Every injured patient during the act of terrorism was sent to outpatient departments and sanatoriums for medical-psychological rehabilitation.

Analysis of the results show a high degree of efficiency of the medical support of the injured, and constitutes a recommendation for the development of international systems for acts of terrorism in other countries.

Keywords: emergency department (ED); injured; response; terrorism; transport; triage
Prehosp Disast Med 2005;20(3):s134–s135

Poster Presentations

Kicking and Screaming: How to Bring Your Hospital Command Center into the 21st Century

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If you enter a hospital command center during a disaster, you are likely to see disaster manuals scattered about, white boards and "Post-it" Notes being used to record data, and telephones and fax machines as the mainstays of communication. Comprehensive, crisis-management software has been available to emergency managers in regional command centers for several years now, but its functionality in hospitals has not been well defined.

A university hospital in Washington, DC, has been working with a software company to modify its regional disaster management software for use in hospitals. Information technology can be utilized to improve access to the hospital's emergency management plan, hospital emergency incident command system (HEICS) job-action sheets, and many aspects of response, such as mass communications, resource and asset management, accountability, and after-action reports. Furthermore, by employing XML interfaces, hospital-based emergency management programs can be collaboratively integrated with existing regional response programs.

Keywords: collaboration; communication; hospital emergency incident command system (HEICS); hospitals; plan; information technology; management; software
Prehosp Disast Med 2005;20(3):s135

A Decision Support System for Clinical Practice Guideline Implementation in Disasters

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Implementation of clinical practice guidelines in disasters not only has the benefit of improving the quality of care, but also has the special merit of reducing the need for trained personnel, unique to the disaster situation. This article presents a new application specially designed for the purpose of providing doctors, emergency technicians, and laypersons with decision support in mass-casualty settings, both in the field and hospital. The system enables emergency care providers to perform at a level that normally needs special training. For example, triage, which is a trained technician's duty, can be done by any literate civilian through this system. In addition, medical supplies will be used more reasonably by administering them in accordance with a predefined evidence-based guideline adapted to shortage situations.

The new method for computerizing the practice guidelines has a very simple and flexible structure and interface to be distinguished from other well-known models. Different settings are designed for physicians and other users according to their level of training and responsibility in a disaster. The application guides the user through a set of steps, and is provided in each step with recommendations on what must be done for the casualty at that point. These recommendations appear as brief but explicit texts and occasional pictures to clarify the inherent ambiguity of guidelines. The user the is asked a question about the patient's condition. The answer will lead the user to a new page with an appropriate management plan suggested and new questions put forward successively. Eligibility checking will be partly on the side of the user, who can enter the guideline at any point and move back or forward if needed.

The system tracks each user's path through a guideline to create a record of encounters for future evaluation and reference. This system is applicable on a wide variety of platforms, being compatible with almost any Internet browser, such as Microsoft Internet Explorer or Netscape Navigator. The interface is an HTML-based Web page, which can be accessed via the Internet, stand-alone personal computers, handheld computers, or even new-generation cell phones. A trial Web-based version of the system being developed can be viewed at www.disasterdss.org.

This new approach to guideline implementation is in the very beginning stages, and a complete, fully developed system will involve systematic efforts by many specialists and relief agencies. The system merits the test of time, and field trials, in a full-scale disaster, will reveal its drawbacks and applicability obstacles to be addressed in future revisions.

Keywords: application; computer; evidence-based; Iran; Internet; telemedicine; triage
Prehosp Disast Med 2005;20(3):s135

Accuracy of the Primary Triage Process after the Volendam Fire Disaster

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Introduction: In a major event, correct triage is crucial to emergency treatment and transport priority.

Objectives: The aim of the study was to evaluate the accuracy of the primary triage process following the major fire incident on New Year's Eve in Volendam, Netherlands and its impact on immediate medical treatment and transport priority.

Methods: On-site and emergency department (ED) data regarding total body surface area (TBSA) burned and the incidence of inhalation injury were compared with the

assessment of these two parameters after hospital admission. Finally, the incidence of on-site intubation and following arrival at the hospital, and the respective times of arrival of the severely and not severely injured at a hospital were compared.

