

tolic blood pressure (76%), CO<sub>2</sub>/ETCO<sub>2</sub> (5%) for all cases. Prehospital care standards were assessed and captured waveforms and trends are being analyzed in association with patient outcomes.

**Conclusions:** A fully operational VSB system has been effective in collecting prehospital trauma VS.

Further mapping the pre-hospital physiologic trends with outcomes show promise in improving patient triage and standards of trauma care.

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**Keywords:** air transport; emergency medical services; trauma; vital signs

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#### (N43) Improvement of Prehospital Medical Care System in Tbilisi 2005–2008

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Tbilisi, the capital of Georgia, has a population of 1,500,000. The Tbilisi First Aid Center conducts prehospital medical care.

Until 2005, the prehospital medical care system of the former Soviet Union in 2003 was financed partially by the state and partially by patients. The equipment was poor, ambulances defective, wages low, medications scarce, and communication inadequate. Cable or cellular telephones provided communication between the call center and sub-stations. Communication was unstable and depended on subjective factors. There were many cases of late dispatches and unqualified medical care.

In 2005, the state began funding prehospital medical care. The main directions were education, equipment, and communication. Staff participated in an urgent medical care program; after testing, physicians were selected to continue working in prehospital medical care. For vacancies, competition for the position was announced and the board selected the physicians. At the same time, 50 Kia Picanto-type vehicles (Fast Car) were added, the call center equipment was upgraded with digital VHF transmitters, each ambulance was equipped with a VHF transmitter, equipment needed for urgent care, necessary medications, and a global positioning system. This allows the calls to be transmitted from the call center directly to the medical teams. The time of arrival to the patient was reduced to 8–12 minutes.

Today in Tbilisi, there are 70 prehospital medical teams in 13 sub-stations, with a total of 44 ambulances and 26 Fast Cars. The mean number of calls per day is approximately 900. The period of duty of the medical staff is 24 hours. Cases of late dispatch are minimal. The quality of prehospital medical care is controlled by the following parameters: (1) the time between call and arrival to patient; (2) adequacy of first aid; and (3) population satisfaction

The introduction of new technologies and retraining of medical staff gave rise to the improvement of prehospital medical care quality within the same funding conditions.

**Keywords:** emergency health; emergency medical services; Georgia; improvement; prehospital care

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#### (N44) Epidemiologic Profile of Victims of Firearms and Cutting Weapons in the Emergency Room in the Outskirts of Brasília

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**Introduction:** Violence management is one of the most important challenges in the Latin America health system. This study describes the epidemiologic profile of victims of trauma by firearm and cutting weapons with the intention of improving the hospital routines and allocation of resources, thereby increasing the efficiency of healthcare services.

**Methods:** Age, gender, type of injury, day of the week, and time of the day were considered in this study. The data were collected in 2005 from an emergency department at a hospital in Gama, located in the outskirts of Brasilia, the Brazilian capital.

**Results:** The first three months of the year had the highest average number of patients presenting to the emergency room, with 72 cases documented. Approximately 50% of the patients presented during the weekend and almost 66% of all of the incidents occurred during the nocturnal period. Adult males between 18–60 years of age had a higher prevalence (80%). Injuries caused by firearms were responsible for the majority of the presentations (66%).

**Conclusions:** It was possible to determine the epidemiological profile of the victims of injuries from firearms and cutting weapons. This information will help to provide better assistance to the provision of care in emergency rooms.

**Keywords:** Brazil; cutting weapons; emergency medical services;

epidemiologic profile; firearm; violence; trauma

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#### (N45) Fastrach Laryngeal Mask Airway Management in Out-of-Hospital Critical Care Patients

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**Introduction:** This presentation will describe the epidemiologic profile of Fastrach Laryngeal Mask (FLM) intubations in out-of-hospital critical care patients attended by the Emergency System (ES) staff.

**Methods:** An observational, descriptive, and retrospective study of patients attended by the ES staff that required a FLM for airway management January 2002 to December 2007. Data were collected analyzing computerized clinical histories, including: (1) age; (2) gender; (3) medical or traumatic etiology; (4) first cardiac rhythm; (5) survival until hospital admission; and (6) the percentage of usage of this technique in the total amount of patients that required airway management.

