35 cases and 22 patients went to the operating room : laparoscopy/tomy (7), thoracotomy (1), embolisation (2), exploration and sutures (12). We found one partial medullary section. Evolution was quite good with mean hospitalization stay of 3,8 days. One patient dead from subclavian veinous lesion. Laparotomy was positive only in 2 cases (stomach, liver).
Discussion and Conclusion: Our technique for wounds was to explore first with local anesthesia to check the deepness of the wound. For the face and the hands all wounds were explore and closed.
For the limbs, wounds are left open with lipid dressing to avoid infection. Antibiotherapy is always recommended (Amoxicilline/ Acide Clavulanique 2 g per day) for one week. These wounds very frequent are time and money consuming, even, if it look not serious, all patients have to be managed seriously (ct scan opera room)
In the abdomen, lesions touch muscles. PNO is often found in thorax with some drain as treatment, wounds of the limbs, left open, need more than 15 days for full healing.

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ID 523: Healthcare in Akobo, South Sudan: Lessons from Virchow

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In 2010, the United Nations deemed Akobo County in South Sudan to be the "hungriest place on earth". High infant and maternal death, rampant tuberculosis, malaria, violence and limited access to medicines and trained personnel keep the life expectancy at 42 years. Akobo County, divided by impassable swamps, remains largely inaccessible: in the dry season, the remote health facilities are reached through flights that land on cleared fields bringing in medicine and vital supplies. During the wet season these health facilities remain isolated for months on end.
There is no medical college in South Sudan. The few healthcare facilities with physicians employ expatriates or locals who received their training abroad. In spite of sustained NGO presence, the scarcity of basic necessities: food, clothing, shelter and transport hinders the community's access to health. Traditional beliefs prevent the community from benefiting from the limited care available. Poor health literacy is reflected in the absence of good sanitation, poor medication compliance, home deliveries, and pervasiveness of traditional health practices.
A large amount of aid money in Akobo is allocated to providing clinical care. However, a myriad of social determinants of disease continue to have the greatest impact on the health of the community. Though our team diversified into building community awareness programs for obstetric care, providing nutritional education and support, and imparting basic health skills to village health committees, a lot more can be done. Access to health care will not improve without better roads, nutrition, literacy, roads, communication and security. Healthcare providers must advocate as fervently for investments in better infrastructure as they do for lifesaving drugs. As Virchow had once remarked: "If medicine is to fulfil her great task, then she must enter the political and social life. Do we not always find the diseases of the populace traceable to defects in society?"

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ID 524: Integrated Online Portal for AIIMS Trauma Centre: Potential to Improve Patient Satisfaction and Care on the Ground

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A Neurosurgeon is usually not involved for the initial resuscitation and management of these patients. Being funded by taxpayer's money, accountability and transparency leave much to be desired in public funded hospitals in developing countries.
Aims and Objectives: To have live statistics on the wait times in emergency, as well as number of patients being admitted and discharged be available online. To assess the decrease in wait times following implementation of the system
Materials and Methods: In this prospective study over 3 month period (May- July 2011) average wait-times were calculated for getting CT head, X-rays, suturing & dressing the Emergency department at JPNATC, AIIMS. A computerized system was introduced wherein live wait times were displayed on the website www.jpnatc.com. One month following introduction of the system, the average wait times were again calculated to see for improvement.
Observations: Prior to the introduction of the system, the average wait times were 122 minutes for CT head, 94 minutes for X-rays, 102 minutes for dressing & 111 minutes for suturing. All wait-times drastically reduced (82 minutes for CT head, 75 minutes for X-rays, 68 minutes for dressing & 59 minutes for suturing) following implementation of computerized system.
Conclusions: Having live statistics on wait times in the emergency department available on the internet publicly has the potential to dramatically improve service parameters and patient satisfaction by giving real time feedback to the staff.

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ID 525: The Experience by Families of Patients Admitted to Intensive Care Unit in a Tertiary Care Hospital

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Background: Health cannot be isolated from its social context. The level of intensive medical intervention not only affects the individual in the hospital bed, but all those who surround the bed to provide comfort and support to the patient.
Methods: Cross sectional Prospective Observational descriptive study in a tertiary care hospital. Tool–Interview Questionnaire, Hospital Anxiety and Depression Scale and direct interview. Data Analysis was done by SPSS.
Results: The data of the surveyed families of patient shows that majority respondents (52%) were on unpaid leave, 22% were on part time job, Only 8% of the sample was working full time and 18% were not currently employed. whereas 66% were on the unpaid leave and cut back on work hours or quit work entirely (64%). 14% respondent did left job for giving care to the family member in ICU whereas only 10% respondents took a job or worked additional hours to earn more money. 62% Respondents said that the admission of family member in the ICU has increased their financial worry. Anxiety symptoms in 36% of Relatives of ICU were Borderline abnormal (HADS [scoring 8-10]), 28% were abnormal (HADS [Scoring 11-21]) whereas only 34% of the relatives were normal (HADS scoring 0-7). The study reveals in about level of Depression in the surveyed sample of families that 38% of Relatives of ICU were Borderline abnormal (HADS [scoring 8-10]), 30% were abnormal (HADS [Scoring 11-21]) whereas only 32% of the relatives were normal (HADS 0-7).
Conclusion: In present scenario where the hospital is recognized as a social institute inspite of the fact that patient is the only reason for its existence, the hospital must strive for patient relative oriented services.