Results: A total of 245 persons were injured. The average age of those injured was 17.3 years. The median of the TBSA of all of the injured was 12% and 87 patients (36%) had sustained an inhalation injury. Agreement between on-site (n = 46) and final TBSA assessment was poor (PCC = 0.77; R^2 = 0.60). The estimates of total body surface area burned at the ED (n = 78) were more accurate than were those obtained prior to transport to the ED (PCC = 0.96; R^2 = 0.93). The diagnosis of inhalation injury, both on-site (n = 79, sensitivity = 100%, specificity = 24%) and in the ED (n = 198, sensitivity = 99%, specificity = 36%), was sensitive, but not specific. Eight patients were endotracheally intubated on-site. Their injury and trauma parameters did not differ from those of the 73 patients who were intubated in the hospital. Also, there was no substantially significant difference in the time of arrival at a hospital between the severely and non-severely injured (p = 0.55).

Conclusions: In this major burn accident, the TBSA burned was not estimated reliably in the non-clinical environment. The diagnosis of inhalation injury was adequate, but resulted in over-triage on-site and at the ED. On-site triage did not lead to priority transport for the severely wounded. Detailed assessment of injuries of burn casualties only is practical in a specialized clinical setting. The early transfer of victims to a hospital, therefore, has the greatest priority in major incidents involving burn casualties.

Keywords: burns; fire; Netherlands; resuscitation; triage
Prehosp Disast Med 2005;20(3):s135–s136

Hospital Disaster Planning—A Need-Based Phased Response

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Healthcare facilities are a very expensive commodity to activate to a state of "standby" in a possible, yet unconfirmed, external disaster situation. Irrespective of any arrival of patients, the preparations are disruptive to hospital routine, which cost money, and disposables opened in preparation are often wasted. Therefore, it is essential to activate only the required resources and hospitals, in a reliable approach. In a country where the health service consists of a combination of public, military, and private hospitals, an even more accurate coordination is required for effective disaster relief. Effective coordination structures are needed to address this unique multi-service approach to effective hospital disaster response.

A simple planning model for hospital disaster planning, consisting of appreciation, planning, implementation, and evaluation processes, will provide the basic requirements for a phased response. Based on emergency service capabilities and the nature of the disaster, the primary responding hospitals within a geographical area are identified. Based on a previously agreed-upon flowchart, secondary and tertiary responding hospitals are activated to ensure the most economical use of resources and to address the influx of patients.

Hospital disaster planning is never an absolute science, but by using specific indicators as well as accepting unpredictable variables, optimum utilization of resources will be possible to address an external disaster.

Keywords: disaster; hospital; indicators; planning; resources, use of
Prehosp Disast Med 2005;20(3):s136

Utilization of Strong Authentication in Disaster Situations

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Introduction: One of the major problems in disaster situations is that it is difficult to determine the number, identity, condition, and location of casualties, injured, and rescued persons. This results in unnecessary mental distress and a waste of professional work. In order to avoid and diminish this drawback, an effective application to document all people in the disaster area must be created. Because documentation technology is already used effectively in other areas, there is no reason not to adapt analogous technology into disaster management.

Methods: Strong authentication methods, i.e., smart cards, token devices, or bio signals, combined with radio frequency identification (RFID) are practical methods to identify people and follow their whereabouts. Once booked into a centralized database, information can be utilized for many actual purposes.

Discussion: Individually created smart cards or tokens would include personal data, i.e., date of birth, medication, possible traumas, professional skills, photograph, and fingerprints. All information in the mobile network should be in real-time and readable in command centers, field hospitals, and in areas where food, water, medication, clothing, and accommodation supplies are distributed. Also, mobile detectors could be used.

In humanitarian aid, all people should be treated equally. Without mechanisms to identify people and document their actions, there is always a possibility of displacement and fraud. Real-time situation and location reports allow medical staff to develop the logistics more effectively than in the present situation.

Conclusion: No solutions of this type have been tested or evaluated in real emergencies. All essential equipment, smart identification cards, readers/writers, detectors, and mobile wireless networks are commercially available, but first need to be tested in disaster drills and then in minor scale incidences. Because technology is extremely difficult to implement in sudden and strange conditions, it is recommended that international rescue groups are prepared to construct a type of "ad hoc" identification network.

Keywords: disasters; documentation; identification; management; network; triage
Prehosp Disast Med 2005;20(3):s136