**Results:** A total of 4,114 patients required airway management; 73 (1.8%) with FLM. The average age was 50.7 ±20.5 years. Endotracheal intubation using FLM was not possible in four patients. In 35 of the 73 patients (48%) the cause of airway compromise was medical, whereas in the remaining 38 (52%), it was traumatic. Twenty-five of the 35 (71.4%) patients with medical etiology presented with cardiac arrest compared to 10 (26.3%) with traumatic etiology. Eighteen (51.5%) of the patients with medical etiology and 24 (63.2%) of those with traumatic etiology were alive at hospital arrival.

**Conclusions:** Fastrach Laryngeal Mask intubation is an easy technique that allows rapid airway management in patients with extrinsic and intrinsic conditions.

**Keywords:** critical care; emergency medical services; intubation; Laryngeal mask; patients

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#### (N46) Introduction of a Semi-Automatic, External Defibrillation Program in Galicia—A Cost-Effectiveness Study

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**Introduction:** A total of 63,000 myocardial infarctions occur annually in Spain, one-third of victims die before reaching the hospital. The use of a semi-automatic external defibrillator (AED) device may improve patient outcome if it is applied shortly after the collapse. This study was intended to evaluate the cost-effectiveness relationship of an AED program that has been implemented by the emergency service of Galicia (ES-061).

**Methods:** A cost calculation was performed using the identification, classification, and quantification of costs structure. In order to measure the effectiveness of AED program, three indicators were established, each reflecting either the progress or the worsening resulting from the program, using the following criteria: (1) number of attempted resuscitations; (2) return of vital signs; and (3) survival to hospital discharge. The cost:effect ratio was calculated, taking survival as the effect: saved lives as a consequence of AED program implementation.

**Results:** Total attempted pre-AED; 12 months pre-AED; total post-AED. AED patients; 790; 451; 776. Defibrillated patients; 259; 148; 244. Return of spontaneous circulation at the point; 119; 68; 141. Survival to hospital discharge without any impairment; 48; 28; 90. Criterion 1 Index: 172.06; Criterion 2 Index: 207.36; Criterion 3 Index: 321.43. AED program cost-effectiveness (cost per patient discharged from hospital): €8,783.

**Conclusions:** The AED program of the ES-061 is effective, and resulted in an increase in the numbers of assisted CRA, return of vital signs, and hospital discharges. The

cost of a life saved by AED implementation is €8,783. The AED program's cost-effectiveness relationship in the Galician autonomous region is high.

**Keywords:** arrhythmia; cost-effectiveness; emergency health; semi-automatic external defibrillator

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#### (N47) Impact of Emergency Department Overcrowding on Regional Disaster Preparedness in the Western Region of Sweden

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**Introduction:** The preparedness and capacity of ambulance and emergency departments for receiving casualties is a major part of a regional disaster plan. Besides economic gain, regionalization in Sweden aims toward coordinating health-care facilities by reducing hospital beds and the number of emergency departments (ED). Overcrowding of EDs, irrespective of the reasons, may endanger regional security.

**Methods:** The regional registry at the Prehospital and Disaster Medicine Center was reviewed (2006–2008). The number of incidents regarding ED overcrowding and its causes were analyzed. Literature and publications concerning the impact of such incidents were reviewed.

**Results:** There was an increase in the number of ED overcrowdings, mainly caused by the lack of beds at ordinary wards and/or intensive care units and technical problems at the radiology departments. The overcrowding resulted in ambulance diversions between hospitals, reducing and limiting the prehospital capacity. Based on the literature review, such incidents not only increase patient's morbidity and mortality in short term, but also increase the national healthcare costs in long-term.

**Conclusions:** Emergency department overcrowdings, despite the cause, leads to consequences such as ambulance diversions, endangerment of patient's safety, and increased in-hospital mortality. It also reduces and limits the regional preparedness by minimizing the surge capacity. In order to prepare for future disasters, this problem should be addressed by further regional studies and a review of other nations' experiences.

**Keywords:** ambulance diversion; capacity; emergency medical services; overcrowding; regional preparedness; Sweden

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#### (N48) Evaluation and Comparison of Tourniquets for Hemorrhage Control

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**Introduction:** Tourniquets (TKs) have significant implications for disaster response. Traditional TK application has been required to be proximal to joint application; many disaster responders do not carry commercial TKs. We compare proximal vs. distal placement of TKs and the efficacy of commercial vs. improvised TKs.