

regions of Georgia and creating a bank of information will provide analyzes and estimation of the information about performed work, also for the creation of methodological approach and normative acts.

**Keywords:** development; emergency medical care; hospital; Georgia; prehospital; prevention; rehabilitation; system

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### A Decade of SAVAN: The Journey so Far

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SAVAN is an acronym for "Save Accident Victims Association of Nigeria". The pre-SAVAN era in Nigeria was characterized by patient rejection at emergency rooms because of a lack of ability to pay for services as well as problematic hospital policies. This, in the face of virtually non-existent prehospital care, culminated in unacceptably high rates of morbidity and mortality for accident victims.

It was against this backdrop that the concept of SAVAN was developed. The challenges have been daunting, coupled with a rapidly expanding scope of operations borne largely out of necessity. Significant successes have been made, particularly during the last decade. SAVAN has continued to strive to rectify some of these problems by collaborating with several designated hospitals. This is made possible via a host of programs like seminars, workshops, use of volunteer workers.

SAVAN has grown substantially and continues to strive towards its vision of "acceptable" levels of morbidity and mortality in Nigeria.

**Keywords:** Nigeria; prehospital care; SAVAN

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### Role of Standard Treatment Protocol (STP) in Crush Injury

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At 05:26 hours on 26 December 2003, a major earthquake (6.5 on the Richter scale), struck the city of Bam. More than 30,000 people were killed, and approximately 20,000 were injured (of which some 12,000 were evacuated).

Beginning on the first night, 801 patients were admitted to hospitals during the first 72 hours following the quake. Most of these patients arrived at one of three university hospitals in Tehran during the first 24 hours. Admissions were based on a surgical emergency team's judgment provided at the airport.

In the department of internal medicine, an emergency medical team was organized, including medical residents under the supervision of nephrologists. In the three university hospitals, in order to initiate effective therapy as soon as possible, a standard treatment protocol (STP) based on collected relevant clinical information and designed by the Iranian Nephrology Society (INS) was administered. Patients who were admitted to other city hospitals and who were referred to the Iranian hospitals were treated using different methods and with variable volume and hydration

therapy (control group). In this presentation, the results of administering a STP are compared with those in the control group, and the effectiveness of both methods was evaluated. A total of 801 patients were transferred to Shaheed Beheshti University of Medical Sciences, of whom 20 (mean age 36.2 ±14.8 years, 15 males) developed acute renal failure, with a mean duration of 14.5 ±9.6 days. A control group was selected from those patients, and was treated with other treatment protocols in other medical centers. The prevalence of acute renal failure was significantly lower in the first group, compared to the control group.

**Conclusion:** An STP is more effective in terms of prognosis of the patients with crush syndrome. The level of creatinine kinase (CK) is the standard test for diagnosis and follow-up of the patients with crush syndrome. The CK curve is the best index for making decision about the need for dialysis.

The following issues must be considered as questions and recommendations to overcome the crush syndrome: (1) criteria for screening high-risk patients; (2) criteria for patients developing ARF; (3) need for significant predictors of the need for dialysis; (4) predictors of death; (5) the role of the use of Ward and Gabow formula for identifying high-risk patients in earthquake victims; (6) the role of the use of trauma scales in evaluating the earthquake victims; (7) the development of a specific trauma scale for earthquake victims; (8) the role of prophylactic hydration therapy in prevention and delaying the development of ARF and needs for dialysis; (9) the use of high tonicity versus low tonicity prophylactic solutions in patients with rhabdomyolysis; (10) the administration of bicarbonate and its role in prophylactic hydration therapy in patients with rhabdomyolysis; (11) the use of oral hydration therapy in prophylaxis of myoglobin-induced ARF; and (12) designing and distributing appropriate disaster victim charts in hospitals throughout the country, based upon this experience with Bam patients (limitations and shortages of response to this questionnaire).

**Keywords:** acute renal failure (ARF); Bam; crush syndrome; dialysis; earthquake; standard treatment protocol (STP)

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### Determination of the T1:T2:T3:T4 Ratio in Coordinating Missions of Emergency Physicians (CEP), and Estimate of Mean Severity Index of CEP Missions in Bavaria

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**Introduction:** Results from the educational efforts from the BLAEK in Munich, Germany, Coordinating Emergency Physicians (CEPs) have been available in the RCCs in Bavaria since the mid-1990s.

