

designers and manufacturers to reap the benefit of such things as intelligent vehicle technology and driver auto-feed-back. These are well-established initiatives in the automotive literature and future EMS vehicle design must take advantage of them to improve the safety of our environment.

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Resuscitation

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An overview of the dangers inherent in urban search-and-rescue operations was provided and highlighted the danger of rescuers putting themselves at significant risk of injury in an attempt to save lives—the so called “red mist” effect. It is recognized that there is a “chain of survival” in an event such as a building collapse; it includes self-rescue followed by first responder assistance, local emergency service rescue, and finally, the arrival of specialist urban search-and-rescue teams. In addition, team-working, systematic, operating procedures and a sufficient supporting medical infrastructure must be designed into a response to provide the best chance of a successful outcome. These top-line specialist assets are in short supply, and must be able to collaborate and work effectively together for an optimal response. There is a need for standardized training and concepts of operations across the urban search and rescue field.

Broadening the scope, an outline of a broader system development in Canada involved the design of a series of specialist teams to cover a wider range of risk areas, beginning with the urban search-and-rescue function, but also creating teams ready and prepared to work in a hazardous CBRN environment or in a tactical firearms situation. The benefits of multi-agency training with other key responding agencies and regular exercising of their function have maintained the interest and enthusiasm of a highly motivated group of personnel. The presenters believe that this approach has limited the inevitable risk in such specialist situations and created an efficient and professional EMS response.

Finally, a major incident case study was presented from Poland. In January 2006, a disaster occurred at an exhibition where the hall roof collapsed under the weight of heavy snow and ice, trapping >350 participants within the structure and its debris. Rescue by urban search-and-rescue teams ensured that the last surviving casualty was extricated within five and one-half hours. Sixty-five persons died, and a further 173 were injured. The significant medical issue was the change in ambient temperature at the point of building collapse where the inside hall temperature of 20°C fell to the outside -19°C. This complicated the medical care of the injured with 15 suffering from severe hypothermia and 90 suffering from mild hypothermia. Treatment strategies were described, including heating equipment in the casualty tents and the provision of warm fluids and gel packs. Post-mortem review showed that none of those who died succumbed from hypothermia. A phenomenal job was done in extreme weather circumstances!

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Public Health

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Four oral presentations were made during the first of three public health sessions. The papers presented were focused toward emergency public health preparedness and emergency medical care. The session was well attended with >30 participants representing communities throughout the world.

The initial presentation of the session described outsourcing public health emergency drills and exercises. This presentation and the discussions examined outside contracting for exercise development and evaluation by local health departments. A number of solid points were made concerning the contracting process. First was a discussion of when should a local agency consider contracting such services. It was mentioned that the development and evaluation of performance for all types of exercises to test response plans and preparedness have become a science in itself; a process that often is labor-intensive and beyond the resources available within over-extended local health departments. Discussion centered on the need for exercises to be based on long-term improvement with measurable goals. Outside contracts should be comprehensive and include references for previous work and expertise in the development and evaluation of exercises. A local health agency should be ready to monitor deliverables and modify contracts as needed to accomplish the goal of effective, measurable exercises that can develop and improve performance.

Another session presentation described the importance of coordinated emergency medical services (EMS) and public health response in community preparedness and responses to emergencies. In many communities, public health and EMS is a natural partnership because the EMS is administered by health departments. The discussion focused on the ability of EMS personnel to help in public health emergencies with surveillance and disease recognition in a community. This seldom explored area for coordination of EMS and public health has great potential for impact in the setting of large-scale disease outbreaks and public health emergencies. It also was noted that EMS can provide critical functions in times of public health emergencies, such as vaccine administration and mass evacuation.

An innovative approach to emergency preparedness in small islands and archipelagos using Delphi techniques was described for developing consensus on minimum standards. Using local experience and experts in relatively isolated communities is an effective method for identify public health emergency priorities and resource utilization. Participants discussed and explored expanded use of the Delphi technique to further public health emergency research.

Self-presenting patients to an emergency department in the United Kingdom were discussed. Of interest was that 24% of persons presenting to the emergency department had been referred there after contact with another health provider. Only 64% of the persons presenting received medical interventions and 34% could have had primary care treatment. The problems illustrated seem to be univer-

sal in application throughout many communities as discussed by participants illustrated similar problems in multiple communities. Interestingly, the problems of emergency department crowding seem to persist despite various methods for healthcare finance.

This session was well attended, and in addition to the specific topics discussed with each presentation, there was discussion about research methodology and methods to improve emergency public health research and evaluation.

