

in reacting on CBRN-incidents. 64, 1% thought they were not able to act correctly in case of chemical contamination. The most important learning tools were books, lectures, seminars and the principle of learning by doing. The reasons for using an e-learning platform were saving time, high quality of the tutorials (77% thought it important), quicker reach of information, multimedia formats of the taught facts and links to further information. 55, 2% were slightly unsatisfied with the actual pool of further trainings. The most frequently used sources of information were the internet (78, 8% use it frequently) and colleagues.

**Conclusions:** The survey shows that lacks in disaster preparedness in Germany definitively exist but it also reflects that most of the security and rescue forces are motivated to do further trainings and use therefore new technologies. But they require a high quality of teaching and a reasonable use of them. There is a need for using innovative Methods, and user-friendly web-based instruction and information modules to address all security and rescue forces in Germany.

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#### (A117) Outcomes and Quality of Life after Injury

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**Background:** Most research into the outcomes of injury has focused on mortality rather than the physical, social, and psychological sequelae of non-fatal injuries. The health and long-term outcomes of a cohort of accidentally-injured patients were studied in order to assess the impact on quality of life.

**Methods:** The cohort of patients was derived from six previous studies spanning 1988–2003. Patients were followed-up with to ascertain if they were still alive, and survivors were sent a follow-up questionnaire in 2006. The questionnaire asked about current problems resulting from past injuries, use of health services, and measures of health related quality of life (the EQ-5D and SF-36 or Nottingham Health Profile (NHP)). A sample of 114 also received detailed face-to-face interviews.

**Results:** A total of 2,418 patients were followed-up on between 4–15 years post-injury, of whom 311 had died. There were 580 completed follow-up questionnaires, and of these 64% reported health problems related to past injuries. The mean EQ-5D score at follow-up was 0.132 tariff points below the mean for a normal age-sex matched population, and SF-36 scores were 5–15 points worse than population norms. At all ages, EQ-5D and SF-36 scores were similar to those of the normal population aged 75. Interviewed patients also reported substantially more disability than the general population. Increasing injury severity was associated with almost all aspects of worse health at follow-up, and severe lower extremity injuries were strongly associated with poorer outcomes.

**Conclusions:** Injured patients continue to experience significant reductions in health and health-related quality of life for many years after their injury.

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#### (A118) Evidence-Based Disaster Medicine: What Can We Learn from a “Science” Spread across 900 Journals?

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**Introduction:** Disasters and large-scale crises continue to increase in frequency. To mitigate the potential catastrophes that confront humanity in the new millennium, an evidence-based approach to disaster medicine is required urgently. This paper moves towards such an approach by identifying the current evidence-base for disaster medicine.

**Methods:** Using a search strategy developed by the Cochrane Prehospital and Emergency Health Field, three independent reviewers searched the electronically indexed database MEDLINE (January 2000 – August 2010) to identify peer-reviewed literature relevant to disaster medicine. Reviewers screened the titles and abstracts identified by the search strategy and applied predetermined criteria to classify the reported publications for date, source and study type and topic.

**Results:** A total of 8149 publications were identified. Of these, 8% focused on mitigation, 22% on preparedness, 19% on response and 51% on recovery. The publications were overwhelmingly anecdotal or descriptive (89%) while 5% were quantitative studies and 6% used qualitative methodologies. Only 66 of these publications were classified as being high level evidence. The publications were published in 928 journals, of which 34% were mental health related journals and 28% were public health journals. The journal “Prehospital and Disaster Medicine” had the greatest number of publications (5%) of all journals publishing on issues within the scope of disaster medicine. The events with the greatest numbers of publications were the 9/11 terrorist attacks, Hurricane Katrina, the Indian Ocean Tsunami, and the conflict in Iraq. Of note, this search highlights the lack of publications reporting on the application of evaluation tools or frameworks.

**Conclusion:** Given that the “science” of disaster medicine is spread across over 900 different journals, keeping on top of the evolving evidence-base of this emerging discipline will continue to be a challenge. Furthermore, the overall low quality of the evidence is an ongoing concern.

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#### (A119) Ethical Issues in the Review and Conduct of Research during Active Conflicts: Reflections from Darfur, West Sudan

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A crisis has been evolving in the region of Darfur following an armed conflict between rebel groups and the assumingly government-supported militia in 2003. It has attracted international attention and intervention where 13 UN agencies and around 100 national and international non-governmental organizations have been serving the affected populations. Research

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