model for the conduct of clinical simulations has emerged, recognizing the higher cognitive processes involved in problem-solving and decision-making when influenced by contextual distracters and change in patient condition. More detailed studies need to be undertaken to explore this model and how it may influence future education and training initiatives.

Keywords: model; paramedics; prehospital; simulation; training; trauma
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Is Western Pomerania Ready for a Mass-Casualty Incident—An Analysis of the "Karambol 2003" Simulation

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Objective: To present the level of preparedness of rescue services for medical emergencies based on an analysis of the "Karambol 2003" mass-casualty incident (MCI) simulation.
Methods: Karambol 2003, performed on 19 November 2003, was the first MCI simulation in the vicinity of the city of Szczecin, Poland. The analysis of the simulation was based on fire service data. The regional prehospital service did not provide any documentation on the course of the MCI simulation.
Results: None of the participants respected the scene borders. Ambulance teams did not follow the procedures designed for MCIs. Victims were evacuated against the rules of triage. There was no documentation of triage, and there was a lack of secondary triage. There were not enough triage tags; colored ribbons were not clearly visible.

Too little information was available about the number of victims and the severity of injuries on scene. Victims were abandoned on stretchers without any support. Pneumatic medical tents were not used properly for protection against bad weather conditions; victims were seated in the open. Because there was no media liaison or spokesperson, journalists were entering the scene without any supervision. Transport was not coordinated; the dispatcher did not use a helicopter.
Conclusions: The MCI simulation should be repeated as soon as possible in the same location. Further mass-casualty event simulations should be prepared. Only frequent simulations will demonstrate the need for mastering skills necessary in MCI situations or catastrophes.

Keywords: Karambol 2003; mass casualty; Poland; Pomerania; preparedness; simulation
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The Toys Brigg Exercise—A German-Netherlands Model for the Teaching Theory of Mass-Casualties Exercises

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Introduction: Inappropriate communication is a common cause of miscoordination in rescue missions.
Methods: Reliable communication is needed and only can be prepared in small parts that later can be put together into a more understandable whole (such as a building or a sentence). This communication model is similar to learning a new language; only consecutive speaking and training will allow communication in complex circumstances using this new language.
Results: For example, the evacuation plan of the ARKE-Stadion in Twente NL, (60,000 spectators) during the expected World Youth Soccer Championship 2005 was examined. Multidisciplinary and operational cooperation of different services, such as ambulance services from Germany and the Netherlands, as well as police and fire services, are essential.
Conclusion: With the help of results from a standardized Toys Brigg Exercise, the principles of communication within operational groups and organizations can be prepared inexpensively and can be transferred efficiently to a mass-casualty situation caused by a mass gathering.

Keywords: communication; Germany; model; Netherlands; Toys Brigg exercise
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Free Papers Theme 23: Disaster Planning-2

Free Papers Theme 24: Sharing Our Experience

New Orleans and Hurricanes: A City in Peril

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Recent floods due to hurricanes have demonstrated the complexity of the public health impacts of flooding, including trauma, and fires, as well as chemical, sewage, and corpse contamination of air and water. Disease risk in Louisiana during hurricane floods is very high because 40% of the state is coastal, and 70% of the population resides in coastal areas. Ninety percent of this zone is near or below sea level. Densely populated areas, such as New Orleans, rank among the highest in the United States in potential societal, mortality, and economic impacts of floods.

Louisiana's outer buffer to storm surges are its coastal wetlands. Since 1930, 500,000 Hectares (Ha) have been lost, 180,000 Ha seawards of New Orleans. Present annual loss exceeds 12,000 Ha. Most of New Orleans, originally built on the wetlands, is now below sea level. As a consequence, the potential impacts of hurricanes continue to worsen. A multi-disciplinary team, combining the resources of natural scientists, social scientists, engineers, and the mental health and medical communities, is using New Orleans as a test case to develop techniques and models for dealing with public health issues associated with complex disasters, such as hurricane flooding.

