

Session 2: Prehospital Triage and Networking

Chairs: Jerry Overton; J. Luitse

Prehospital-Hospital System Network: A Model for Improving Health System Efficiency in Disaster Management

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Introduction: Hospitals and prehospital organizations are a part of a disaster management system. An effective response to any disaster requires appropriate incident data. Hospital and prehospital communication plays an important role in directing and controlling the incident and in the proper distribution of victims to the receiving hospitals. Since there is no definite communication and direction center between hospitals and prehospital systems in Iran, this study was intended to develop a model for these centers. **Methods:** A team consisting of telecommunications, computer science, information technology, emergency management, and health experts was organized. Indicators were defined for information and communication networks. Then the organization of the network was implemented and the tasks of the participants were defined.

Results: Organizations selected for work in this network consisted of hospitals, emergency medical services (115), police (110), fire services (125), the Red Crescent, military health centers, and a regional disaster task force. The most important indicators used were the: (1) exact location of the incident; (2) number of victims; (3) condition of the victims based on triage data; (4) estimated arrival time; (5) number of transferred victims; (6) equipment required; (7) number of active ambulances; and (8) traffic conditions. Based on these indicators, appropriate software and a database were developed. **Discussion:** The health support function is defined as a part of the Iran Disaster Management System. However, the lack of a unique health information and communication network was a main cause of discord and for the inappropriate use of resources during a disaster or emergency situation. Developing and establishing this network can improve the disaster response of the health system in Iran. **Keywords:** communication; disasters; hospital; management; prehospital

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The Dutch Victim Traffic and Tracing System

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Obtaining real-time information on the location of victims of major incidents being treated on-scene or in transit to a hospital always has been a major challenge. A national online Victim Tracking and Tracing System is being introduced in the Netherlands as a possible solution to this problem. The online victim tracking and tracing system was evaluated during an exercise involving 40 traffic victims. An independent research institute, the Netherlands Organisation for Applied Scientific Research, scanned the communication during the exercise and afterwards received the databases of the information systems involved, and used the

communications log files could be used to determine whether data was communicated in time.

Analyses indicated that the network in ambulances with mobile routers worked well, and no systematic errors were observed by the evaluating body. Three additions to the network layer were proposed to make the Victim Traffic and Tracing System more robust: (1) better reciprocal data communication between ambulances; (2) an additional satellite gateway; and (3) agreements with mobile operators (Quality of Service agreements) in the event of a disaster (priority guarantee).

Keywords: ambulance; online tracking; rescue; satellite communication; victim tracking

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Prehospital Physiological Scoring: An Aid to Emergency Medical Services?

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Introduction: Admissions to at United Kingdom emergency departments (EDs) have increased by almost two million (>16%) in the last 10 years. Paramedics have demonstrated enthusiasm for “treat and street”/“treat and refer” policies allowing alternative dispositions to transfer to the emergency department, provided that a robust safety system supporting their decision-making process exists. Use of physiology-based triage systems have been demonstrated to have value in the emergency department, but the authors are not aware of any physiologic scoring system available to emergency medical services (EMS) to support decisions to not transport patients to the ED.

Methods: Patients complaining of shortness of breath and transported by EMS to the urban ED between 12 July 2006 and 11 September 2006 were identified, and a version of the Medical Early Warning Score (MEWS) incorporating spot oxygen saturation (SpO₂) levels, self-care status, and social circumstances was used to calculate their physiologic score. Emergency department admission were considered “appropriate” when a patient was subsequently admitted to hospital or underwent physiologically stabilizing treatment.

Results: Of the 3,157 patients transported by EMS, 242 complained of shortness of breath. Twenty-seven EMS report forms were missing. Of the remaining 215 patients with report forms, 133 (62%) were admitted, and 139 (65%) were judged as “appropriate” ED admission. No patient with a MEWS <2 was admitted to the hospital or received stabilizing treatment. The area under the Receiver Operating Curve (ROC) curve for “appropriate” ED admission was 0.710 (95% confidence interval (CI) 0.639–0.78).

Conclusions: This preliminary study demonstrates the value of physiologic scoring system to support EMS decision-making and identify physiologically stable patients who could be directed to alternative sources of care. As a safety net, there is over-triage the eliminate the possibility of under-triage. Using the MEWS criteria, approximately one third of the patients in this study could safely have been diverted to other healthcare providers.

Keywords: emergency department; emergency medical services; Medical Early Warning Score; prehospital physiological scoring; patient transport

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