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ID 526: Bedside Computed Tomography in Traumatic Brain Injury: Experience of Consecutive 6152 Cases in Neurosurgical ICU at a Level 1 Trauma Centre in India

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Introduction: Traumatic brain injury (TBI) patients need frequent Computed tomography (CT) for assessment. In view of associated polytrauma, hemodynamic instability and various in-dwelling catheters and tubings, shifting patients for CT scans may be difficult.
Aims and Objectives: To assess the role of mobile CT in Neurosurgical ICU with respect to patient management.
Materials and Methods: In this retrospective study over 37 months (June 2009-July 2012) clinical and radiological records of all patients of TBI who underwent mobile CT in ICU were analysed.
Observations and results: Total of 6152 mobile CT were done on Ceretom® in the study period. 78.2% patients had severe TBI, 13% had moderate TBI and 8.8% had mild TBI. 82.5% patients were on ventilator, with 81.6% requiring sedation and 7.3% inotropic support. 19.4% patients had intracranial pressure monitoring lines insitu. Long bone fractures requiring skeletal traction and intercostals tube thoracostomy rates were 16.6% and 10.6%. No adverse events of line malfunction/pullout occurred. Mean time for mobile CT scan was 10.4 min compared from 39.4 min when patients were shifted to conventional CT suite. 57 patients required external ventricular drainage, and 24 patients required reexploration. Cost per mobile CT was Rs. 1202 (21 USD).
Conclusions: Mobile CT has considerably changed the management response time in Neurosurgical ICU setup and decreased patient transfer and associated complications. Inclusion of mobile CT in armamentarium of neurosurgeon as a "bedside tool" can dramatically change decision making and time of response and should be considered as standard of care in any large volume neurosurgical facility.

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ID 527: The Evolution of "Humanitarian Team Resource Management" in a Context of Insecurity: A Case Study of a Local Humanitarian Healthcare Organization responding to the BTAD Ethnic Crisis of 2012 in Northeastern India

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Introduction: In the case of India, the creation of local non-governmental capacity with an exclusive focus on humanitarian healthcare provision (HHP) in conflict zones is a newly developing concept. The paper thus presents a qualitative case study of the Bodo Territorial Autonomous Districts ethnic crisis, which led to the forced displacement of 400,000 persons in July 2012. The case study focuses on the experiences of an Indian medical organization (Doctors For You), specializing in the provision of humanitarian healthcare through implementation of the Minimum Initial Service Package for Maternal and Child Health in over 220 relief camps.
Methodology: More specifically using qualitiative Human Factors Analysis (HFA), the paper discusses the manner in which the broader environment of conflict and micro-level organizational processes led to the evolution of a set of practices by the organization which came to be termed as "Humanitarian Team Resource Management" (or HTRM). The HFA approach which drew on Crew Resource Management analysis in aviationn safety encompasses an integrated review of all reports, documents, communicationsand interviews with team members during the conduct of humanitarian response since July 2012.
Findings: The essential aspect of HTRM was that it evolved in the face of: severe resource constraints; high insecurity; the small size of various teams; and, the presence of both medical and non-medical volunteers. The underlying logic of HTRM was the management of organizational or team "resources," the building of an "organizational culture" of "ownership" and the

"integration" of medically trained volunteers with non-medical volunteers were critical variables in maintaining the integrity of the humanitarian medical programme.

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ID 528: Post Supplementary and Therapeutic Food Distribution and Utilization Monitoring Survey in Wuror County, South Sudan

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Background: The post distribution follow-up was conducted to investigate the utilization of emergency relief commodities provided with the aim of establishing how much of the rations were actually consumed by the malnourished child. The data collection was conducted by the nutrition staff as part of the routine home visits among beneficiaries. The target was families of children still registered in the humanitarian programme.
Methods: Primary caregivers of malnourished children under five year's children admitted in the supplementary or therapeutic programme. 90 randomly selected from 3 centres. Home visits done three to seven days after the distribution. Structured questions administered to families of beneficiaries. Physical examination of rations done to assess use and storage.
Results: Of the 90 families which had received the rations, only 20 (22%) had some of the 14 day-ration. 65 (72%) of the mothers were able to produce the expected number of sachets 71 (78%) of the caregivers visited could not account for the entire Plumpy nut ration on the visit day. 13(14%) had more RUTF than was required. 69 carers (76%) of the mothers correctly described how to prepare porridge and only 43(47%) followed the method. Hygiene during preparation and serving was observed to be minimal. In distant villages, the mothers obtained water from the open pools, filtered it before using it for cooking.
Conclusion: Household practices on the utilization of emergency nutrition rations for treatment are poor. Intensification of post distribution home visits and follow-ups to ensure that the child under rehabilitation is crucial.

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ID 529: Systematic Review of the Health Impacts of Mass Earth Movements

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Background: Mass earth movements, commonly refereed to as landslides, are one of the commonest natural disasters, and are becoming increasingly frequent. Whilst the technical geological and engineering aspects of landslides are well documented, the impacts on human health are less well documented. The aim of this study is to review the known literature on the health impacts of landslides.
Methods: A systematic search of MEDLINE, EMBASE, CINHAL and SCOPUS was performed, to identify papers on the health impacts of landslides and other mass movements. Studies on avalanche (snow and ice), flooding or submarine landslides were excluded, as were news articles and editorials. Only articles in English were considered.
Results: 913 abstracts were identified, of which 118 full text articles were reviewed, with 26 meeting inclusion criteria. Estimates of mortality from landslides are subject to a number of problems such that the total number of fatalities is undercounted, but in some individual events there are overestimates of deaths. There were few articles on the physical health impacts of landslides, with only one eligible study documenting in detail the causes of mortality and morbidity from a specific landslide event. Mental health impacts reported include a higher prevalence of PTSD in survivors of landslides than other disasters, though these studies were old, and definitions and diagnostic criteria have changed in time since publication.
Conclusion: The health impacts of landslides are generally poorly documented, though mental health aspects are better documented than physical health. We recommend that further studies of the health consequences of landslide disasters are undertaken. Such studies would aid response and recovery to landslides, helping maximise survival rates and aid in disaster risk reduction advocacy.

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ID 530: Heat-Health Action Plans and Fans: What is the evidence?

