cations and anions. Strong-Ion Gap (SIG) better accounts for unmeasured anions because it corrects for alterations in variables not included in AG calculation.

Objective: To utilize SIG to identify critically ill patients requiring ICU admission or a composite end-point of in-hospital death, transfusion, and/or vasopressor requirements.

Methods:

Inclusion Criteria: Emergency department patients with impending respiratory or circulatory collapse.

Exclusion Criteria: Patients dead-on-arrival or before labs drawn, or inter-institutional transfers. Lactate, AG, and SIG were calculated for 80 patients, and need for ICU admission, in-hospital death, transfusion, or vasopressor use.

Calculations: SIGmEq/L = SIG(apparent) - SIG(effective); SIGmEq/L(apparent) = $[Na^+]$ + $[K^+]$ + $[iCa^{++}]$ + $[iMg^{++}]$ - $[Cl^-]$ - $[LAC^-]$; SIGmEq/L(effective) = $((1000 \times 2.46 \times 10^{11} \times PCO_2 \text{ (mmHg)}) / 10^{pH})$ + $[Alb^-]$ + $[PO^4]$.

Cutoffs: SIG <2.0 mEq/L(literature-based), AG <15.0 mEq/L and lactate <2.2 mEq/L (hospital norms).

Results: n = 80, 55.8 ±17.8 years 62.5% male. Twenty had elevated SIG and normal AG and LAC. None of these had the composite endpoint, but four (20%) required ICU admission. A total of 42 patients required ICU admission, 22 (52%) had elevated lactate; 22 (52%) had elevated AG; 32 (76%) had elevated SIG. 12 patients met the composite endpoint: nine (75%) had elevated lactate; 10 (83%) elevated AG; 12 (100%) elevated SIG.

Conclusions: SIG better identifies critically ill patients requiring ICU admission and in predicting the composite end-point of in-hospital death, transfusions, and/or vasopressor requirements.

Glycemia: Triage during Emergencies

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Introduction: Improved survival rates of patients with multiple injuries have increased general interest in the quality of poly-trauma management. A special and simple score is needed for the triage of polytraumatized victims. The purpose of this study was to observe the polytrauma population and to correlate lesions with initial blood sugar.

Methods: A total of 204 polytraumatized patients were studied prospectively between January 2006 and December 2007. The ethics committee approved this database. Patients were selected according to the admission code "polytrauma" with a National Committee on Aeronautics Score System score ≥4. Blood analyses were performed upon arrival. For each patient, the Injury Severity Scale (ISS) scores were compared to the blood sugar levels.

Results: The ISS and Glycaemia curves appear to be linearly related, especially for blood sugar concentration <8. Abdominal injuries always increased the level of blood sugar. Simple limb trauma or spine fracture did not impair glycemia except when associated with open wound fractures, compression syndrome, or paraplegia. The average glycemia of pelvic trauma was 9.0 and average ISS score was 41. Head injuries associated with abdominal or thoracic trauma always enhanced glycemia when life-threatening lesions are associated. There is not any correlation between ISS score and age or sex.

Conclusions: High glucose levels may indicate serious lesions according to ISS scores.

Outcome Evaluation of Trauma Patients at a Hospital in Iran

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Introduction: Understanding the nature and severity of trauma has a pivotal role in determining priorities for the prevention of trauma, its mortality and morbidity, and the improvement of trauma care and system development. As a developing country, Iran is afflicted by a high number of trauma fatalities. The Trauma and Injury Severity Score (TRISS) is one of the most frequently implemented trauma scoring systems used as the international reference for assessment of injury severity, and has been applicable for Iranian trauma victims.

Methods: Two hundred consecutive trauma deaths occurring in an approximately 30-month period in Hazrat-e-Rasool-e-Akram Hospital were reviewed for TRISS using reference and native coefficients retrospectively. Unexpected deaths were identified using TRISS.

Results: One hundred eighty-four patients had adequate data for the calculation of TRISS. Of these, the mean age was 41.5 years, the mean Glasgow Coma Scale score was 8, the mean Revised Trauma Score was 4.77, and the mean Injury Severity Score was 26.7. The mean time to death was 123 hours; 34.8% died within 12 hours, 55.4% died within 48 hours, and 77.7% died within seven days. Among the patients, 61.9% had severe head and neck injuries and 16.3% had no vital signs upon admission. Using reference coefficients, the mean TRISS derived probability of survival was 0.62, and using coefficients of a native study, it was 0.42. Using reference coefficients, 120 deaths were unexpected (65.2%), and using the native coefficients, 78 (42.4%) deaths were unexpected according to TRISS.

