death using prehospital data for major injury. Multivariate, logistic regression, recursive partitioning, and artificial neural network modeling were used to establish potential predictive models with the aim of producing both the simplest useful model and the most accurate model. Each potential model was evaluated for its predictive ability using 12 months of data from the Victorian State Trauma Registry (VSTORM).

Results: Consistent with previous studies in this area, physiologic data (blood pressure, pulse rate, Glasgow Coma Score [GCS]) were found to be predictors of the likelihood of death and severe injury requiring intensive care. The motor score of the GCS dichotomised to normal (score of 5) or abnormal (<5) appeared to be the most predictive single component of total GCS. Other factors such as respiratory rate, insurance status, age, and injury mechanism added to predictive ability. However, the increase in sensitivity was offset by increasing complexity in the modeling.

Conclusion: Simple, easy to collect predictors with a sensitivity of >85% and an over-triage rate of <50% are the ideal. Early results from this statistical modeling would suggest that a useful predictive model is possible.

Keywords: death; intensive care; model; predictive; prehospital; trauma
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Advanced Technology Does Not Work by Itself

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El Salam Hospital is located in a very critical area just outside Cairo, where there are busy highways with daily road traffic accidents. It is located very near to the industrial districts and is just a five-minute drive from the airport. Therefore, it was important to establish a well-equipped trauma center supported with several well-equipped ambulances including an Intensive Care ambulance, a Surgical Unit Ambulance in which surgery can performed, and a Cardiac Intensive Care Ambulance in addition to the regular ambulance service cars. A disaster plan and special medical and surgical teams were prepared. A very well-functioning network of communications was established by the Ministry of Health that connects the Hospital with all the ambulance service cars and the communication center in the Ministry Hospital. During the last year, the disaster plan was not activated. However, the Surgical Ambulance Car was called 32 times, mainly to the sites of traffic accidents. A total of 52 surgical operations (mostly minor surgeries) were performed in the Surgical Ambulance. Three cases of severe head trauma required performance of burr hole explorations and drainage, and closure of open cranial defects. Several problems were encountered:

1. In a country in which the medical staff is dependent upon income obtained from their private practice, it was very difficult to get good surgeons *motivated* and *committed* enough to be available and agreeable to work at any time. The alternative was to use a medical staff of lesser quality, who have not been able to find a place in private practice. However, this group seemed resistant to being re-educated.
2. Awareness of the people about the traffic rules and the hazards, and even more importantly, what to do at the time of accidents.
3. *Trust* between the people at large, especially the victims, and the medical ambulance staff.
4. The *confidence* of the ambulance staff to use the modern equipment. The Continuing Medical Education program and the motivation of the medical staff to update their medical knowledge.

Keywords: ambulances; barriers; cardiac intensive care ambulance; disaster; intensive care ambulance; plan; surgical ambulance car; trust
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Management of Mass Casualties from Traffic Accidents in China

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According the statistics of the World Health Organization (WHO), since the advent of the automobile, >32 millions persons have died from traffic accidents, and an average of 700,000 persons die annually. Based on the data of the WHO, the number of annual deaths due to traffic accidents is more than the number who have died from earthquakes, floods, typhoons, and all other natural disasters.

China is the biggest developing country: it has 2.2% of the total number of motor drivers in the world, but the automobile accident has increased to 9%. China has 14,350,000 kilometers of highways, and an average of 1,131 of traffic accidents that occur daily, killing an average of and 229 persons.

Shanghai is one of the biggest cities in the world, with a population of 13,000,000 inhabitants. The average density of the population is >1,000 persons per square kilometer. Statistics of the past five years showed that the traffic accidents exceeded the past records by 60,000 cases with two persons killed daily (in the whole China, one person is killed by accidents every six minutes).

Numbers of traffic accidents, persons injured, number of persons killed in China 1987–1993

Year	Accident	Wounded	Dead
1987	298,147	187,399	53,439
1988	276,071	170,598	54,814
1989	258,030	159,002	50,441
1990	250,297	155,072	49,271
1991	264,817	162,019	53,292
1992	222,878	144,264	58,729
1993	242,343	142,251	63,508
Total	1,612,583	1,120,605	383,494

From the above data, several characteristics were noted:

1. Of all the persons killed in traffic accidents, 85% were below the age of 40 years;
2. Prehospital mortality of traffic accident victims is 66%;
3. 60% of traffic accidents involve bicyclists in the cities;

The First-Aid Central Station (SFACS) of Shanghai possesses 173 ambulances and 517 specialists. The facilities of the new resuscitation ambulances, so-called "Movable ICU", contain a cardiopulmonary monitor, ventilator, emergency drugs, and other resuscitative equipment. In the ambulance, there also is excellent communication equip-

ment, which can connect with any part of the communication network in Shanghai city. Altogether, 110,889 persons requiring firstaid were transported by SFACS in 1998.The number of the injured in traffic accidents and other disasters (such as burn accidents, intoxication, and drowning, etc.) was 26,681, of which 318 died before hospitalization. All severe trauma patients should be transported to the identified hospital in Shanghai.