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Introduction: Heatwaves have a clear impact on society, including a rise in mortality and morbidity. The aim of fans in a heatwave is to increase heat loss by increasing efficiency of all normal methods of heat loss – but particularly by evaporation and convection methods. There has been little comparative, intervention research on the physiological effects of electric fans. A Cochrane systematic review was undertaken to determine whether the use of electric fans contributes or impedes heat loss at high ambient temperatures. Results would have implications for policies such as the Heatwave Plan for England.
Methods: An extensive search strategy was undertaken on a number of databases (English and non-English) and websites of relevance. Contact was made with authors in the field for any unpublished work. Retrieved articles were all hand

searched for further references. Two reviewers assessed articles for eligibility.
Results: More than 4500 records were identified with the retrieval of more than 100 full text articles. None of these met the eligibility criteria for the review.
Conclusion: In light of the lack of any eligible studies for this review, the uncertainties around the effects of electric fans in the observational studies that we identified and the potential for harm as well as for benefit in their use; this review does not support or refute the use of electric fans during heatwaves. Further research is needed to resolve the long standing and ongoing uncertainty about the benefits and harms of using electric fans during a heatwave. This research is essential for the ongoing development of Heat-Health Action Plans globally which are required to be based on the most up-to-date scientific evidence. This is necessary for the protection of public health in a changing climate.
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ID 531: Development of an Advocacy Tool on Extreme Weather, Climate Change and Health for 53 European Countries

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Background: Extreme weather events affect an increasing number of people across Europe every year. They can have profound and long-lasting impacts on health and well-being such as injury, mental health issues, death and loss of livelihood. Climate change is predicted to further increase the frequency and severity of such events in the 21st century.
Evidence shows that coordinated disaster risk reduction activities reduce the impact of extreme weather events on health but this has not been adequately translated in policy and action in many parts of Europe.
To raise awareness of the issue across its 53 Member States, the World Health Organisation Regional Office for Europe (WHO/Europe), with the UK Health Protection Agency (HPA), have developed an advocacy tool: 'Extreme weather, climate change and health: What do you need to know?'
Methods: Seven topics were selected, representing the major extreme weather hazards for Europe: heatwave, cold weather, flood, drought, windstorm, wildfire and the impact of climate change on extreme events. Literature review was undertaken to identify recent policy and research in each area. Under the guidance of subject-area experts at the HPA and WHO/Europe, findings were systematically summarised in two-page factsheets under the headings: features of the weather event, health impacts and key steps in preparedness, response and recovery.
Results and Conclusion: An advocacy tool comprising clear, evidence-based factsheets has been developed to inform policy-makers and other interested parties about extreme weather hazards in Europe and how health systems can prepare, respond and recover from them. Common themes include the need for cross-sector working, good communication and strong leadership; specific actions and interventions are also described. The tool is available from WHO/Europe and will be available for Member States. Resulting policy and interventions could reduce the health impacts of extreme weather events and climate change, saving lives and livelihoods.
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ID 532: HHEAT: The Humanitarian Health Ethics Analysis Tool

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Background: Healthcare professionals (HCPs) who participate in humanitarian work experience a range of ethical challenges in providing assistance to communities affected by war, disaster or poverty. While there is a growing body of theoretical investigation of ethics in humanitarian health care, there remains a paucity of resources for HCPs seeking ethical guidance in the field. We sought to address this gap by developing and testing a Humanitarian Healthcare Ethical Analysis Tool (HHEAT). Decision-making models can be useful instruments for analyzing which factors are implicated in moral decision-making, help identify and clarify underlying values, promote comprehensive analysis, and generate suggestions leading to well considered, ethically defensible judgements and actions. The HHEAT is attentive to features of care planning and delivery in aid settings including: resource scarcity, inequalities, insecurity, power imbalances, organizational policies and shifting professional roles and responsibilities. It provides a framework that responds to this complexity and seeks to aid decision-makers by structuring reflection and supporting comprehensive analysis.
Methods: The HHEAT was developed from interviews with 45 HCPs who participated in international aid work. The first iteration was inspired by participant experiences. The tool was then revised based on feedback from clinicians and consultations with expert reviewers from several fields. We subsequently conducted 6 case-based group discussions with 16 practitioners experienced in humanitarian aid to evaluate the HHEAT's usefulness, and further refine the HHEAT. To our knowledge, this is one of few instances in which an ethical analysis tool has undergone an empirical process of revision and validation. *The objective of our presentation will be to give an overview of this process and present the HHEAT for discussion.*
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ID 533: Annual Distribution of Hazarts and Patient Load of Disasters in Bavaria During the Last Years Causing CEP-Missions (acc. Utstein Style)

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Introduction: Since about 1996 a voluntary system of Coordinating Emergency Physicians has been established in our region in south of Germany, *. Besides "CRED.be" little evidenced based data is available about the annuanl incidences and reasons of (according M. Villareal).
Method: Reviewing the anonymized protocols of about 80 to 100 per years from the different Bavarian counties since the last years the documented reasons of the CEP missions have been analyzed according 1. the involved number of vitims, 2nd. rural or municipal environment. 3. the load of rescue capacities needed and 4th. the reason of the incidents (according the Utsein Style).
Results: usually the most recognized reasons of the CEP-Missions have been fires, followed by accidents (traffic, construction-failures, air,) and (last not least) natural disasters. (The exact percentages of this reasons as well as the regional and circadian distribution of these missions will be presented during the meeting). The annual incidence of each disaster type will be calculated per 100.000 population
Conclusions: To be able prepare the necessities of your local EMS system it seems to be helpful to know about the annual disaster epidemio- logy specific for your region. This will improve the preparedness of your local system and hopefully achieve a better outcome for the patients involved into major incidents, but also gives the possibility to gain further kowledge for the involved providers.
Discussion: We got some knowledge about the reasons of disasters in our aerea. During annual meetings special incidences from all over Bavaria have been compared and discussed.
Closing Remark: To be more prepared for cross-border incidences, and to imrove the regional infrastructures not only in our region, similar reports from other counties will be a step forward to improve the outcome of victims in MC's

