

ings emphasized the need to consider early deployment of trained psychological personnel, along with medical and surgical team members. The experience also reinforced the recognition that team members need to take care of themselves and monitor each other for signs of stress and exhaustion.

The third presentation<sup>3</sup> described the efforts of Dutch surgical teams dispatched for short periods of time to treat the injured from the Yogyakarta earthquake in Indonesia, (27 May 2006). The hospital where these teams deployed, Bethesda Hospital, received >3,000 injured people and was overwhelmed. The Dutch teams encountered major difficulties with assessment and triage, in that patient lists were not available, yet managed to surmount problems with equipment and supplies. Local physicians and nurses provided invaluable support as well as translation capacities. With very long days on the part of all health personnel, by the end of 14 days, the majority of the acute injuries had been treated. The presentation concluded with the observation that the direct connection between physicians in Amsterdam and in the Bethesda hospital in Indonesia resulted in an important contribution to the immediate care of casualties resulting from this disaster.

The fourth presentation<sup>4</sup> reported on a computer-based, analytical program for identifying and managing hospital beds throughout Europe. A key problem in many countries in responding to a potential mass-casualty incident (MCI) was the absence of a system to deal with the problem of hospital crowding. This problem was approached by developing a baseline data system to record and update real-time information on what hospital beds were available in all hospitals throughout Germany, Switzerland, and Strasbourg, France. The system, which now is operational, allows for updated tracking of hospital beds, by category of acuity and staffing, on an hourly basis. An on-line computer chat room, supported by automatic translation, allows physicians and nurses from across the system to talk with each other when necessary, in order to convey information that can amplify the data transmissions. The paper concluded by noting that, among the many systems needed to support successful responses to a mass-casualty incident, this hospital bed database, which now is scalable to all of Europe, will facilitate rapid triage and patient evacuation to appropriate inpatient settings.

The discussion with the audience explored details of these various models (the rapid medical assessment tool linked to a proceed-out team to care for nationals of one country trapped in war or disaster overseas; the insertion of international surgical teams in time of disasters due to natural hazards; and the development of a transparent transnational hospital bed database in anticipation of a MCI that would overwhelm one country's medical response assets). Acknowledgment was made of the ethical difficulties of taking care of the nationals of one country rather than the entire affected population. Emphasis was placed on the psychological needs of people trapped in unexpected and alien circumstances. Problems of triage, absence of advanced equipment, and long-term follow-up care were noted in the Indonesian experience. The sophistication of the computer model was appreciated, but it was noted that

the information pertained to hospital beds, not to individual patients or to patient condition. It was agreed that obtaining and managing that level of information involved great complexities in terms of patient confidentiality, accuracy of patient data, and patient safety.

The discussion ended by returning to the opening points: (1) neutrality and competence of medical teams in disaster and war are major priorities; (2) safety of medical personnel must be assessed and assured on a daily basis; (3) disaster and war settings are austere environments, in terms of technology; and (4) improvements in information flow in disaster and war settings are essential, but require close attention as well to issues of patient privacy, confidentiality, and safety.

#### Presentations

1. Riddez JL, von Schreeb J, Holst J: Experiences in establishing a national unit for rapid medical needs assessments of disasters involving Swedes abroad. *Prehospital Disast Med* 2007;22(1):s58.
2. Riddez JL, von Schreeb J, Wahl M, Michel PO: The psychosomatic and medical problems observed during the evacuation of Swedish citizens from Lebanon, July 2006. *Prehospital Disast Med* 2007;22(1):s58.
3. Hoogerwerf N, Goslings JC, Pudji SR: Dutch surgical team sent to the Yogyakarta earthquake disaster. *Prehospital Disast Med* 2007;22(1):s59.
4. Hadeif HH, Bartier JCB, Dupeyron DJP: Using baseline data to address the lack of hospital beds during mass-casualty incidents. *Prehospital Disast Med* 2007;22(1):s59.

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## Preparedness

*Chairs: Mark Leong*

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The session opened with a discussion of the perennial problem of defining a disaster. Although many organizations have come up with differing definitions, it was concluded that disasters can be comprehensively described as an event or events that terminate human lives or cause disabilities within a situation of “inadequacy”. However, when we examine situations using both of these criteria, there are instances in which the community is able to mount a response in the face of mass fatalities or casualties. Perhaps it is more appropriate if these are termed as “Extraordinary Situations” (EOS), due to their rarity.

The presentation on the National Centres for Research and Development in Medical Emergency Preparedness, located in Sweden, highlighted the important role that national entities play in the development of disaster medicine and preparedness. In the current competitive global environment, our governments have many priorities to consider. It is not uncommon that investment in research and development activities for disaster preparedness and mitigation is not a national priority. The Swedish National Board of Health and Welfare's support for research and development of activities in disaster medicine should serve as a good model for other national bodies responsible for disaster preparedness and response.