Every central hospital in Shanghai is carrying out actions to set up a resuscitative department so as to relieve the load associated with massive numbers of critically wounded casualties in times of a disaster. The functions of the resuscitative department include: triage of all the critically wounded persons, resuscitation, and provision of all required supportive treatments. Their functions include: (1) cardiopulmonary resuscitation; (2) immediate treatment of life-threatening respiratory failure, organ injuries, and the loss of blood; and (3) initial management of fractures and other injuries from these disasters prior to transportation to the orthopedic department.

Keywords: ambulance; China; communications; deaths; hospitals; injuries; management; resuscitation; Shanghai; traffic accidents
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Trauma in East Crete

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Purpose: The purpose of this study is to record the characteristics of trauma patients treated and transferred by EKAB in the district of East Crete during the year 2002.
Materials and Methods: The study included 4,565 trauma patients. The following information was recorded for each patient: (1) Primary injuries, (2) Vital signs (SAP, DAP, HR, RR, SpO_2, GCS); (3) Age; (4) Gender; (5) Evaluation of trauma severity by the EKAB Coordination Center (telephone triage); (6) Accident site; (7) Dispatching times; (9) Medical procedures, and (10) Trauma score (RTS and HES) at the site and at the hospital emergency department. In addition, the total trauma frequency was compared to that of the year 2001.
Results: There was an increase in trauma cases in cardinal numbers from the year 2001 to the year 2002 (from 3,800 to 4,564) and in regard to the total number of emergencies (from 19.1% to 26.0%). The majority of injuries were traffic accidents (47%). Orthopedic trauma accounted for 23% and surgical accidents for 19%. The severity evaluation made by the Coordination Center indicated high severity in 18% and intermediate severity in 63% of the incidents. The average response time was 7 minutes. The medical procedures performed were as follows: oxygen administration to 98% of the patients, cervical collar to 73%, intravenous fluid support to 80%, endotracheal intubation to 8% after general anesthesia, long spine board to 90%. Kendrick's Extrication Device (KED) was used in 38 trapped patients. There was an improvement of RTS score at the beginning and the end of episodes from 8 to 10.5 and of HES score from 3.1 to 16.1. In high severity patients, craniocerebral injuries were encountered in 23%, fractures in 15%, and chest trauma in 8%.
Conclusions: There was an increase in trauma frequency and severity in the year 2002 compared to the previous year. The emergency intervention resulted in distinct improvement of the patients' condition.

Keywords: Crete; demographics; epidemiology; frequency; injuries; severity; trauma; treatment
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Major Trauma in Swedish Paediatric Population — A Survey of Children Admitted to a Paediatric Intensive Care Unit

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Background: Sweden has the lowest injury death rate for children age 1 to 14 years across the member countries of the OECD (UNICEF Report 2001). Great morbidity and mortality are seen among children surviving prehospital treatment and subsequently cared for in an intensive care unit (ICU). This is the first study of this paediatric trauma patient population in Sweden.
Objective: To describe the demographics, mechanism, pattern and severity of injury(ies), the prehospital and hospital care provided (first 24 hours), and outcomes in severely injured trauma victims cared for at a paediatric ICU (PICU) in Sweden.
Methods: The medical records of 131 traumatized children (0–16 years of age) admitted to the paediatric centre PICU in Gothenburg, Sweden 1990–2000, were examined retrospectively. The severity of injury was estimated by calculating Injury Severity Score (ISS), Paediatric Glasgow Coma Scale Score (GCS), Revised Trauma Score (T-RTS/RTS), Paediatric Trauma Score (PTS), Trauma Score Injury Severity Score (TRISS), and Paediatric Risk of Mortality Score (PRISM).
Results: The incidence of paediatric trauma patients cared for at the PICU, was 7/100,000 children per year in the greater Gothenburg area during 1990–2000. Epidemiology showed a similar pattern as is present in other OECD countries. The severity of injury (ISS) median score was 14. Mortality rate in this series was 3%.
Conclusion: Major trauma with admission to a PICU is rare in a Swedish paediatric population. Cared for at a centre with the necessary facilities and trained personnel, these children have a good chance of survival.

Keywords: intensive care unit (ICU); pediatrics; severity scores; Sweden; trauma
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