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ID 534: Vision for a National Neurotrauma Registry - Work Done at JPNA Trauma Centre

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Background: In absence of credible data on head & spinal injuries in India, assessment of magnitude of the problem and resource allocation remains arbitrary. There is a pressing need for a cost-effective national neurotrauma registry which can be the authoritative source on the burden of disease in India.
Aims and Objectives: To implement a cost-effective neuro-trauma registry at JPNA Trauma centre and assess its scalability and suitability in the national context.
Materials and Methods: Computerised Neurotrauma registry software was developed in-house at JPNA trauma centre and was implemented in April 2009. A team of data entry operators (12^{th} class pass) were trained in interpreting neurosurgical terms and entering data into the registry round the clock. Another team of nurses (Nursing informatics program) were trained in continually validating the data and in creating custom reports for research and audit.
Observations and Results: The present version of the neurotrauma registry software is version 4.2. The software is completely web based with rich reporting and filtering tools. Data of more than 60000 head and spinal injury patients has been entered till July 2012 into the registry. The software is completely free and the manpower required is 4 trained DEO and one nurse for implementation and continuous operation.
Conclusions: Neurotrauma registry developed at JPNA trauma centre is suitable for national implementation at negligible cost and should be adopted by all hospitals dealing with neurotrauma

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ID 535: Cost-effectiveness of Cell Saver in Major Surgery in Austere Environments

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Introduction: Unstable thoracolumbar injuries frequently have major blood loss during surgery which may necessitate transfusion of large amount of allogenic blood products with attendant transfusion related complications. Although, cell saver for collecting autologous blood intraoperatively has been available for decades, its use in major surgery in austere environments has been extremely limited
Aim and Objectives: To attempt to quantify the intraoperative blood loss and transfusion requirements during major surgery (unstable dorsolumbar spine fractures) and to assess the cost-effectiveness of cell saver in this setting.
Methodology: This retrospective study was carried out over 28 months and included all major spine surgeries. Cell saver was used based on the surgeon's preference. The use of cell saver intraoperatively, amount of blood loss & blood autologous and allogenic transfusions intraoperatively were recorded. Data was also obtained from blood bank on the cost of preparing, testing and storing blood products.
Results: A total of 338 dorsolumbar injuries underwent open surgery during the period. Cell savor was used in 83 (25%) patients and not used in 255(75%). The mean intraoperative blood loss in the cell-saver group was 900 ml (100-3500 ml) and in the non-cell saver group was 789 ml (20-2400 ml). Patients in the non-cell saver group received average of 6.3 units (range 0-24units) of blood products transfused and the difference between the two groups was statistically significant. The cost of preparing and testing one component unit was calculates as Rs 1446 in our centre.
Conclusion: Use of cell saver can eliminate need of allogenic transfusion in a significant percentatge of patients and thereby minimize risk of transfusion reactions & transmission of infections. Cell saver can also prove to be extremely cost-effective in major surgery besides having intangible benefits including saving scarce blood products. We recommend that cell saver should be used in disaster scenarios especially in austere environments.

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ID 536: Utilization of e-Learning in Disaster Nursing Education

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History shows the nursing contributions to disaster. Florence Nightingale, a root of modern nursing and a statistics scholar, proposed the ways how heath care professions protect vulnerable population. To this date, nurses are still in the front line of the natural and manmade disasters caring people in the acute phase as well as providing continuous care in the chronic phase. Now disaster aid is seemed insufficient if only providing acute medical care. It is imperative to nurture leadership who is capable to deal with all phases of the disaster. It could be said that nursing with wide realms of professions can take the leadership role to harmonize multidisciplinary approach in disaster response across all phases.

If that is the case, competencies of nursing leaders specialized in disaster require nurses to master various knowledge and skills. Information Technology has aided people to learn voluminous contents both in class and from distance. Additionally, in disaster various disciplines and professions need to share same languages and basic knowledge and it will be in fail conducting simulation without related disciplines. The Disaster Nursing Global Leadership Program (DNGL) is about launching the 5 year graduate program. The program is the first graduate program offered by five public and private nursing schools that individual school holds strong educational program with long history in disaster. Since the DNGL host schools spread across the country, the program heavily utilize in a hope with providing a seamless educational program regardless geographical differences on the globe.

This presentation aims to review the state of knowledge in e-learning and the applicability to grow leadership in disaster nursing such as the DNGL program.

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ID 537: Health Promotion Strategy During Emergency Response Period of Vulcanic Eruption

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Background: The eruption of Mount Merapi Yogyakarta (Indonesia) in October-November 2010 resulted numerous deaths, negatively impacted the health of nearby population, and prompted the evacuation of thousands of people to temporary shelters. One effort during the relief response period involved a health promotion program among the refugees in the shelter camps.

Objective: To evaluate the activity of a health promotion program for camp refugees implemented during the relief response phase.

Methods: This was a qualitative study using a case study design. In-depth interviews and photographic documentation were used to obtain data. Eleven individuals were interviewed: Health Service Chief, Health Promotion Section Chief, Head of Public Health, and three staff persons from Provincial Health Office in Yogyakarta and the Sleman District Health Office. The study was conducted from May-August, 2012.

Results: Health promotion program implemented during the emergency response phase of the eruption of Mount Merapi included general strategies of advocacy, social support, and community empowerment. The role of participating health professionals included social support to the refugees in the camps; refugees were invited to discuss issues that were of concern to them. In particular, potential psychological issues were discussed and psychologocial counseling was provided. In addition, written information regarding health promotion was provided to the refugees. Community empowerment activities were evidenced by activities, such as evacuation, active participation in mass health education, and the use of printed materials and electronic media. No disesase outbreaks or other exceptional events occurred in the refugee camps during the study period.