**Method:** Little evidence-based literature is available concerning the mean ratio of T1:T2:T3:T4 resulting from triage of real casualties in the CEP-missions in Germany. A review of 528 CEP-missions from six rescue districts was conducted to evaluate the average number of patients in CEP missions, and to make an estimate of the Severity Index (SI) of the missions based on the results, according to the four categories of triage (red, yellow, green, black). As calculated from De Boers Formula,  $SI = (T1 + T2)/T3$ , the mean SI of a subgroup of the Bavarian CEP missions (January 1996–August 2004) was determined in order to obtain an impression of what has been occurring relative to mass-casualties in the country, and to develop an estimate of the potential for major hazards in the reported area and time corridor.

**Results:** In the 528 CEP missions reviewed, a total of 3,136 patients were treated. Another 3,080 people had been involved without requiring more help than advised (bystanders involved). The red:yellow:green:black ratio resulting from the >500 missions with an average of six patients was: 27.2:20.6:51.3:2.6 (%), which can be simplified to 1:1.2:2.5 (%). The average of the SIs resulting from these figures was 0.93 for the >500 missions.

**Conclusion:** The CEP system implemented is working in this area, since the average of the SIs is below 1.0. The main hazards causing these CEP-missions, according to the Utstein Style, will be discussed according to the incident frequency. Correlating studies with other regions have been planned to verify that the average incidence for CEP-missions is about one mission per month in an area with about 1,000,000 inhabitants.

**Keywords:** Bavaria; coordinating emergency physician (CEP); Germany; missions; severity index; triage

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### Prehospital Emergency Medical Service Systems in Portugal

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In Portugal, the prehospital emergency medical service system (PEMSS) is coordinated by the National Institute of Emergency Medicine (INEM). The INEM is a governmental organization directly dependent on the Ministry of Health. The PEMSS currently is accessible to the majority of the population. Portuguese prehospital emergency systems engage doctors in every step of the chain of care.

The aim of this presentation is to describe the Portuguese system and to overview the involvement of medical services in the system.

The INEM is divided functionally into four regional centers (Porto, Coimbra, Lisboa, and Faro), each with a dispatch center (CODU), which runs the PEMSS. Every 1-1-2 (emergency) call concerning health problems is transferred to CODU. There is a medical doctor in the CODU 24 hours a day. In each region, there are hospital-based rapid intervention vehicles (VMER), staffed with a medical doctor and nurse. Approximately ten million people (83% of

the population) have direct access to the PEMSS. Altogether, the four CODU receive a mean of 2,750 calls a day. There are 27 VMER in the country (nine in Porto, eight in Coimbra, eight in Lisboa, and two in Faro). Each VMER is equipped with advanced life support (adult and pediatric) and trauma life support equipment. The team is composed of a nurse and a medical doctor with education and experience in emergency medicine. The VMER had 1,906 services per month in the first six months of 2004. The CODU also dispatches all the ambulances of the enclosed area. Between January and July 2004, the CODU dispatched 188,220 ambulances. There are also two medical helicopters, one in Porto and one in Lisboa. The helicopters are designed to assist victims in the field and/or to transfer emergency patients between hospitals. The composition of the team and the available equipment are similar to the VMER. Besides dispatching, the CODU also has the obligation to direct victims to the appropriate, available hospital. Furthermore, the hospital preparation to take delivery of the victim should be triggered by the CODU.

**Keywords:** dispatch center (CODU); National Institute of Emergency Medicine (INEM); Portugal; prehospital emergency medical service system (PEMSS); rapid intervention vehicles (VMER)

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### Free Papers Theme 9: Emergency Medical Services System Design—Specific Issues

#### Infrastructure of a Level-One Trauma Center for Mass-Casualty Incident Due to Conventional and Unconventional Weapons: Sharing Drill among National Agencies

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Mass-casualty incidents (MCIs) create challenges for medical response in the field and in hospitals. MCIs due to weapons of mass destruction and disasters involving terrorism require cooperation among all agencies involved with MCIs (e.g., police, firefighters, emergency medical services, Army Medical Corps, Home Front Command, and the Ministry of Health). A well-organized incident command system can help all involving agencies provide the best quality of services in order to save lives in such an event.

Unfortunately, the security situation in Israel has provided training in how to deal with MCIs. Tel Aviv Sourasky Medical Center (TASMC) had a significant experience with the management of MCIs. Nevertheless, Israel's experience is related to MCIs caused by conventional weapons. Yet, since the real threat also includes unconventional weapons of mass destruction, hospital preparedness always included decontamination and medical care for chemical weapons.

In the November 2004 MCI Drill, which involved conventional and unconventional weapons took place in the area of Tel Aviv. It was the first MCI Drill related to the compound situation that was performed in Israel and