Poster Presentations—Theme 9: Miscellaneous

(139) Vehicular Traffic Volume Versus Road Traffic Accident on a Major Nigerian Highway: A Case Study with SAVAN

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Introduction: For a low motorized country (LMC), Nigeria has a record high number of road traffic accidents (RTAs) compared to other similar countries. Generating data on traffic volume is the focus of this research, since it is a first stage to planning and developing road safety and emergency medical services in Nigeria. Our field work revealed the daily variation in vehicular traffic volume. This study identifies peak periods of vehicular traffic with associated RTAs. The medical emergency response preparedness of the rural community also was evaluated.
Methods: A physical count of vehicular movement was recorded for 14 hours daily for 30 days by a Save Accident Victims Nigeria (SAVAN) volunteer. Police records of RTAs in 12 calendar months also were examined. Accident records of health facilities located along the highway also were examined.
Results: An average of 3,522 motor vehicles traveled eastwards daily, while 3,420 traveled westwards daily on the Benin-Asaba dual carriage way. Vehicular traffic movements in both directions were at their levels on Fridays. The number of RTAs peaked on Tuesdays, Wednesdays, and Fridays. The RTAs occurred during peak vehicular traffic movement on the Benin-Asaba dual carriage way.
Conclusions: There is a positive relationship between vehicular traffic volume and RTAs. Hospital records show high admission rates during peaks of RTAs. Most deaths from RTAs occur due to delay in rescue operations. Emergency medical services are absent even on very busy Nigerian highways.
Keywords: emergency medical services; low motorized country; Nigeria; road traffic accidents; vehicles
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(140) Pilot Study Describing Use of Ultrasound to Assess Acute Fracture Reduction for Future Application in the Austere Environment

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Introduction: Recent studies have addressed the ability of the use of ultrasound in the emergency department to diagnose fractures. The purpose of this pilot study is to assess the ability of the uuse of ltrasound to assess in "real-time", the success of fracture reduction, and to address the possibility of extending the use of ultrasound into austere, remote environments.
Methods: A convenience sample of five people with acute fractures (three radial, one phalanx, and one metacarpal) presenting to an emergency department was used. A Sonosite Titan was used to assess post-reduction angulation and alignment. Alignment was reconfirmed with the use of a C-arm and plain radiography.
Results: The use of ultrasound confirmed proper reduction and realignment in all five cases.
Conclusion: The use of ultrasound allowed for "real-time" visualization of fracture fragments and realignment. The application of ultrasound in fracture reduction could serve as a valuable tool for fracture reduction in both the emergency department and in austere prehospital locations lacking radiographic capabilities.
Keywords: convenience sample; emergency department; fracture; remote environments; ultrasound
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(141) Unusual Cause of Difficult Ventilation and Intubation

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A sharp foreign body lodged in the tracheobronchial region is a challenging job for anesthesiologists. Subglottic foreign bodies are common; a common difficulty encountered is a delay in diagnosis. Irregular foreign bodies may produce a partial obstruction, allowing for adequate air movement around the obstruction. The clinical features of a laryngeal foreign body may simulate those of an acute asthma attack in an adult. The differentiation is necessary in the initial stages, as the subglottic foreign body can lead to sudden death due to airway obstruction. Sudden onset of wheezing in a non-asthmatic patient should arouse suspicion.

In this case report, the patient described was transferred to the respiratory intensive care unit for respiratory distress with a diagnosis of asthma, and later, the cause of distress was found to a denture (single prosthetic tooth) in the larynx.
Keywords: difficulty breathing; foreign body; intubation; obstruction; ventilation
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(142) Hybrid Neural Network/Expert System Environment Using Fuzzy Cognitive Maps in Prehospital and Disaster Medicine

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Introduction: Objective, clinical, or logistic decision-making is paramount for optimal disaster and prehospital response. Critical decisions often are made within the "golden hour" of an incident based on cognitive bias and often incorrect interpretation of information.