Conclusion: Health promotion strategies implemented in the refugee camps were considered to be effective as evidenced by the lack of disease outbreaks and other remarkable events. Disaster preparedness for future eruptions of Mount Merapi should include efforts aimed at increasing the resilience of vulnerable populations to better cope with the event.

Keywords: emergency response, health promotion, Mount Merapi, resilience

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ID 538: Delivering a Military-Civilian Healthcare Partnership: A Role Model

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The Queen Elizabeth Hospital Birmingham (QEHB), working with the on-site Royal Centre of Defence Medicine (RCDM), has gained world-class recognition for providing advanced trauma care both to civilians and injured military personnel returning from the conflicts in Iraq and Afghanistan. This robust military-civilian healthcare partnership has become a pioneering role model of co-operation. Four primary foci of development have ensured the same standards of care are delivered to military patients as to civilians: manpower, capacity, co-ordination and rehabilitation.

Manpower: there has been an increase in military deployment into QEHB across the multidisciplinary spectrum including laboratory services, imaging, nurses, allied health professionals and doctors. The latter includes a sizeable squad of anaesthetists, orthopaedic, general, burns and plastic surgeons which ensures that there is always one person available for deployment and that at times of enhanced military activity the whole squad can be drafted in, independent of existing rotas.

Capacity: there is a military/civilian ward with up to 32 beds and this can flex up and down between military and civilian as required.
Co-ordination: the daily 'bunker' meetings occur at noon on weekdays and exist to coordinate services, for incoming and existing patients, and this is enhanced with a weekly feedback video-conference by military registrars deployed to Afghanistan.
Rehabilitation: a weekly multidisciplinary military ward round occurs at the QEHB and includes the rehabilitation consultant. This provides an early rehabilitation prescription which directs the point of care prior to transfer to Headley Court where there is social and psychological support.

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ID 539: Concept Analysis of Pre-Hospital Burn Care: A Hybrid Model

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Pre-hospital care as a concept is subjective, complex, multi-dimensional, and ambiguous which is crucial for health care system. There is a global attention on the importance of pre-hospital burn care and the strategies to improve it for this group of victims. But pre-hospital emergency care is still a high abstract and confusing concept. The purpose of the present study was to analyze the concept of care in the context of pre-hospital emergency care system in Iran for more clarification. This study employed the Johansson hybrid model to define the concept of pre-hospital care through three phases including theoretical phase, field work stage and overall analysis.
According to the result of this study six main themes emerged from the concept of pre-hospital care included first contact care, assessing patients' needs, sense of security, evidence-based, coordination and kind of vehicle.
The results of this study will help to clarify the concept of pre-hospital emergency burn care. This clarification can lead to offer comprehensive medical services based on patient needs and lead to the development of nursing profession. Also identification of facilitators, barriers of prehospital care for burn victims and the clarification of concept of pre-hospital emergency care will help the nursing administrators and educators to be able to design managerial and educational activities based on scientific findings, and to provide the necessary conditions for learning and implementing high quality of pre-hospital emergency care in nursing for burn victim.

Keywords: pre-hospital care, burn, concept analysis
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ID 541: Listeria Monocytogenes Unexpected Case, the Role of Hemoculture

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An 82 years old man living in retirement home was admitted in the ED for urinary infection. The only significant medical past of the patient was an colic diverticulosis six months ago treated by antibiotics first and then by an hemicolectomy. The surgical evolution were normal, and a prostatectomy 15 years ago for benin hypertophy
At the ED the vital parameters were normal the blod pressure was 123/86 mm Hg, the heart frequency at 77c/mn. the temperature arose 36.4°C. A biological analyse was performed, showing CRP at 11.4 and 6700 neutrophils; and the rest of the biological findings were normal. A quick urine sample analyse performed at the admission showed a leucocytes ++, and a positivity to nitrite. An urine analyse was performed and showed 5 days later an escherischia coli infection with an high sensibility to antibiotics especially norfloxacine. The clinical examination was normal, no cardiac murmur, no pulmonary murmur. No abdominal complain. Few minutes before he lives the ED, the temperature was 38.2°, a systematic hemoculture was done and the patient was allowed to return home with norfloxacine. Five days later, the results shows a positivity to LISTERIA MONOCYTOGENES, the patient was asked to come back to the ED, he was not complaining of breathing difficulties, or abdominal pain, nothing was changed clinically, the biological findins were normal; a CRP decreased at less than 4. the clinical examination showed a systolic cadiac murmur, and bacterial endocarditis.
The question this Case report asks, is the interest of sytematic hemocultures in the ED. Hemocultures are made in the ED in France every time if temperature arose 38°C. less than of them 1% are positive.

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ID 542: A Short Sector ? An Additional Colored Triage Code

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We face since few years a transformation of the practice of the GP in France. Indeed the coverage of the pathologies in case of emergencies or personnal urgent matters felt by the GPs considerably modified. The doctors in France and especially in the sectors called medical deserts can not offer medical care to patients in the right time because of their huge medical work. We face in 2011 a numerous number of complaining. Selecting priority with colored links, the number of complaints sailed to the Hospital management team increases, as well as on the administrative personnel until 2011. To this moment, we had applied in our ED a triage by a nurse dedicated according to the international recommendations for emergencies in code of color. Bitter to have realized an audit by a federal agency, it seemed clearly that the angriness and the sources of complaints essentially comes from impressions of wasting time in th ED. In view of these conclusions we create then a short said sector selected by 7 items. This short said sector is dedicated to a unique ED doctor who takes care only of the coverage these pathologies. Since the implementation of this short sector the average time of passage any pathology named decreased in 40%, the average passage time (green code)

passed from 4:11 am till 2:48 am. This modification of the practices decrease the attacks to the staff and the complaints of 87%. it seems interresting to set up systems as our which allow to integrate into a specific sector, pathologies which can be quickly taken care by a speficic doctor dedicated to this short named sector. A coverage dedicated sector by the short pathologies decreases in a significant way tensions and conflicts improving in a significant way the care of the sick

