

cine technologies). Special attention is given to acquiring practical habits and mastering the main issues of emergency medical response.

**Conclusion:** ARCDM “Zaschita” also has international experience. The Centre was involved in a joint program with the town of Tübingen, Germany devoted to chemical terrorism response. The developed system of training facilitates a high qualification of disaster medicine physicians and thus promotes better preparedness of medical personnel for emergency response operations.

**Keywords:** disaster medicine; education; training

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### Performance Indicators in Disaster Management Training

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**Introduction:** The field of disaster medicine is moving from being descriptive to more analytical. The lack of possibilities to perform randomized trials has made it necessary to develop other means of evaluation and quality control. One of these tools is the use of measurable goals in the form of performance indicators. Different sets of performance indicators can be developed to test different parts of the medical response to major incidents.

**Results:** Different sets of performance indicators were used in a simulation training of medical staff involved in command and control in major incidents. Results could identify areas where more training was needed.

**Conclusions:** Performance indicators that can be numerically expressed can serve as an instrument of quality control in training in disaster medicine. Performance indicators could contribute to the scientific evaluation of major incidents.

**Keywords:** disaster medicine; disasters; performance indicators; quality control; response; simulation; training

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### Prior Topic Knowledge and Post-Course Improvement in Emergency Medicine Course Development (Azerbaijan)

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**Introduction:** During the last several years, there has been an increased interest worldwide in the development of emergencies. In spite of many training programs, to date, there has been no targeted study to determine what content material should be provided when developing emergency medicine abroad.

**Objective:** To describe an emergency medicine training course and determine what material must be targeted in the future development of an emergency medicine course.

**Methods:** A four-day, emergency medicine course covering 12 trauma topics and 11 trauma skills/exercises was developed, and taught to senior emergency medicine healthcare workers in Ganja, Azerbaijan. A post-evaluation regarding the course in regards to pre-/post-knowledge base was

administered to the participants.

**Results:** From the evaluation survey, the percentage of the overall course content that consisted of new material for all of the participants was 41% of the knowledge content and 35% for the skills content. For the knowledge component, the areas of greatest improvement were in: (1) triage/mass-casualty incident (1.05/5); (2) advanced life support (0.89/5); and (3) basic life support (0.73/5). In regards to skills, the areas of greatest improvement were: performance of: (1) diagnostic peritoneal lavage (1.4/5); (2) primary/secondary surveys (1.1/5); and (3) basic/ advanced life support (1/5).

**Conclusion:** A majority of the course content was new to the participants, even for the experienced emergency medicine personnel. There was significant improvement in the knowledge and skills of the participants in all topics, with most significant improvements in those dealing with primary/secondary surveys and basic/advanced life support. In future courses, these topics should be included and the amount of their content should be increased.

**Keywords:** education; experience; emergency medicine; personnel; training

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### Free Papers Theme 1: Emergency Medical Services System Design—Prehospital Care

#### What is an Emergency? Patient Perceptions and the “Inappropriate” Patient

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In recent years, the concept of the “inappropriate” emergency department patient or ambulance user has arisen. This has been defined loosely as the medical classification of a patient as a non-emergency case who has accessed emergency health services such as a hospital emergency department or ambulance service. Investigations into “inappropriate” use of emergency health services are limited by the lack of an accepted definition of what constitutes a health emergency (Murphy, 1998a), which is unclear for both patients and medical professionals, and varies according to context. A qualitative methodology utilizing focus groups, interviews, and questionnaires was used to explore patient and medical professionals’ opinions about when a health event should be classified as an emergency, and what constitutes appropriate ambulance use in metropolitan Melbourne, Australia. The outcomes of this study identified the changing role of ambulance services to include dealing with social issues, patients’ low levels of knowledge about ambulances, and patient dependence on pain and feelings of losing control as determining when a health event classifies as an emergency. Patients reported that they determined whether an event was an emergency depending on the advice of other laypersons, calling their local doctor for advice, and being directed by the medical center staff or doctors to seek emergency help “just in case”. The level of urgency also was determined by comparing symptoms to

experiences of their own and of others. These outcomes suggest that the ways that patients decide whether an event is a health emergency differs from traditional medical decision-making, and provide some answers as to why patients access emergency health services “inappropriately”.

