to multidisciplinary, and from theoretical knowledge to complex decision-making in teams.

The available training programs, learning environments, and research programs with respect to CBRN training have been inventoried in order to support formulating the requirements a CBRN training system should meet. It appears that technologically more sophisticated learning environments, such as virtual reality, hardly are available, although these immersive and interactive worlds can be powerful.

The presentation describes the functional requirements a CBRN training system should meet and its various functional components.

Keywords: chemical, biological, radiological, nuclear; education; European Union; first responder; training

Oral Presentations—Theme 3: Emergency Medical Services (EMS) Systems

Session 1: System Design
Chairs: Jerry Overton; Andrew Marsden; J. Luitse

Planning for Prehospital Emergency System Improvements in Iran
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Introduction: In Iran, emergency medical services (EMS) are responsible for responding to medical emergencies. This system employs well-trained and well-experienced personnel, and has been effective. However, due to the rapid population growth and the development of urban regions in recent decades, this system has become increasingly incompetent in its responses.

Methods: Operational research was applied to effect system improvement. This study was performed in 2000–2003. A committee consisting of senior managers and experts was formed. The current situation of the system was evaluated. Essential measures to improve the situation were determined, and it was decided to execute the resulting plan in a timely fashion.

Results: Based on a system evaluation, the most important suggestions included:

1. Increasing the number of ambulances and decreasing the average age of ambulances;
2. Equipping and standardizing the ambulances;
3. Designing ambulances with special functions such as mobile intensive care units;
4. Developing a motorcycle and air ambulance system in some of the larger cities;
5. Increasing the number of emergency stations;
6. Defining a close relationship between the fire and police departments;
7. Employing experts with higher levels of education;
8. Connecting staff at the scene of the incident to the consultant physician in the dispatch center; and

9. Publishing training materials and conducting regular training course for emergency medical technicians.

Discussion: Two decades after an EMS system was established in Iran, the system must be restructured. This applied study, based on scientific programming, has led to an increase the in number of duties, an optimized duty time, and the improvement in the quality of care provided.

Keywords: emergency medical services; improvement; Iran; planning; prehospital

Four Years in Uzbekistan: An Emergency Medical Service Success Story
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The Medical Teams International (MTI)-Uzbekistan Emergency Medical Services (EMS) training program began in 2002. More than 7,000 students have been trained throughout Uzbekistan using a "train-the-trainer" paradigm. In cooperation with Medical Teams International (MTI), local health and education ministry officials provide oversight and support to seven regional training centers throughout Uzbekistan.

In the spring of 2006, a MTI evaluation team visited Uzbekistan to review the status of this ongoing program and examine its progress. The goals of this project were to upgrade EMS training and to increase the effectiveness of EMS in serving Uzbekistanis. The outcome of this project was to reduce premature mortality, morbidity, and disability from emergencies by increasing the knowledge base of first responders and medical providers. The project provides training for medical providers and emergency responders in prehospital emergency care for victims of disasters and traffic crashes.

The evaluation process consisted of two parts. Part One involved a site visit and survey of training equipment at the training centers. Part Two contained a series of focus groups held throughout Uzbekistan. The separate focus groups were comprised of students, Ministry of Health and Defense officials, and staff, respectively. Medical Teams International has built upon the successes of the Uzbekistan program to launch >10 other EMS training programs around the world.

The findings of this evaluation demonstrate the effectiveness of the EMS focused train-the-trainer modality in a developing country.

Keywords: emergency medical services (EMS); Medical Teams International (MTI); prehospital emergency care; training; Uzbekistan

Impact Assessment of Emergency Response Service in Eight Cities in Andhra Pradesh, India
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Introduction: The Emergency Response Service (ERS) was launched in the state of Andhra Pradesh, India on 15 August 2005. The objective of the launch was to respond to emergency calls of the Medical, Police, and Fire Departments.

Currently, the ERS provides service to a population of 2.5 million people.

Objectives:

1. To profile the patients who have used ERS;
2. To measure the impact of the ERS in terms of ambulance transportation time, prehospital care, and quality of service; and
3. To identify the types of emergencies and the management of the response.