Community preparedness programs must be tailored to the community and may not work when replicated in other communities. A qualitative study conducted in Istanbul on factors that affect preparedness activities and their acceptance by the community uncovered the importance of reli-

gion and socio-cultural interactions. It was not surprising that poverty (lower socio-economic groups) is a “trap” when disaster strikes.

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## Mass-Gatherings

*Chairs: Professor Paul Arbon; M. Saabe*

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Professor Arbon provided an overview of the current state of knowledge in this field and addressed some of the challenges in researching how health status may be challenged during mass gatherings. Issues discussed included definition of the purposes of health care at such events, the need to learn lessons and to develop evidence-based practices, and issues concerned with developing research methods. Some notable contributions to the literature that raise new questions or perspectives also were canvassed. In summary, there had been a progressive development of knowledge to underpin practice. There was now a need for more robust research applicable across events and for developing “higher” levels of evidence.<sup>1</sup>

An overview of experience in providing services for the Pope’s visit to Krakow and the organization of health services was provided, as was the range and timing of presentations for care. The dominant form of treatment was on-site and only 22% of casualties required transportation. There was a wide profile of patient presentations and some issues were raised about the possible causative factors. The paper provided a useful reconnection and reminder for participants of the demands of organizing care at major events.<sup>2</sup>

Some of the issues raised were re-referenced noting that the medical support for the International Monetary Fund/World Bank Group Boards of Governors Annual Meetings presented specific challenges because of the security and safety issues that had to be considered by the planners. Mobile medical teams worked well and considerable training and orientation was provided. The audience was greatly interested in the expenditure on medical support facilities for the event, which subsequently have been turned over to commercial use.<sup>3</sup>

The University Games in Turkey are one of the largest gatherings of this type in the world and it was argued that this mass gathering presents some unique challenges. Another case study of the experiences of healthcare practitioners in providing effective services at such events was provided. In this case, a key feature appeared to be the coordination of many hospitals and other agencies (including polyclinics) across a wide geographical area.<sup>4</sup>

The Ratha Jagra Festival runs over seven days and attracts pilgrims from all over India. The religious elements of the festival and the challenges in providing services to the events that make up the festival were discussed. In particular, the use of volunteers and the differing roles of nurses and paramedics as a component of the service were highlighted.<sup>5</sup>

The Maurer’s Formula provided a basis for determining or predicting the healthcare service resources required in supporting different mass gatherings. The formula was

described and related to the experiences in providing health care at three air show events. The effects of various factors on the resources needed including alcohol consumption, weather, mobility of the crowd, and language barriers were discussed.<sup>6</sup>

An annual, four-day walking event highlighted the potential extreme impact of warm weather conditions on participants’ health. An emergency situation progressively developed during these events that resulted in producing 300 heat casualties. The negative effect of well-meaning fire service intervention—spraying the walkers to cool them and subsequently raising the relative humidity for that section of the crowd—endangered the others. The main problems experienced included: (1) overload of the emergency services; (2) lack of transportation; (3) rumors of multiple deaths among the crowd; and (4) a section of the track in full sun without respite. There was insufficient planning for this event across agencies and future preparation must address these issues and strengthen the power to cancel the event when conditions dictate.<sup>7</sup>

A number of mass-gathering events within a large city, including the funeral of Pope John Paul II, were described. Some issues in this scenario included the diplomatic and practical issues of working alongside the Vatican state border and with Vatican State officials. Other major events, such as the celebration of the World Football Cup 2006, within the city also were described. The role of collaboration across services and the interchange ability of equipment and skills were discussed.<sup>8</sup>

The planning and establishment of a subway accident exercise designed to test the mass-casualty response of emergency services in Rome also was described. Themes included the importance of communication, collaboration, and effective tracking of casualties. The simulation demonstrated weak points in the established plan and facilitated improvement.<sup>9</sup>

Finally, it was argued that greater focus must be paid to principles and relatively less focus on protocols in the management of mass casualty events in the field. Practitioners must respond to a complex and changing emergency environment and their decision-making should be flexible. Prescribed approaches could be less effective and discussion by the leaders of the response must be supported. Differences in time, location, number of casualties, type of casualties, staff experience and qualification of the responses, available resources and distance to tertiary care affect decisions made at each scene.<sup>10</sup>

The point was made that mass-gathering medical care is provided to crowds who gather for a wide variety of reasons and present different issues of motivation and different profiles to healthcare agencies. These must be factored into the planning process and use knowledge drawn from the research in order to customize event medical services.

This addressing the key issue raised by earlier speakers: planning and resources required for mass gathering events.

### Presentations

1. Arbon P: Understanding mass gatherings: A framework for research and practice improvement. (Australia).
2. Starowicz M: Medical planning for a major event: The Pope’s visit to Krakow on 26–28 May 2006. (Poland).
3. Pokkan G: Medical support for the International Monetary Fund (IMF)/World Bank (WB) Group Boards of Governors Annual Meetings: Issues, Challenges and Lessons Learned. (Singapore).