Approximately 600,000 people reside within the New Orleans bowl. The West Bank, located south of New Orleans and across the Mississippi River, has a population of about 500,000 people who also live within levee-protected bowls. Recent research reveals that a slow-moving Category 3 or stronger hurricane could cause levee overtopping and complete flooding of New Orleans, with the West Bank even more susceptible. Floodwaters would remain for weeks. The resultant mix of sewage, corpses, and chemicals would set the stage for massive disease outbreaks and prolonged chemical exposures. It is estimated that 300,000 persons would be trapped, 700,000 would be homeless, and thousands would perish. Of the communicable diseases, water-borne diseases will likely be the most common, followed by food-borne, vector-borne, and air-borne-respiratory. Non-communicable conditions will include psychological, musculoskeletal, chronic diseases, physical, and toxic exposures. Vaccines that should be stockpiled in preparation for a flooded New Orleans include: influenza, pneumococcal pneumonia, measles, rubella, pertussis, tetanus, typhoid, and rabies.

Hurricane Ivan in 2004, a near miss for New Orleans, had the potential to flood the city. There is a need to implement a long-term coastal restoration plan to ensure the survival of New Orleans.

Keywords: coastal restoration plan; disease; flooding; hurricanes; New Orleans; preparedness
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Earthquakes and Turkey

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Most earthquakes occur along three main belts in the world: (1) the Pacific Belt; (2) the Mediterranean-Himalayan Belt; and (3) the Icelandic Belt. Turkey is located along the eastern part of the Mediterranean-Himalayan Belt. Turkey has five different risk zones with 96% of the surface area at risk for earthquake, and 98% of the population living within the risk zones.

On 17 August 1999, an earthquake measuring 7.4 on the Richter scale devastated the Marmara region, which is located within the North Anatolian Belt. Later that same year, on 12 November 1999, another earthquake, measuring 7.2 on the Richter scale, devastated Bolu and Düzce. These two earthquakes together affected seven cities, killed 18,223 people, and injured 48,901. The human and material losses, and the rescue and relief activities carried out in the aftermath of these events, are summarized in this presentation. What is most important is that the people of Turkey have learned to live with earthquakes. Turkey now recognizes the importance that the necessary precautions are taken, and that social awareness concerning these earthquakes is extensive. While the nation has suffered immensely as a nation, the people also have learned from their experiences, and have upgraded the national emergency response system in order to be prepared for major destructive events in the future.

Keywords: disasters; earthquakes; preparedness; Turkey
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Assessment of Medical Responses to Disasters at Kobe University Hospital

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Objective: In Japan, the concept of a disaster medical plan and its management has been in use since the Great Hanshin-Awaji Earthquake on 17 January 1995. Based on the lessons learned in coping with the earthquake, proactive efforts to improve the emergency management system have been made, such as introducing an information system for emergency medicine, designating more key disaster hospitals, and implementing disaster medicine education and trainings. However, even after the earthquake, delays in early response were identified in mass-casualty incidents like the Tokyo Sarin gas attack, the O-157 mass food poisoning, the Wakayama curry poisoning, the flood in Nagoya, and the mass-gathering disaster at the Akashi fireworks festival. These delays occurred because, under the current system, in the initial stage of a disaster, the assessment of medical response is made first in the local area, and then, when the amounts and types of damage are beyond the capacity of local emergency management, support from neighbor cities must be requested. Therefore, in order to shorten response times, it is necessary to assess the capacity for emergency medical responses in local areas during normal times, and to share the results in order to determine the capacity for deal with disasters and major accidents in the local area. In this presentation, an formula to estimate the emergency medical response (the capacity of receiving patients) in Kobe university hospital was analyzed as an example.

Methods: The records of a total of 5,213 emergency patients who were transported to Kobe University Hospital during January–December 2003 were examined. The required number of staff, equipment, and hours classified were determined for each disease. Based on the results, an approximation formulas was derived, which can indicate the capacity for receiving patients per H hour in the case of mass-casualties with serious injuries including heat injury, crush syndrome, and the need for blood purification.

Results: The approximation formula of capacity per H hour is suggested as follows: (1) for heat injury patients = highest common factor (Doctor/2, Respirator/1, Bed/1) x H/2; (2) for patients requiring blood purification = highest common factor (Doctor/2, Blood Purification Circuit/1, Bed/1) x H/2; and for patients with external injuries = highest common factor (Doctor/2, Anesthetist/1, Respirator/1, Bed/1, Operation Room/1) x H/4.

Conclusions: An approximation formula that can be used for assessing the capacity of Kobe University Hospital for receiving patients was derived and tested. Using this approximation, the total emergency response and capacity for receiving patients in Kobe and Hyogo Prefecture can be determined. Also, this formula can be used to suggest the capacity for emergency responses of the whole nation.