

end of March, 2001, and will present the results during the 12th WADEM.

**Key words:** camp; health information; health services; information; refugees; team

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### Quebec's Integrated Trauma System

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This poster summarizes the interactions between the 14 components of the chain of services in this trauma system model. Each link has received from the Quebec Automobile Insurance Board, a conceptual or an operational input in order to reach the preset goals for each specific service. In this presentation, the authors will inform the readers on the outcomes resulting from the implementation of this integrated approach, and especially on the support systems that permit the evaluation and improvement of the end product—quality.

**Key words:** chain; evaluation; goals; integration; quality; services

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### Measurement of Carbon Monoxide in Expired Breath: An Experimental Study

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**Introduction:** Carbon monoxide (CO) detectors currently are used as an alert method by emergency rescue teams. Some of these detectors also can measure expired breath CO concentrations. This method of measurement has been studied only for low concentration of CO in smokers.

**Objective:** To validate the measurements performed with CO detectors by comparing the results with the gold standard method (infrared spectrophotometry).

**Methods:** This was an experimental study using the FIM CO-detector. CO gas was obtained from Cosma. Infrared spectrophotometric measures were performed with IR Beryl 100 Cosma. A bag was filled with a gas mixture of air and CO concentration from 100 to 500 ppm. Manual pressure was performed to reproduce expired breath. The CO concentration was measured with the CO-detector, and two samples of gas were obtained: (1) at the beginning; and (2) the end of the simulated expired breath. These samples had to be diluted (with air) to allow spectrophotometric measures. The dilution method as tested with a reference CO gas (80 ppm). A total of 21 measurements were performed.

**Results:** Dilution method was validated with a SD of 2.7%.

**Conclusion:** Despite a difference with the reference in measurements for high CO concentrations, the linearity of

these results is satisfactory for clinical practice. A CO detector is a efficient and reliable method to measure CO in expired breath

**Key words:** air; exhaled; assessment; carbon monoxide; detectors

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### Practical Experience Inquiry on Emergency Endotracheal Intubation in Emergency Departments in France

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**Introduction:** In France, Emergency Medicine is not a recognized speciality. Endotracheal intubation usually is learned during a specific training ("Capacité de Médecine d'Urgence") with an apprenticeship on a mannequin or on human beings during anaesthesia. However, this training also is necessary for the emergency care of critically ill or injured patients. The objective of this study was to evaluate endotracheal intubation knowledge and practice of physicians working in emergency departments in France.

**Methods:** A questionnaire was sent to emergency practitioners in France. The collected data included a physician's knowledge of intubation procedures, their use of medications for intubations, and the options available for difficult airway management.

**Results:** 816 questionnaires received from general practitioners (48%), emergency physicians (28%), or anaesthesiologists (12%) were analysed. Among them: 64% received the training "Capacité de Médecine d'Urgence"; 50% work in an out-of-the-hospital emergency medical system ("SMUR"), and 15% work in an intensive care unit. Seventeen percent work in a hospital emergency department for <2 years, and 20% for more than 10 years. In emergency rooms, 88% of questioned physicians already had intubated patients, but 40% had not practised this act during the last month; 25% of emergency practitioners have made less 5 intubations during the last year, and 29% performed >15 intubations during the same period in emergency rooms. Predictors of difficult airway management (anatomic hurdles, anatomic techniques, Cormack, Mallampati score) never are used by 31% of emergency practitioners, while 51% of questioned physicians have been confronted at least once with an impossible intubation. In cases of impossible intubation, ventilation with bag-valve-mask is the method most often employed while waiting for assistance (63%). In their practical experience, a small number of physicians have used fibroscope (16.4%), intubating laryngeal mask airway (14.3%), kit for cricothyroidotomy (13.7%), and catheters for percutaneous transtracheal ventilation (10.9%). Rapid sequence intubation is used in more than 50% of intubations by 23% of emergency physicians. Among anaesthetic drugs, midazolam is the most frequently used (95%), then fentanyl

(78.7%), etomidate (68.5%), succinylcholine (45.5%), and propofol (39.6%). 98.7% of physicians believe that the endotracheal intubation practice does not need to be done by an anaesthesiologist, but 7% think that the rapid sequence intubation must be managed only by anaesthesiologists; 5.3% of physicians are stressed at the time of intubation, and 11% are not.

**Conclusion:** The practice of endotracheal intubation is unequally distributed among the emergency practitioners. These differences depend on the training and, probably, of the activity in France, specifically, out-of-hospital emergency medical system ("SMUR").

**Key words:** anesthetics; emergency departments; emergency physicians; endotracheal intubation; performance; practice; rapid sequence; SMUR; training

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### High School Students Assisting the Hospital

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The Israeli Medical System is committed to administrating optimal medical services to casualties during conventional and nonconventional mass casualty events. The operation of the hospital in such events, necessitates expansion of facilities, predesignation of admitting sites and operation of special roles such as decontamination teams, stretcher-bearers, and so on. This obligates expansion of our manpower and the operation of ancillary and voluntary teams. In this poster we will present a model initiated by our hospital, which displays a unique cooperation program with one of our neighboring high schools.

Approximately 300 students from the tenth to twelfth grades are integrated into our personnel during mass casualty events, in order to assist the hospital. The students serve as stretcher-bearers and other necessary tasks. Once each year, they participate in a training program and drills, and in real life during mass casualty events. As a result of the ongoing relationship between the hospital management and the director of the school over the last 10 years, the students are available to us every moment, day and night, throughout the whole year. This project has been supported by the Municipality Emergency Law and is recognized by the Israeli Defense Forces and the Ministry of Health.

**Summary:** This unique model has many benefits, both, to the community and to the hospital, but, mainly for the students themselves, because the most important education a student can receive is the ability to donate to others.

**Key words:** assistance; hospital; mass casualty events; schools; students

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### Risk Analysis Model for Health Care and Medical Service

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**Objectives:** We found that conventional methods and tools for risk assessment do not include requirements from the medical service. To tackle these problems, we have developed a new risk analysis methodology. The objectives of the work were to develop a new model for risk analysis for the health care and medical service in the Stockholm County.

**Methods:** Based upon studies of literature and risk analysis models from the municipal rescue services in the Stockholm County, we have developed a new model for risk analysis with a number of new parameters specific for the health and medical service. The model was presented and discussed during the 4th Nordic Congress on Emergency and Disaster Medicine in Copenhagen 2000.

**Summary:** Dimensioning of disaster medical resources should be based upon an analysis of risks and threats and assessment of probability and consequences of every possible scenario. In the model presented, we have defined scenarios with consideration taken to casualties and their priority for emergency care. The probability calculus describes how many times a scenario probably will occur in a specific period of time. The calculus is based on statistics and current development in the region.

To describe consequences, we analyze the capacity of the medical services to take care of casualties in the various scenarios, and if the medical services must activate the disaster medical plans. Using a simple matrix diagram, we can identify the scenarios with high probability and large consequences for the emergency medical services. According to the results, decisions can be made concerning prevention, and measures can be taken to reduce the consequences or increase the capacity of the medical service.

The model will be used in the assessment of risks and dimensioning of medical resources during the EU Conference in Stockholm at the end of March 2001.

**Key words:** assessments; capacity; dimensioning disaster; medical services; mitigation; model; prevention; risks

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