The fuzzy cognitive map, a neural network approach to knowledge representation, has several characteristics that make it highly attractive for use in planning and control tasks. These characteristics include: (1) the ease of combining knowledge acquired from various sources; (2) a capacity for adaptive refinement through supervised and unsupervised learning; and (3) an ability to make very quick inferences in both routine and novel situations. The integration of both artificial neural networks (ANNs) and knowledge-

based expert systems is ideal for the development of intelligent systems in prehospital and disaster medicine.The two methods complement each other—ANNs perform nonlinear functions, pattern recognition, fault tolerance, and parallel processing, while expert systems involve language processing, formal logic, and rule interpretation.
Methods: The potential of the fuzzy cognitive map as a principal form of knowledge representation in disaster and prehospital planning and control systems will be assessed in this project. In such systems, fuzzy cognitive maps could assume some of the functions currently handled by human experts, ensuring a faster, more consistent response. A proof-of-concept demonstration centered on a selected problem area will be presented as well.
Conclusions: The hybrid combination of ANNs and expert systems will facilitate the automation of various decision support systems in prehospital and disaster medicine, while providing adaptability and real-time functionality.
Keywords: artificial neural networks; decision-making; expert systems; fuzzy cognitive maps; prehospital
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(143) City Expansion, Squatter Settlements, and Policy Implications in Addis Ababa: The Case of Kolfe Keranio Sub-City

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Currently, the city of Addis Ababa, Ethiopia, is expanding at a rapid rate. Throughout its history, the city has been undergoing horizontal expansion as the major form of development. Responsibility for this physical expansion has been attributed to legal landowners, land developers, and squatter settlements. This study focuses on the squatter settlements that are found in the sub-city of Kolfe Keranio. The principal objective of the study is to assess the causes and consequences of squatter settlements in light of the unplanned expansion of the built-up region of the city.

The results of the study indicate that the emergence of squatter settlements in the study area is a phenomenon that has been occurring since 1994. High building standards of the legal housing structures, delayed responses, procedural problems of the legal land provision, and high housing rents in the city center were identified by the respondents as the causes of squatting. In addition, less government control of open spaces, the limited capacity of the code enforcement service to control illegal house construction, lack of a comprehensive legal response towards the problem of squatting, and the practice of land sale by land speculators as a means of making profit are other factors that have contributed to the emergence and proliferation of squatter settlements.
Keywords: housing; policy; regulation; squatters; urban expansion
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(144) Team Approach in Foreign Medical System after the Java Earthquake in May 2006

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On Saturday morning, 27 May 2006, an earthquake occurred in Java, near Jogjakarta. After the initial chaos triggered by the event, the regional hospitals were overwhelmed with patients. The local medical teams worked 24 hours a day, 7 days a week. On Tuesday, a hospital from The Netherlands received a request to send a relief operating room (OR) team. After internal communication, a well-trained team was formed to work on a daily basis. The team consisted of one orthopedic surgeon, one anesthesiologist, two surgical nurses, one anesthetic nurse, and a recovery nurse. They left for Java the next day. The experiences of this team will be presented and the lessons that were learned for preparation and actual deployment will be discussed.

There was an agreement within the group that the Major Incident Medical Management and Support (MIMMS) principle of command and control, safety, communications, assessment, triage, treatment, and transport (CSCATTT) would be used as a guideline. Lessons learned from the team's experiences included:

1. Help must be provided as asked for by the local staff and support must be provided where needed;
2. The team members must be fully vaccinated a priori (in this case, everyone was);
3. Cordless drills are convenient and safe for routine surgery (easy to use in a sterile way);
4. Walkie talkies are useful communication devices in an unfamiliar environment;
5. Teams must use their own small monitoring systems; and
6. Adequate communication with the home front provides valuable information for relief teams.

Keywords: earthquake; international assistance; medical management; operating team; relief
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(145) Comparative Survey of Iran Disaster Management System Performance for Response to Natural Disasters Based on Directors and Experts Experiences during the Past 15 Years

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Introduction: Iran is a country that is one of the most vulnerable to natural hazards. In previous years, it has been affected by many disasters. Fifteen years ago, the development of regulations for a disaster management structure in Iran took a scientific and applicable direction. The objective of this study is to present a survey of system performance for response to disasters due to natural hazards.
Methods: After reviewing the related documents, a questionnaire with the purpose to define the state of response to disasters was designed. The questionnaire was distributed to 30 directors and 50 experts of the disaster management system. The most important indicators were type of disaster, the extent of response actions, how the directors were informed, time the response started, direction and command model used, and other related indicators.
Results: The average age of population survey was 37 years and average related work experience was 15 years. Most of surveyed individuals have been working in operational and management fields. The average time for notification of an incident was eight hours, and most were informed from a dis-