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ID 543: Mass Casualty Contingency Planning for the General Elections to be Held on 4th March 2013

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Introduction: Kenya is preparing for the general elections on March 4th 2013. Experiences from the 2007 general elections that resulted in widespread post election violence and the need to prevent and manage such incidents if they recur, resulted in a multisectoral approach to preparation of a national contingency plan to manage the general elections. The contingency plan has four pillar namelly 1) early warning and prevention 2) security and safety 3) humanitarian support and 4) mass casualty pillar.
Methodology: a series of planning meetings of stake holders involved in emergency response resulted in a draft proposal for the Nairobi county mass casualty plan. Under the co ordination of the national disaster operation center, a national planning meeting was then held where the mass casualty pillar was developed as one of the key components to manage the forthcoming general elections. The plan includes 1) identification of mass casualty assembly and triage venues in hotspots identified by the early warning and security pillars 2) identification of possible field hospitals 3) creation of mass csualty trauma stores 4) public awareness and 5) security and safety
Results: as per the contingency plan, measures manage the forcoming general elections and to mitigate against the possible effects of post election violence are in place.
Conclusion: Kenya will have peaceful general elections this year and a contingency plan to manage all possible outcomes is in place. The results and conclusions in the final presentation may change in this document.

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ID 544: Emmergecy and Disaster Preparedness at Kenyatta National Hospital

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Background: Kenyatta national hospital is the main teaching and referral hospital in kenya. In addition the hospital offers leadersship in national polcy formulation in health. Since it was built in 1971, there has been no policy on disaster management. Over the past few years, the number of mass casualties handled at the facility continue to increase both in number and complexity. 3 years ago a committee was formed to develop a hospital policy and plan on disaster management.
Methodology: a team of 15 persons embarked on literature reviews of other like- hospital disaster managent policies and plans and came up with a workable document for kenyatta national hospital. the plan took cognizant of the national disaster man agent plan and is modeled alongside the structures and instruments of the national plan for ease of interagency operability.
Results: A draft policy and disaster preparedness plan for Kenyatta national hospital was approved by the hospital senior management and the board making it the first government hospital to have an official policy on disaster management. This has enhanced the hospitals role in disaster management within the whole country.
Conlusion: in a country with scarce resources, disaster management takes the backseat as its expensive and primary health is the priority.

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ID 546: Evacuation of the Bundaberg Hospital, Queensland Australia on 29th January 2013

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5. Royal Brisbane & Women's Hospital/Retrival Services Queensland (Australia)
6. Emergency Department, Cairns Base Hospital (Australia)

Background: In January 2013 the highest recorded flood of the Burnett River impacted on the city of Bundaberg and the surrounding region of Queensland. Over a 72 hour period the emergency response plan required the evacuation of all inpatients.
Methods: Preparation for this response included revision of the site emergency plan following the previous flood event in 2010/11 and exercises that include consideration of a scenario that matched the actual event that occurred.
Emergency risk management indicated new thresholds that would need consideration if flooding exceeding all previous records.
Results: A description of the triggers leading to evacuation and the methods employed will be provided including:

- Decision triggers and thresholds
- The method of preparing patients for evacuation before the decision was made.
- The "packaging" of the 131 patients evacuated in a staged process
- Maintenance of an emergency department and emergency surgery capacity

Conclusions: Emergency risk management provided a decision tree that ultimately required all inpatients to be evacuated and transported to the nearest capital city, Brisbane.
Conduct of the operation required extensive preparation in the response phase over the 36 hours prior to the evacuation order. Dispatch from the hospital and reception at the airport staging area were well staffed by specific clinical teams to maintain integrity of the transfers and clinical safety.
Accurate documentation, 48 hours of current medications and a reception team in Brisbane ensured all patients were delivered safely at the distant hospitals rapidly.
Movement of patients in two main phases with critically ill patients transferred over an 8 hour period in retrieval aircraft and the remaining patients moved in an airlift using C130 aircraft of the Australian Defence Force in 3 flights.
Specific lessons learnt from the evacuation of the Cairns Base Hospital in 2011 were incorporated into the mission.

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ID 547: Lessons from Social Media Messages Following 2010 Haiti Earthquake: Implications for Responder Preparation and Practice

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Background: Social media communications following disaster have been used instrumentally to direct allocation of resources. No reports indicate that content has been used to qualitatively understand the human ordeal of living through disaster, or shape responders' mental health preparation/ practice in the field. This research addresses these gaps with aims: 1) to gather first-person, real-time accounts of living through catastrophic disaster, for Haitian survivors and responders on the scene within the first days or weeks, and 2) analyze findings with an eye to maximizing intervention.
Methods: Human Subjects Review determined data usable: user-generated-and-posted in the public domain for express purposes of dissemination. Thus, 3,602 Twitter™ messages generated on-scene, 627 blog entries, and 176 notes on a Haiti listserv - all in English and posted from locations in Haiti to public social networking sites between January 12 and February 25, 2010 - were analyzed by researchers working together using content analysis and phenomenological methods. Line-by-line analysis of messages yielded a structure of recurrent themes.
Results: Social media message character limits forced authors to focus on core experience. Findings were surprising: responders and survivors wrote most about emotional, spiritual, existential concerns (death, isolation, meaning) and least about instrumental details (location, need for rescue). Responders were unprepared for their own emotional reactions. They did not report giving psychological interventions or survivors' existential struggles.
Conclusions: Responders have strong psychological reactions to disaster; preparation was insufficient to mitigate those feelings. To function optimally to meet survivor needs, preparation must include intensive training in psychological self-care, response and intervention. Trained responders with knowledge and skill in emotional caregiving who can avoid mental health trauma are likely freer to use inner resources to assist survivors struggling emotionally. Refined, data-based essentials for mental health training content will be suggested.

