Conclusion: Rapid intervention by the advanced rescue car units certainly has improved the prognosis of patients. The large number of services provided proved that our decentralized first-aid station satisfies the requirements of a large number of tourists. With the use of the present system that has been operational for three years, we have achieved good results. The system has met our expectations.

149.
Traumatic Asphyxia (TA) following Stadium Crowd Surge: Outcomes and Recommendations for Stadium Management

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Frequently, stadium athletic events end with the crowd rushing onto the playing field. However, secondary morbidity seldom is a problem. Traumatic asphyxia (TA) and severe injuries as a result of crowd surge activity are rare, but potentially lethal events. When they do occur, they present unique and specific injury patterns. Little data are available relative to these types of injuries and the factors important in the survival of this complex patient group.

Methods: On 30 October 1993, a stadium crowd surge occurred following a [U.S.] football game that culminated in 86 persons being transported for treatment of mild to severe and potentially life-threatening injuries. Sixty-nine patients were treated for minor injuries and released. Nineteen patients were admitted to a hospital for management of crush-related injuries.

Results: Seventeen of 19 patients (89.5%) admitted for treatment were female. Three sustained mild TA (not requiring intubation and with prompt return of normal neurologic status). Eight required intubation for treatment of severe TA. Additional injuries included: grade II liver fracture (n = 1); major musculoskeletal extremity strains (n = 2); transient upper extremity neurologic injuries (n = 1); and pneumothorax (n = 1). Six of the eight patients who sustained severe TA injuries were endotracheally intubated at the scene. Transport time from the incident to emergency department arrival for the severely injured patients averaged 38 minutes (range 32 to 47 min.). Manifestations of severe TA were evident in all intubated patients with the most critical patient arriving with a pH of 6.8 and pCO_2 of 140 torr (18.6 kPa). Initial Glascow Coma Scale scores for the severe TA group averaged seven (range 3 to 9). Five of eight patients with severe TA presentation had placement of ICP monitors with an average opening pressure of 15 mmHg (range 7 to 25 mmHg). All patients recovered with no long-term neurologic sequelae. Additional factors that minimized morbidity and mortality included rapid unstacking of crush patients, availability of experienced medical personnel who promptly intubated the most severely injured at the scene, and relatively short triage and transport times.

Conclusion: Stadium crowd surge can result in disastrous outcomes if systems for crowd management are not in place. Stadium and medical personnel will be presented with a unique population of predominantly female patients with mild to severe TA manifestations that may have favorable outcomes if promptly transported and treated.

080.
Primary Health-Care in Disaster

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When the infrastructure in a community is destroyed by man-made or natural disaster, even the simplest health services may be difficult to maintain. By the Alma Ata declaration, the World Health Organization (WHO) proclaimed health for all by the year 2000. The program is supposed to cover the basic health needs as defined by the Primary Heath Care (PHC) system. A most important objective in disaster management, is to support, maintain, and rebuild the PHC to secure basic health services for the population.

Relevant and rapid aid is of great importance in a disaster. Traditionally, surgical equipment and service are given priority, though surgery may not be the most important health problem in all types of disasters. Groups like women and children often are put far down on the priority list. Child mortality and maternal complications will rise during disaster. Many of the 12 million children dying every year die because of war, refugee conditions, and other types of disaster.

The NORAID system is equipment composed to provide PHC with special emphasis on vulnerable groups like women and children. The system already has been tested in many countries and found to be relevant, practical, and relatively inexpensive compared to the benefit derived.

009.
Woodstock '94: An Emergency Medical Services Perspective

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This multimedia presentation will address the planning, implementation, and review of the role of EMS at Woodstock '94. The event was a three-day, rock-and-roll concert on an 850-acre farm in New York, attended by more than 350,000 people. The presenters will focus on the development of the overall medical plan and the inclusion of Incident Command System when the plan was implemented. We will address the interaction of security, the on-site hospital, the first-aid stations, emergency medical services, and the event promoters with the medical plan, and how the plan was modified based on security and volume of patients concerns. The Incident Command System outline will review: unified command post, incident command team, medical control, triage/treatment, staging, ground and helicopter transportation, logistics, communications, personnel, safety, housing and feeding of personnel, and critical incident stress debriefing.