**Keywords:** classifications; definitions; emergency; emergency health services; patients

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### Ambulance Dispatching and Use of Prehospital Emergency Care: A Prospective Study of the Ambulance Service in Sweden

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**Objective:** To assess the medical needs of patients transported by ambulance in urban and rural areas within the same county and with the same theoretical criteria for triage.

**Methods:** A prospective consecutive study was carried out during a six-week period. The ambulance staff completed a questionnaire on which they assessed each patient's need for prehospital care, based on on-scene assessment and the need for prehospital interventions. In addition to the questionnaire, data were extracted from the ambulance medical records database for each case.

**Results:** A total of 1,977 ambulance missions were enrolled in the study. The results indicate that there is a substantial safety margin in the priority assessments made by the call center, and that the ambulance staffs support the call center's safety margin for initial priorities despite lack of on-scene confirmation. There are difficulties for the emergency medical services (EMS) organization in meeting patients' essential needs. For example, on-scene assessments indicate that one-third of the patients for whom the dispatch center orders an ambulance do not need the ambulance service, and the advanced life support unit is not systematically involved in the most serious cases.

**Conclusions:** Demands for ambulance response are not the same as needs for prehospital care. There are inappropriate uses of the EMS, and in a minority of cases, the dispatch center could possibly direct the patients to alternative transports. Evaluation on scene must be considered in the prehospital needs assessment.

**Keywords:** ambulance; emergency medical services (EMS); on-scene assessment; prehospital; Sweden

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### Reducing Ambulance Response time by a Geographical Information System (GIS) Simulation Model

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**Introduction:** Response time is a very important factor in determining the quality of prehospital emergency medical services (EMS).

**Objective:** To model the response of Israeli ambulances and to offer model-derived strategies for improved deployment of ambulances in order to reduce response time.

**Methods:** Using a geographical information system (GIS), a retrospective review of computerized ambulance call and dispatch logs was performed in two different regional districts: (1) large and urban; and (2) rural. All calls that were pinpointed geographically by the GIS were included, and their data were stratified by weekday and daily shifts. Geographic areas (polygons) of, at most, eight-minute response time were simulated for each of these subgroups to maximize the timely response of calls.

**Results:** Mean response times in the Carmel and Lachish districts were 12.3 and 9.2 minutes, respectively, with 34% and 62% of calls responded within eight minutes. When ambulances were positioned within the modeled polygons, >94% of the calls met the eight-minute criterion. However, with one ambulance per polygon, the probability that ambulances could fall short of demand in the Carmel district exceeded 5% in 20 of 35 shifts. This was rectified by the addition of two ambulances to the district.

**Conclusion:** The GIS simulation model presented in this study suggests that EMS could be more effective with a dynamic load responsive ambulance.

**Keywords:** ambulance; emergency medical services (EMS); geographical information system (GIS); Israel; response times

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### How and What Do You Declare a Major Incident?

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The decision to call an event a major incident is not frequently taken, but a delay in doing so can have dire consequences. The aim of this study was to ascertain what factors would make specialists from a variety of professional backgrounds determine when a major incident should be declared. They were presented with three different pictorial scenarios and their responses were noted. These scenarios were a: (1) motorway accident involving multiple cars and lorries (S1); (2) coach overturned in a ditch (S2); and (3) train crash (S3).

**Results:** One hundred, seventy-eight professionals participated in the study. All of the participants were attending conferences based on major incident management training, and therefore, it was a self-selected audience. The participants included a variety of professionals who could be involved in major incident management, including contingency planning/emergency planning officers, ambulance personnel, fire personnel, accidents and emergency department staff, general practitioners, combat medical technicians, military surgeons, and coast guards. The majority had received training in major incident management (n = 153), with 85 having attended a Major Incident Medical Management and Support (MIMMS) course; and some had received: in-service-based training within the National Health Services (NHS) (n = 31); in-service, coastguard training (n = 2); and/or in-service, ambulance training (n = 13). Twenty people had attended two different major incident-related courses (one person had