

as methodological means of data collection is crucial to timely assessment of the affected populations' needs before humanitarian interventions, raising funds to fulfil these needs, and to assess the effects of the humanitarian aids that have been delivered. However, the factors of (1) insecurity; (2) limited resources; (3) vulnerability of the population; and (4) the potential cultural and moral differences among researchers and the surveyed populations make the research process methodologically and ethically challenging. The aim of this paper is to present the effects of these factors on the ethical review and implementation of research, with emphasis on the issues of benefit-risk analysis, conflict of interests, and informed consent. A practical framework for the ethical review that responds to the need of timely provision of information as well as promoting the adherence to the international ethical principles also will be provided.

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(A120) Implementation of Advanced Technologies in Emergency Medicine

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Increase in the number of emergency situations (ES), technogenic accidents and disasters and terrorist threats defines the need for implementation of advanced medical technologies. One of these technologies is to deploy an airmobile hospital (AH) in emergency situation to provide skilled medical care in case of a large number of casualties. AH is equipped with inflatable modules, deployment of which takes no more than an hour. Each module is equipped with specialized departments. AH consists of triage department, OR, intensive care department, outpatient department, X-ray and diagnostic department and inpatient department as well. The station is equipped with modern intensive care unit including ALV apparatus, defibrillator-monitor with built-in pacemaker, as well as endovideosurgery complex, laboratory and telemedicine equipment, radiation control monitors, communication and global positioning units. One of the advanced technologies of emergency medicine is implementation of telemedicine equipment. EMERCOM of Russia on the basis of our institution has opened a telemedicine center that provides videoconferencing, any audio-visual information both text (extracts from case histories), and instrumental studies (radiographs, echograms, ECG, etc.). EMERCOM of Russia specialists use airmobile medicine technologies including specially equipped aviation facilities with airmobile medicine modules (aircraft, helicopter). In addition, we have developed a hardware system of individual monitoring the functional state of a rescuer. It is designed to transmit to the senior officer of the division the data about functional status of 10 rescuers (heart rate, respiratory rate, temperature), motor activity and the current coordinates to detect deterioration and freezing (immobilization) of the rescuer. The complex is equipped with an emergency radio-beacon to accelerate the search for a rescuer.

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(A121) Relation of Dopamine Dependent Hypotension with Outcome in Cervical Spine Injury Patients

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Background: It is believed that dopamine resistance sets in within 72–92 hours following therapy. However, in the authors' experience, spinal cord injury patients may require dopamine to maintain blood pressure over several weeks.

Objectives: This study aims to: (1) assess the incidence and duration of dopamine dependence in cervical cord injury patients; and (2) find the relation (if any) of dopamine dependent hypotension with outcome of spinal cord injured patients.

Methods: This was a prospective, observational study carried out over 2-month period in the neurosurgery intensive care unit (ICU) at JPN Apex Trauma Centre, AIIMS. All cervical spine injury patients who had hypotension during the hospital stay were included in the study. History, clinical findings, requirement of inotropic support, management, and outcome were recorded for all enrolled subjects.

Results: During the study period 48 patients were admitted with cervical spine injury in the ICU. Of these, 26 patients (54%) had hypotension and were constituted the study group. Eleven patients had complete spinal cord injury (power 0/5) and 15 patients had incomplete spinal cord injury. Twenty-four patients were on ventilator support and two were on oxygen masks. The mean dose of dopamine which the patient receives during the treatment was 7.5 mcg/kg/min with the maximum and minimum doses of 20mcg/kg/min and 2 mcg/kg/min. The mean duration of dopamine support was 17 days (Range 6–48 days). Eight patients (31%) required intermittent dopamine support and 18 patients (70%) required continuous support. The in-hospital mortality was 61% ($n = 16$). Mortality was significantly lower in patients who received intermittent inotropic support as compared to those who required continuous inotropic support ($p < 0.01$).

Conclusion: The patients with spinal cord injury are dependent on dopamine throughout their recovery period. The patients who required intermittent inotropic support had significant better outcome compared to those who required continuous inotropic support.

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(A122) Using Focused Operations Management Tools to Analyze and Alleviate Emergency Department Overcrowding

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Introduction: Emergency department overcrowding plagues departments worldwide with grave implications on patient comfort and care quality. Many standard approaches have been introduced without widespread success. A new approach is required. Focused Operations Management (FM) integrates novel managerial theories and practical tools into a systematic approach to complex systems, promoting insight and improving performance. It has allowed systems in the industry and service sectors to

radically improve throughput and quality with no or little additional cost. The implementation of the FM in the emergency department setting to alleviate overcrowding has never been attempted, and it could revolutionize emergency department operations management.