Presentations

1. Alvarez WA, Gebbie KM, Valas JV: Outsourcing public health emergency drills and exercises. (USA).
2. Reilly MJ, Markenson DS: Role of the emergency medical services system as part of public health emergency response. (USA)
3. Pereira IMA, Pyrros DG, Debacker M, Peleg K: Health emergency preparedness in small islands and archipelagos—Recommendations and minimum standards. (Portugal, Greece, Belgium, Israel)
4. Grimshaw J, Challen KH: Self-presenting patients attending an emergency department: Perceptions of healthcare needs. (UK)

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Research and Health Surveillance

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The Research and Health Surveillance Sessions had presentations from throughout the world, and represented diverse populations and communities of the globe. Topics and presentations were selected from among a number of submissions by members of the WADDEM Research Committee, with an attempt to provide information that was both diverse and innovative presented. Ten oral abstracts and six posters were presented during the sessions. This report outlines the major points presented and discussed during the sessions.

Research methods that can be used to scientifically evaluate disaster preparedness and effectiveness were a primary focus of the sessions. Included in this focus area was information and discussion on measurable indicators that can be used to assess disaster preparedness and exercises. Disaster exercises now are a common component of disaster preparation across the world, but it was mentioned that objective measures of the potential effectiveness of planning and exercises are difficult to develop and utilize. Indicators that allow quantitative measurement and comparison during current activities and prior to future exercises and disaster responses were favored. An innovative and important outcome of the discussion was the consensus that exercises to test disaster and public health emergency plans should be based on experiences gained in prior events and exercises, with measures of performance to ensure progress in developing response, and to find areas for improvement and correction.

Meta-narrative mapping, a new approach to disaster medical research that has high potential applicability for future disaster and emergency research, was discussed. The approach, which is similar to qualitative ethnographic research, is a method of study that utilizes a broad-based strategy that draws upon electronic databases and journals. Findings of searches are grouped into themes that allow for

analysis and study. This new technique is important for disaster and emergency researchers because evidence-based methods traditionally used to organize and analyze experimental studies often are not appropriate for application to disaster research.

Descriptions of the Netherlands National Academy for Medical Assistance in Accidents and Disasters, the medical needs and living challenges in the Indian Ocean tsunami of 2005, the Iran earthquakes, and the Polish project to study the effectiveness of prehospital triage in mass-casualty incidents with application of a central electronic command center were presented. In addition to being informative, these presentations were the foundation for detailed discussions of methods for scientific evaluation of structured exercises and disaster response systems.

Session presentations included discussion of trauma care and systems. Nigerian presentations were particularly innovative and interesting, showing the relationship of alcohol-impaired driving of motorbikes and high levels of trauma. As with the more developed areas of the world, impaired driving of transportation vehicles has a high association with serious traumatic injury and represents a major public health risk throughout the world. An extremely innovative approach to trauma care, presented by Nigerian representatives to the Congress, was the concept of pre-identification of person's blood type and the use of personal identification cards to allow for early medical provider knowledge of a person's blood type, should that person be involved in an event that requires emergency blood product transfusion.

A presentation that engendered a good deal of discussion focused on the need for preparation of foreign visitors and tourists to the hazards of earthquakes and tsunami when visiting areas that are prone to such disaster events. This presentation revealed that greater than half of those visiting such sudden-impact disaster areas did not know basic emergency actions and information, such as evacuation routes and first aid.

Overall, the research and surveillance presentations for 15WCDEM were well-organized and showed the forefront of research and surveillance in disaster medicine and public health emergency planning and responses. Most important is that the presentations laid a firm foundation for research and surveillance as a primary topic for future WCDEM sessions. The presentations at the 15WCDEM showed a progression of methods and sophistication in disaster and emergency research from previous years. While evidence-based research is highly regarded by disaster and emergency medical researchers, robust methods that focus on qualitative and observation techniques have become a focus for development of future research in the disaster and public health emergency research fields.

Presentations

Session #1

1. Mazurik LA, Popov LM: Researching disaster preparedness: Can it be done? (Canada)
2. Sen A: Role of meta-narrative mapping in synthesis of complex evidence in pre-hospital and disaster medicine. (UK)
3. Juffermans JHM, De Vries M, De Vries D, Bierens JJLM: National Academy for Medical Assistance in Accidents and Disasters. (Netherlands)
4. Nakata K: Comparative analysis of medical needs and living conditions in the sub-acute phase of the Iran earthquake and the Sri Lanka tsunami disaster. (Japan)