

Oral Presentations—Theme 15: Research and Health Surveillance

Session 1

Chairs: Joost L.M. Bierens

Researching Disaster Preparedness: Can it be Done?

L.A. Mazurik,¹ A. Popov²

1. Sunnybrook Health Science Centre, Toronto, Ontario Canada
2. Sunnybrook-Osler Center for Prehospital Care, Toronto, Ontario Canada

It has been said that is not possible to research disaster prospectively, as researchers would have to cause a disaster in order to study one.

Eleven high-fidelity, inter-professional, mass-casualty exercises were conducted by a team of subject matter experts from 2003 until 2006, ranging from terrorism to chemical spills, bus rollovers, and pandemics. They examined the following concepts and observed trends they believe will help increase the number of victims saved during events that overwhelm local hospitals:

1. At the site of the incident
 - a. Destination algorithms for casualty distribution;
 - b. Treat and release directives for paramedics and nurses;
2. At the hospital
 - c. Diversion of minor injuries to “shared care” sites e.g., hospital and non-hospital medical staff;
 - d. Diversion of significant others to a Family Information Centre;
 - e. Establishment of a discharge unit;
 - f. Sequential Organ Failure Assessment Score for Critical Care Triage;
 - g. Mutual Aid Agreements with long-term care facilities;
3. Both
 - h. Triage system even simpler than START;
 - i. Situational awareness dashboards; and
 - j. Distributed command systems.

Based on this work, an entity called the Interprofessional Disaster and Emergency Action Studies (IDEAS) Network, consisting of a consortium of Canadian universities, colleges, the government, and subject matter advisors was created. It will be their mandate to evaluate the effectiveness of simulation in concept development and preparing interprofessional teams to respond to disasters.

Keywords: disaster; drill; research; planning; preparedness

Prehosp Disast Med 2007;22(2):s146

Role of Meta-Narrative Mapping in Synthesis of Complex Evidence in Prehospital and Disaster Medicine

A. Sen

Hope Hospital, Manchester, UK

Evidence-based methods are highly suited to the review of experimental studies but other methods must be embraced

in prehospital and disaster medicine research where complex policy interventions involving long implementation chains may be evaluated, need local adaptation, and (potentially) have impact at multiple levels (individual, group, community, organization). Complex policy and service interventions are rarely evaluated by high-quality randomised controlled trials (RCTs)—and even when they are, the position of the RCT atop the hierarchy of evidence might, legitimately, be questioned. It is important to recognise the limitations of simplistic “hierarchies of evidence” and not reject evidence as “methodologically flawed” because it does not fit into a familiar taxonomy. Acknowledging the value of diversity of approaches in research, meta-narrative mapping has been developed and used by researchers in areas of complex policy, innovations and interventions.

Using a broad-based search strategy covering electronic databases and journals reporting on disaster and pre-hospital medical studies, we attempted to undertake a meta-narrative review and map the literature into research traditions. The findings were grouped under broad themes and a rich picture was developed using contributions from different traditions. Heterogeneity of approaches and contradictions in findings could be analysed systematically, permitting the ability to draw conclusions instead of statements such as, “there is contradictory evidence” or “more research is needed”. This paper will report on meta-narrative mapping and attempt to evaluate the use of such a technique for creating a knowledge repository in disaster and prehospital medicine.

Keywords: disaster; evidence; meta-narrative mapping; prehospital; research

Prehosp Disast Med 2007;22(2):s146

National Academy for Medical Assistance in Accidents and Disasters

J.H.M. Juffermans; M. De Vries; D. De Vries;

J.J.L.M. Bierens

Netherlands Institute for Safety Nibra, Arnhem, The Netherlands

In May 2006, the Dutch ministry of the Interior and Kingdom Relations initiated a project to establish a national Academy for the Medical Assistance in Accidents and Disasters (AMAAD). The AMAAD is hosted by the Netherlands Institute for Safety Nibra and is scheduled to become operational by 01 January 2008.

The aims of AMAAD are: (1) to create an inventory of the current questions in the field of AMAAD; (2) to build a network of expertise from which national and international experts can be selected in case of the need for information; (3) to aggregate existing knowledge of AMAAD from science and practice; (4) to identify gaps in knowledge and initiate scientific research in strategic research projects with the support of professional groups, universities, and research institutes; (5) to establish a helpdesk for advice; and (6) to allow access to current knowledge that is easily and quickly available for field workers, researchers, policy makers and crisis managers in case of a disaster or crisis.

This project is supported by a multidisciplinary scientific group and a steering group that reflects relevant stakeholders in the field of disaster medicine.

In February 2007, a working meeting and an expert meeting occurred in which inventories were made of the current questions and networks. The outcome of these meetings will be presented, as well as the lessons learned from establishing a national AMAAD.