Methods: The study was conducted in eight cities of Andhra Pradesh. Two groups were evaluated: (1) An experimental group was defined as those patients who have used the ERS; and (2) a control group was defined as those patients who have not used the ERS. Approximately 1,000 patients comprised the experimental group, and 500 were in the control group. The sample size for each of the eight cities was based on probability proportionate to size (PPS). The patients in the experimental group were selected randomly, and the patients in the control group were selected randomly from local hospitals. A structured data collection was used to elicit the information. The reference period was four months from the date of the survey. All data were analyzed using SPSS.

Results: The initial results indicate that: (1) mean ambulance transportation time from the site of the incident to the hospital was 13 minutes; (2) 87% of the patients in the experimental group received prehospital care; (3) 90.6% of the patients in the experimental group rated the quality of care as good; and (4) the survival status of the patients was 93.7%. Qualitative data of ambulance services also were collected and will be reported in the results.

Conclusions: These initial results indicate an overall positive impact of the ERS in Andhra Pradesh, India.

Ambulance Transport and Services in the Rural Areas of Sweden, Scotland, and Iceland

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Ambulance personnel frequently deliver initial care to patients with critical illnesses or severe injuries. Therefore, it seems intuitive that it would be beneficial to have highly trained ambulance personnel in order to provide optimal care. However, skill maintenance of personnel often is difficult in rural ambulance stations. Geography and weather provide challenges to the ambulance service providers in northern European rural areas.

FSA University Hospital in Iceland, the Centre for Emergency and Disaster Medicine (AKMC) in Sweden, and the National Health Service (NHS)-Western Isles in Scotland received a grant from the INTERREG III Northern Periphery Programme to work on the "Ambulance Transport and Services in the Rural Areas" project. The objective of this project was to provide an overview of the present status of ambulance transport and services in the three participating regions.

Members of the working groups reviewed the current status of prehospital services in their country. The authors reviewed pertinent literature on this subject as well as the reports from each partner.

The main finding of the project is that the emergency medical services (EMS) systems in the three northern rural areas have many similarities. However, there are significant differences in several areas, e.g., the number and distribution of ambulances, service operation, education of ambulance personnel, and first responder schemes. The authors believe that this collaborative project will foster improvements in the provision of ambulance transport and services by partners of each region. It is important to increase the number and quality studies of in this field, with emphasis on patient outcome and utilization or resources.

Traffic Crashes in Crete (1996–2006): The Role of EKAB-Crete

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The decline in traffic accidents that has been noted throughout Europe is not present in Crete, a favorite holiday destination. The extent of the problem and interventions made by the Emergency Coordination Center of Crete (EKAB-Crete) are presented.

Demographic, topological, and qualitative data from 1996-2005 have been analyzed. The primary data source was 315,000 emergency calls recorded in the EKAB-Crete database. Data analysis revealed that 60% of traffic accidents involved people of 20–50 years of age, who were primarily male (72% of dead, 80% of injured), and Greek (79% of dead, 85% of injured). The EKAB-Crete intervened with: (1) a unified emergency coordination center (ECC); (2) new sectors in areas with high accident rates; (3) advanced equipment in BLS and ALS-MICU ambulances; and (4) continuing education. The ECC employs Global Information System and Global Positioning System technology and telemetry for biosignals in ambulances, as well as online recording of emergency calls, and up-to-date triage protocols.

Despite the prevalence of accidents in Crete, the EKAB-Crete has succeeded in reducing: (1) the mean dispatch time; (2) the mean time to the accident scene from 10–12 minutes to 5 minutes in metropolitan areas; and (3) the mean time spent in the emergency ward by increasing the therapeutic interventions on-site. Other methods of reducing the number of accidents and deaths include: (1) continuing education on traffic safety starting in primary school; (2) information to visitors who are accostumed to driving on the left side of the road; (3) the creation of a Prehospital Trauma Life Support center; (4) better road supervision; (5) the use of separating bars on national roads; and (6) an improved road infrastructure.