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ID 548: Military Nurses in Disaster Deployments: Challenge, Growth, and Lessons Learned

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Background: Military nurses are often disaster first responders, yet minimal published research has examined their perspectives on disaster missions. This study aimed to explore and illuminate military nurses' experiences during disaster deployments — undertakings defined as non-combat missions outside of warfare, including humanitarian relief operations or response to large-scale natural or human-made events — and garner lessons learned.
Methods: Twenty-three military nurses from across all branches and across the USA, volunteers recruited through purposive, snowballing techniques, participated in one-hour face-to-face interviews. Phenomenological methods guided interviews and qualitative analysis.
Results: Five polar and one unitary theme emerged: Nature of War v. Nature of Disaster; Unknown v. Known; Prepared v. Making Do; Structure v. Chaos; Being Strong v. Emotionality; and Existential Growth. Deployments were to natural events, terrorism, accidents and disease outbreaks; ranging from one day to six months. Overall, nurses' accounts emphasized human relationships. They considered their experience and framed narratives against the contextual ground of Organized Military Culture. Nurses found combat training inadequate preparation for disaster response, with differences between combat and disaster in: nature of the enemy, chains of command, and constantly shifting protocols necessitated by disaster chaos. High stress burden resulted from challenges in working collaboratively with civilian responders, in culturally unfamiliar settings, beyond the typical scope of nursing, and without post-response debriefing. "Being strong," a core military value, was difficult in the face of catastrophic suffering and loss. Mutual peer support aided coping. Participants perceived personal growth in compassion and self awareness and fuller appreciation of the destructive power of disasters and their impact on lives.
Conclusions: Joint simulation exercises involving military (all ranks) and civilian responders such as DMAT and organizations such as Red Cross are needed. Military-specific training in coping strategies for disaster settings, working with civilian media, and plans for systematic debriefing post-event should be developed.

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ID 549: Mass Casualtiy Response to the "Kiss Nightclub" in Santa Maria, Brazil

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Background: On January 27, 2013, ignited polyurethane foam caused a fire at the Kiss Nightclub, in Santa Maria, Brazil. The nightclub had a maximum capacity, approximately 1000. 234 people died at the scene and 145 were hospitalized. The fire's rapid growth, toxic smoke, and panic quickly made escape impossible, additionally there was no alarm and neither clearly marked signs to the only one exit available. This is descriptive analysis of the Response to this event.
Methods: Information gathering regarding the fire and the patients was obtained through meetings and interviews with rescuers of the Brazilian Air Force, Defesa Civil and Serviço de Atendimento Móvel de Urgência Physicians, at the Hospital de Caridade in Santa Maria. Additional patient information was obtained through interviews with staff physician contacts by phone.
Results: Brigada Militar, of the State Police, was first on the scene. Their job of keeping off the people was made difficult because friends and family wanted to enter the nightclub to rescue their loved ones. It is estimated that approximately 50-70 people died at the scene because they were not using appropriate protective equipment. Initially victims were transported improperly, crammed into cars and ambulances. Police at the scene failed to establish and secure perimeters, analyze the situation and properly inform other outside agencies of the disaster. 6 Hospitals in Santa Maria were overwhelmed within the first 10 hours. Patients were transported to Porto Alegre and other cities near Santa Maria, by plane and ambulances to help decompress the surge of critical patients. There was no problem with terminology and communication between agencies.
Conclusion: The lack of an operational area and an Incident Command structure was the main problem in response to the *Kiss Nightclub Fire*, at the scene.

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ID 550: Health Response to a Humanitarian Crises: Experiences Gathered from Health Services Provided to Syrian Citizens Under Temporary Protection in Turkey

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In 2011, in the aftermath of the "Arab Spring", a political crisis evolved in the Syrian Arab Republic and forced many people to flee their homes inside Syria and in neighbouring countries. The Turkish Government hosts currently nearly 200.000 Syrian citizens, who are accommodated in 16 camps in eight provinces in Turkey.
Health issues are fully addressed by emergency and curative services including surgical services provided directly in camps through health centres operated by the Ministry of Health on a 7/24 basis; health centres are complemented by field hospitals, which are linked to the referral system with hospitals at secondary care level and tertiary care level. In addition public health programs have been carried out by the Ministry of Health.
Considering the numbers of daily polyclinic visits in camps, which reach nearly to 4.000, firearm injuries, those can be more than hundred on daily basis, public health services and psychosocial support that have been provided; many experiences have been collected in providing health services in human crisis. The experiences can give important feed backs about managing health issues in human crises and overcoming health challenges in such situations.

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ID 551: Water, Sanitation and Hygiene at the Kumbh Mela: Indigenous Habits and Ingenious Remedies

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Background: Drinking water provision and human waste management constitute some of the great challenges in mass gatherings. When 80 million people congregate, as they did at the 2013 Kumbh Mela in India, the logistics of a successful WaSH program assume epic proportions.
Methods: We studied WaSH strategies implemented by the Mela organizers, collating information through interviews and direct observations over a one-month period. We cultured river water samples for *E.coli* counts comparing peak bathing-day rises in colony-count to the frequency of diarrhea cases reported at Mela hospitals.
Observations: 46 tubewells and 600 kilometers of pipes supplied up to 92 million liters of water per day. 35,000 temporary toilets included biodigester models and basic pit latrines. Recognizing the villager's preference for defecating in the open, 10,000 night-spoil sweepers collected feces and dusted the defecating fields with disinfectants. Grey water runoff, treated in sand-bag lined ponds, was used to spray dusty roads. In spite of these measures, the pilgrims' inherent understanding of basic hygiene was limited. Open defecation and using greywater to "gargle but not drink" are two such examples. The public health signage did not always account for the high illiteracy levels amongst the visiting pilgrims. The private sector augmented government efforts through innovations that included the provision of UV-treated drinking water and distribution of rotis branded with hand-washing messages. Exposure to contaminated water occurred predominantly when pilgrims bathed in the holy rivers. Yet, diarrheal illness, representing less than 6% of the presentations

recorded at the Mela hospitals, did not spike as expected after the main bathing days.
Discussion: The Kumbh administration mobilized massive material and human resources to ensure adequate sanitation facilities, safe drinking water, and targeted messaging to successfully prevent water-borne outbreaks in a demographically and socio-economically diverse population - poignant lessons for urban public health.
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ID 552: Stampede Mitigation at the World's Largest Gathering