Methods: Emergency department patient flow data affecting factors and outcomes from a large tertiary medical center, exclusively utilizing electronic patient records, will be collected. Root causes and influencing variables of emergency department overcrowding will be mapped and analyzed using FM tools. Later, alleviating measures will be developed and evaluated. During phase two, data will be collected from two additional emergency departments, measuring the impact of implementation of FM operational changes on emergency department flow parameters such as length of stay, wait times, clinical outcomes, and patient and staff satisfaction.

Results: Data collection and analysis of phase one of the study will be completed by March 2011 and presented at the conference. The authors speculate that the FM tools will allow better understanding of the root causes and affecting variables of emergency department overcrowding and help plan and later implement efficient interventions.

Discussion: The implementation of the novel management strategies of FM has revolutionized operations in many industries and services, helping them to drastically improve performance. The emergency department is a perfect candidate for the use of these tools, due to the overwhelming current operational difficulties (with overcrowding as a prominent symptom) and its complex high volume and high acuity patient flow.

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(A123) Developing World Disaster Health Research - Present Evidence and Future Priorities

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Developing world disaster Health research - Present Evidence & future priorities

Introduction: Considering that 85% of disasters and 95% of disaster-related deaths occur in the developing world, the overwhelming number of casualties has contributed insignificantly to the world's peer-reviewed literature. The existing & available evidence on disasters in peer-reviewed journals about the developing world, was examined for quality and quantity in this systematic review.

Methods: The free PubMed database was searched using the MeSH (Medical Subject Heading) terms 'disasters', 'disaster medicine', 'rescue work', 'relief work' and 'conflict' and then refined using the MeSH terms 'developing country'. The final list of selected manuscripts were analyzed by type of article, level of evidence, theme of the manuscript and topic, author affiliation & region of the study.

Results: Citations using MeSH search terms 'disasters', 'disaster medicine', 'rescue work', 'relief work' & 'conflict' yielded 63,196 results. After these results were refined using the second MeSH term "developing country", 438 articles were retained. Less than

1% (0.69%) citations in PubMed dealt with developing country disasters. Half of the manuscripts (46.5%) were found to be original research articles (36.1%) or reviews (10.4%), while more than a quarter (29.5%) were commentaries. 97.4% (149/153) of all 'original research articles' were Level IV or V evidence. A fifth (20.3%) of the authors of all manuscripts on developing world disasters were from the developing world (82/404); Predominant themes (29.1%) were missions, healthcare provision and humanitarian aid during the acute phase of developing world disasters.

Conclusion: Less than 1% of all disaster-related publications are about developing world disasters. Also, the developed world, authors four-fifths of the articles about developing world disasters, and contributes the predominant perspective. Aid for sustaining long-term disaster research may be a more useful investment in mitigating future disasters, than short-term humanitarian aid missions to the developing world.

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(A124a) Developing Pediatric Emergency Preparedness Performance Measures

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Background: The most obvious deficiency in the current evaluation of disaster response is the lack of objective, quantifiable measures of performance. This frequently leads to assessments that are highly subjective depending on the evaluator, does not provide those who are planning with targets to achieve, and does not allow for measures that they have improved their preparedness. The goal of this research project is to offer recommendations for government agencies at the federal, regional, and local levels, public health departments, and health care institutions to aid in the development of pediatric emergency management performance measures.

Interventions: The goal was achieved through the application of traditional quality principles to the assessment of emergency management efforts and to the use of innovative analytic methodologies to develop comprehensive approaches to performance measurement in emergency management.

Discussion and Observations: When one discusses performance measures, it is important to remember that these are metrics we use to improve the quality of care. With regard to emergency management, performance measures are used to increase capacity and efficiency. A classic approach to health care performance measures is to discuss them with regard to the domains of structure, process, and outcome. Recently, in addition to these domains, volume has also become an important predictor of clinical outcomes. Although we believe that these domains can be applied to emergency management functions and the development of performance measures for disasters, there are some fundamental differences when compared with their use in development and categorization of traditional health care metrics which have been built in to our modification of these domains to emergency preparedness. This approach, quantitative methodology and consensus