The presentation will offer suggestions for planning for similar events based on our experience at Woodstock '94. Some specific experiences are related to security for an area of this size, frozen zones, environmental considerations, backup communications planning, rotation of personnel, and orientation of volunteer and professional personnel. The adherence to the principles of Incident Command System proved to be invaluable in the success of this operation. The authors recommend that all agencies that have the responsibility of providing disaster coordination, train their personnel in the principles of the Incident Command System.

105.
Medical Aid in a Case of Disaster

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The organization of medical attendance in cases of natural calamity or incident depends on the number of victims and the health system capability. This is a dynamic process that requires competence, investigation, and planning.

The Stara Zagora region (6180 km^2) has a population of 416,338. It is a seismic area (8 degrees by the Richter scale). There also is danger of chemical incidents. The expected number of victims of earthquake is 5,000, and 1,580–20,000 people will be gassed. Investigation in such complex situations has proved that the rescue groups, medical service, and state officials could not cope with the victims on their own. So, this requires: 1) training of the population for first aid and survival in extreme situations; 2) formation, training, and equipping of additional medical and sanitary teams; 3) planning for hospital beds outside of the endangered area; and 4) using rescue teams from neighboring regions or from the military.

The complex conditions, great number of victims, and shortage of equipment require good coordination control and cooperation between different services and departments taking part in the rescue operations to ensure their efficiency.

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032.
Prehospital Medical Care in Disasters in Lithuania: When to Use Special Medical Rescue Groups?

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The main body of prehospital care in disasters is the ambulance service. There are 183 doctors and 440 nurses involved in the ambulances service in the Kaunas region of Lithuania with population 1,180 thousand. The ambulance service of Kaunas region responds to 275,000 calls annually. The ambulance team (doctor/nurse/driver or nurse/driver) is able to provide medical care (advanced life support) of three to five trauma patients and to transport one patient to hospital.

The average of the distances between hospitals in Kaunas region is approximately 30 km. The number of ambulances is limited (there are about two to three ambulances in all cities except for a few of the larger cities (Kaunas, Jonava, and Kedainiai). In these settings, the time for one patient to reach the hospital is one to two hours. Using original method of calculations, we believe that more than 15 to 30 casualties outside of the large cities is the breaking point, and initiates the use of special rescue or military medical services.

102.
Medical Assistance to the Population During International Military Conflicts

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In light of the disintegration of the Soviet Union and international military conflicts on the territory of Russian Federation and the neighboring countries (ex-Soviet Republics), there is a problem of providing medical assistance to the population living in military conflict zones and along the routes of its migration. The specialists of EMERCOM of Russia and of the All-Russia scientific and practical Center "Disaster Medicine" of the RF Ministry of Public Health have rendered the medical and sanitary assistance to more than 75,000 refugees and habitants of regions where military conflicts had taken place: 1)The South Issetia-17,000 (about 7,000 children); 2) the region of Dniester, 20; 3) the Abkhazia, 15,000; 4) the Ossentian-Ingushian conflict, 10,000 (4,000 children), refugees and more than 2,000 hostages; Georgia (Dukhobery, Tkvartchely), 2,500; Chechnia, more than 10,000. More than 6,000 victims (wounded, pregnant, sick, children, and the elderly) received the medical assistance.

Our experience shows that three variants of providing of medical assistance to the population during local wars are possible:

1. Planned medical assistance to the population along the routes of its evacuation (or its migration) (Tadjikistan);
2. Urgent medical assistance to the population living in regions of military conflicts, in zones of refugee concentration, and on the evacuation routes (the South Ossetia, the region of Dnieste, Abrhazia, the Assetian-Ingushian conflict, Chechnia); and
3. Medical assistance to the refugees and their liberation according to medical conclusion (the conflict between Ossetia and Ingushetia).

During the planned preparation of Public Health territorial organs to the refugees' admittance in accordance with the executive authorities in the zone for refugees should be determined.