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Background: Stampede mitigation is a primary concern of the organizers of the Kumbh Mela, a religious festival in India, attended by 80 million people. The administration invests heavily in constructing a temporary tent-city on the floodplain at the confluence of the Ganga and Yamuna Rivers, paying special attention to pedestrian and vehicular traffic. We studied the built environment of the Kumbh Nagri (township) to identify innovation, strengths and gaps in stampede mitigation strategies.
Observations: Over a 30-day period we observed key infrastructural motifs aimed at stampede risk reduction. Streets were wide, laid out in a grid, and a no-encroachment policy strictly enforced. Manned barricades shunted traffic away from dense intersections and maintained unidirectional flow. On main bathing days, specially demarcated roads allowed rapid movement of privileged religious groups while other vehicles were banned. To dissipate crowd density, the visiting millions were diverted along a circuitous route via roadblocks and corrals. Riverbanks were reinforced by sandbags, lifeboats were stationed at bathing areas, and makeshift dams helped break water currents, making the ritual bath safer for millions. Yet, bottlenecks in the Nagri and at a railway footbridge resulted in two stampedes on the main bathing day, the second killing over 36 people. Lack of rapid radio communication, inability of the emergency vehicles to maneuver dense crowds, and a centralized command structure were some of the factors that caused significant delays in response and care.
Discussion: The impressive mitigation strategies implemented by the organizers were contextually relevant and based on institutional memory, personal experience and tradition. However, the factors contributing to the stampede revealed a dearth of modernization: crowd estimation techniques were not rigorous, decision-making was hierarchical and rigid, and telecommunication tools underutilized. Decentralized response to crowd-sourced feedback and better application of smart technology may make the Kumbh safer than it already is.
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ID 553: Implementing a Real-time Disease Surveillance System in a Mass Gathering

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Background: There are many challenges to carrying out epidemiological surveillance in a transient mass gathering. Large patient volumes, multiple sites of care, overworked health care providers, variable quality of medical record-keeping, and absence of data management and rapid analysis technology in the field, all represent significant barriers to quickly and accurately tracking potential disease outbreak. We tested whether a customized digital surveillance system could be readily deployed under these circumstances.
Methods and Results: We developed a mobile digital surveillance tool (EMcounter) using commercial software and implemented it at the 2013 Kumbh Mela, a Hindu religious gathering occurring in a temporary tent city outside Allahabad, India, that attracted over 80 million people over a 55 day period. We implemented EMcounter at four sector hospitals and the central referral hospital. Using ten digital tablet devices, handwritten medical records were digitized, and stored on-line or off-line. Data security was assured using encryption and roll-specific passwords. Information uploaded via mobile wifi devices instantly populated a cloud-based database to generate real-time analysis. After an initial roll in period with rapid, minor, iterative modifications based on user feedback, EMcounter was able to digitally capture more than 40,000 unique patient encounters over four weeks. We recorded age, gender, chief complaints/diagnoses, and treatment for all patients presenting to the surveyed clinics and our daily analysis reported disease burden and pharmaceutical utilization.
Impact: This project provides the proof of concept that a digital surveillance tool can be rapidly and cost-effectively deployed in a mass gathering. The large volume of data thus generated enables the development of novel epidemic surveillance metrics in the setting of a widely fluctuating at-risk population. The tool has significant potential for deployment in humanitarian settings for real-time tracking of disease trends and optimizing resource utilization.
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doi:10.1017/S1049023X13008418

ID 554: A Preliminary Analysis of Digitally Captured Outpatient Encounters at the 2013 Kumbh Mela in India

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Background and Methods: Eighty million pilgrims at the confluence of the holy Ganga and Yamuna rivers made the

2013 Kumbh Mela the largest mass gathering in history. To address their medical needs, organizers set up 10 sector hospitals across the tent-city, each with an outpatient clinic and 20 inpatient beds. A central referral hospital housed an emergency department, specialty clinics, a 100-bed inpatient unit, and a 2-bed intensive care unit. Ambulances commandeered from across the state ferried patients between hospitals, and to tertiary care hospitals in nearby cities. All expenses were borne by the state – patients received care and drugs free of cost. We digitally captured encounters at four sector hospitals over four weeks. We report a preliminary analysis of 29,951 outpatient encounters.

Results: The patients had a mean age of 47 years, and 76% were male. The most common presentations were musculoskeletal pain, cough, fever, and upper respiratory tract infections (URI). Diarrheal diseases constituted fewer than 6% of all presentations. All patients received at least one prescription, predominantly analgesics and anti-inflammatories (54%), antibiotics (36%), anti-allergics (28%), and vitamins (24%). Qualitative analyses suggested the mean duration of antibiotic therapy was 2 days. Spatial analyses exhibited significant variation in resource utilization within and among sector hospitals, with overcrowding in outpatient clinics and under-utilized inpatient wards. Temporal analyses indicated a self-contained URI epidemic in early February.

Discussion: Providing health care at the Mela was an enormous organizational feat. The majority of outpatient presentations were for non-urgent complaints, probably due to free and accessible care. Respiratory complaints were common, likely due to cold temperatures, poor air quality, and inadequate hand hygiene. We posit that real-time temporal and spatial analyses of clinical data should be used for epidemic surveillance and to optimize utilization of scarce resources at future mass-gatherings.*Prehosp Disaster Med* 2013;28(Suppl. 1):s185–s186
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