Keywords: Academy for the Medical Assistance in Accidents and Disasters (AMAAD); disasters; knowledge; research

Prehosp Disast Med 2007;22(2):s146–s147

Comparative Analysis of Medical Needs and Living Conditions in the Sub-Acute Phase of the Iran Earthquake and Sri Lanka Tsunami Disaster

K. Nakata

Nippon Medical School, Hiroshima City, Japan

Objective: The objective of this study was to clarify typical characteristics of medical needs and living conditions in the sub-acute phase of the Iran Earthquake and the Sri Lanka Tsunami Disaster.

Methods: The study was performed by interviewing displaced persons in the refugee camps using a questionnaire sheet and by examining the status of the medical needs and living conditions (including the water and sanitation situation, and insect bite situation).

Results and Discussion: Medical needs of displaced persons from the Iran Earthquake included: respiratory disease (50%), trauma (33%), and mental problems (8%). Living conditions such as water were maintained fairly well, although in several cases people did not have access to a toilet.

For the Sri Lanka Tsunami disaster, physical trauma was the most common medical need, affecting 24% of those interviewed. This was followed by respiratory disease (14%), skin disease (11%) and mental problems (7%). Water and sanitation conditions were relatively good.

Conclusions: The following conclusions were made:

1. Typical characteristics of medical needs in the sub-acute phase of earthquake- and tsunami-related disasters are respiratory disease, mental problems, and trauma.
2. Information obtained from formal surveys provide valuable data for disaster relief planning.

Keywords: analysis; Iran; needs; research; Sri Lanka

Prehosp Disast Med 2007;22(2):s147

Digital Screening in Trauma Care Centers: A Case Study with the Save Accident Victims Association of Nigeria (SAVAN)

E.E. Ebikhamenor,¹ O. Okorwa,² E. Adeshina²

1. University of Benin/Save Accident Victims Association of Nigeria, Benin City, Nigeria
2. Save Accident Victims Association of Nigeria, Benin City, Nigeria

Trauma care centers are known for their workload on health care providers, especially during disasters or mass casualty events due to road traffic accidents. The prioritization of patient care leaves little time or opportunity for routine research or for screening for causative factors, although alcohol and substance abuse may be causative factors of many unintentional injuries. Because of the absence of the availability to rapidly screen patients for such factors, Save

Accident Victims Association of Nigeria (SAVAN) introduced digital alcohol breathalyzers, to determine blood alcohol concentration, and digital oral screen machines, in order to screen for substance abuse in local trauma care centers. The oral screen machine uses saliva to identify cocaine, heroin, cannabis, and amphetamine in patients abusing such substances.

A tertiary health institution was selected for the pilot study. During a trial period of six months, approximately 43% of road traffic accident victims had an elevated blood alcohol concentration, while 2.5% of victims tested positive for other substance abuse. The influence of alcohol and other substances occurred more frequently in males than females (ratio: 3:1), and in the age group 21–30 years. Among those tested, alcohol followed by cocaine. Of the 2.5% that tested positive for substance abuse other than alcohol, 87.5% were drivers who transported logs from the forest to a sawmill.

Digital screening for alcohol and substance abuse should be encouraged in all trauma care centers to facilitate further research on this subject.

Keywords: alcohol; digital screening devices; Save Accident Victims Association of Nigeria (SAVAN); substance abuse; traffic crashes

Prehosp Disast Med 2007;22(2):s147

Session 2

Chairs: Joost L.M. Bierens

Toward a Generic Method for Evaluation and Assessment of Medical Management in Large-Scale Disaster Drills

M. Tengattini,¹ P.L. Ingrassia,¹ S. Zanaboni,¹ F. Prato,¹ A. Geddo,¹ D. Colombo,¹ S. Calligaro,¹ L. Ragazzoni,¹ V. Bergamaschi,¹ M. Morin,² J. Jenvald,² F. Della Corte¹

1. Università del Piemonte Orientale, Novara, Italy
2. VSL Research Labs, Linköping, Sweden

Introduction: This study aims to demonstrate progresses in developing a generic method for evaluating medical management in live exercises by applying a newly designed method and technology.

Methods: In a simulated building explosion (112 victims), time schedules concerning triage, evacuation procedures, medical treatment, and MDS' positions were recorded by trained observers and complemented by other data, such as radio communications, pictures, videos. The CITE® Explorer software was used to integrate, index, and present all data. The quality of medical care quality was evaluated analyzing timing and treatment accuracy for four groups: Airways (A), Breathing (B), Circulation (C), and Other (O). Contingency tables and non-parametric tests were used to compare treatment and timing. Radio communication and position tracking were used to evaluate decision-making, command, and control.

Results: The correct, under- and over-triage rates were 84%, 11%, 5%, respectively. Evacuation times for the crash and the Advanced Medical Post were established. Correct maneuvers were 85.2%, 78.7%, 65.6%, 57.4% in A, B, O, and C groups, respectively, with significant differences in A vs. C ($p < 0.0001$) and B vs. C ($p = 0.0009$) groups and for