Discussion: The high unexpected trauma death rate and the fact that preventable trauma deaths are almost definitive among such cases, implies the need for further studies and employment of TRISS as a tool for identifying cases suitable for trauma audit sessions, as a filter for peer review, and its application as a component of trauma system development.

Utility of a Prehospital Electrocardiogram in Patients Presenting with Syncope

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Introduction: Up to 3% of emergency department visits and 50% of adults experience syncope during their lifetime. Emergency medicine literature supports the diagnostic use

of a 12-lead electrocardiogram (ECG) in patients who have had a syncopal episode. With the ability to perform prehospital ECGs, many regional protocols have recommended the use of 12-lead ECGs in patients with syncope.
Methods: Over a two-year period, a retrospective analysis was conducted from the charts of patients who presented with syncope and had a 12-lead ECG performed. The ECGs were interpreted by an emergency physician for abnormalities. Run sheets were evaluated by both nurses and physicians to assess potential changes in management due to results.
Results: Charts were reviewed from September 2006 until December 2008. A total of 46,164 patients were transported during the time period. There were 134 patients presenting with a complaint of syncope without chest pain and had an ECG performed. Seventy-nine of the 134 patients had abnormal ECGs. Only one patient was identified as having a diagnostic ECG that potentially could have changed the prehospital management or destination.
Conclusions: Whereas an ECG may be valuable in the emergency department setting for determining the cause of syncope, it has limited utility in the prehospital management of patients. Agencies who currently recommend the use of ECGs in syncope should reconsider this policy. In cases of patients with syncope, 12-lead ECGs also may add significant time to transport with little clinical benefit.

Poster Presentations—Research

(R94) Effect of Web-Based Health Education on the Knowledge and Cognition of Hepatitis B among Female University Students
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The purpose of this study was to investigate the effect of Internet health education on the knowledge and cognition of female university students about hepatitis B. A total of 189 participants were selected from universities in Koahsiung City using a cluster sampling. The participants were divided into the experimental group and the control group. The experimental group included 130 participants willing to take Internet health education classes and the control group involved 59 who were not. Structured questionnaires including "demographic data", hepatitis B knowledge", "hepatitis B cognition", and "Internet program satisfaction", were applied to collect data. Surveys were conducted before the health education intervention, two weeks after the intervention, and four weeks after the intervention. Research results show that compared with the control group, the experimental group has significantly higher scores in hepatitis B knowledge after two and four weeks of the Internet health education program. There were no sig-

nificantly different scores in hepatitis B cognition between the two groups after two and four weeks of the Internet hepatitis B health education program. The overall satisfaction of the experimental group to the Internet health education is as follows: 60% of the participants indicated that the content of the program was easy to understand; 67.7% indicated the content was helpful; 66.2% were satisfied with the content; and 66.9% indicated that the university campus should adopt and popularize the Website. This study provides health professionals a reference for hepatitis B health education program using borderless Internet connections.

(R95) Rapid Evacuation Roadmap Distribution between Adjacent Hospitals in Cochabamba, Bolivia
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Introduction: Cities should be prepared with human assistance teams and adequate infrastructure during a disaster. Although the media is necessary, it often arrives late to the site of the disaster or emergency and on account of different factors that complicate the access to these regions. The aim of this study was to verify and identify access-exit routes from the disaster site toward nearby hospitals (Cochamamba, Bolivia) and vice versa, in order to improve the response time of the ambulances and thus facilitating immediate medical attention.
Methods: Qualitative and quantitative methods were used. An analysis was conducted by means of observation and documentation of the routes established by the Emergency Operation Center (EOC) for the ambulances of the different hospitals of the city. In addition, this research involved the study of traffic flow and the quantification of the number of hospitals, number of ambulances, potential places of disaster, and the number of cars in Cochabamba.
Results: Currently, the ambulance access-exit routes system is fixed by the EOC. However, this study verified that specific days exist in which the city has a high index of traffic congestion complicating the circulation of the ambulances in these established routes. New routes were identified to improve the response time performance of the ambulances to and from the hospitals.
Conclusions: When a disaster or emergency occurs in the area of more than one hospital, evacuation decisions and rapid distribution of injured among all the adjacent hospitals is a priority. The results of this study suggest that there are alternative routes that would improve ambulances response times according to the day of the week in which the disaster occurs in order to avoid traffic congestion.