

### 017. Trauma Teams Performance during the 1994 “Sun-Health Summer Campaign”

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**Objectives:** The performance of nine trauma teams during the 1994 “Sun-Health Summer Campaign” is analyzed. This campaign is carried out by the Emergency Direction Department of the Health Ministry of the Province of Buenos Aires every summer to provide an adequate response to the increased number of trauma patients coming from tourism movement accidents.

**Methods:** Five hundred twenty-one patients were assisted by the nine trauma teams in different hospitals of the Province. These teams were formed with one advanced trauma life support-trained surgeon, one specialist in traumatology, and one in anesthesiology. Nine of these groups have acted in rural hospitals during summer as a regionalization in trauma experience

**Results:** Considering three worst injuries in AIS 85, 110 patients suffered severe, 185 moderate, and 226 minor trauma. Head trauma with alteration of level of consciousness was most frequently found in the first group, followed by thorax and extremity injuries. A total of 46 patients suffering severe head trauma were transferred to higher complexity-level centers since none of the nine hospitals has a CAT scanner and only four of them had critical care units. Twenty-six patients from the first group needed surgical interventions. Extremity trauma was the most frequent in the second group, and only 20 patients were transferred.

**Conclusions:** Trauma team performance decreased mortality rate during first 24 hours. Besides, the number of patients transferred patients diminished, thus optimizing cost and quality of the assistance provided in rural hospitals.

### 044. Civil Military Cooperation in Disaster Preparedness and Management

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In the preparedness for disasters, it often is a problem for countries as to how many facilities should be available. To cope with this problem in The Netherlands, a central facility was created as an emergency hospital that immediately can be used for the admittance of a large number of victims in case of an accident with exposure to chemical, biological, or physical agents (including mechanical trauma). This facility could be established by the close cooperation of four institutes and with the support of the Ministries of Defense and of Health, Welfare, and Sport. The four institutes are: The Utrecht University Hospital, The Armed Forces Hospital Organization, The National Institute of Public Health and Environmental Protection, and the Utrecht University. Several times, departments of

this hospital have been used and the disaster preparedness plan could be evaluated. These situations concerned all civil accidents. To be prepared for disasters, education and exercises are organized by a military/civil team together with the prehospital relief workers (fire brigade; ambulance personnel). For out-of-area peace-keeping operations, the military/civil team also organizes the medical training and education of military personnel.

A video presentation of the work of this organization demonstrates the total relief chain in a combined chemical/mechanical accident with about 100 victims.

### 094. Trauma Center: Conception, Management, and Relation to Disaster Medicine

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The ensuring of trauma care, particularly the care for the polytraumatized patients, is solved by the so called, “trauma centers.” This means the establishment of a network of institutions, adequately equipped both materially and with appropriate personnel to provide complete, up-to-date treatment of victims of polytrauma. According to our experience, it is necessary to calculate the capacity of this center for a region of 1.0–1.5 million inhabitants. This corresponds with about 150–200 beds in a relatively autonomous institution that is connected to a large general hospital.

The are two major experiences associated with the long-term operation of these centers particularly from Austria, Germany, and the Czech Republic. The trauma center in Brno has been operational for 30 years.

We believe that the optimal configuration of a traumatological hospital should: 1) have 200 beds; 2) 50 beds for over-standard care; 3) an AR department; 4) Intensive care unit; 5) intermediate care units; and 6) a spinal care unit (25% of the intensive care beds).

It is possible through managing measures to accommodate the activities of the center very quickly for the needs demanded by a disaster. The bed capacity should be able to be increased by 50%, six operating rooms should be mobilized and available without interruption for 24 hours. Material reserves always should be available. A surgical group, the trauma team, should be readily mobilized.

### 053. Disaster Magnitude Scale “Dimak” and Disaster Scenarios for Analysis of Calamities

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In order to withstand the forthcoming disasters, we must know as much as we can about what may happen in this or that urbanized area due to natural phenomenon or/and man-made

dangerous processes. As a tool for risk analysis and management in the framework of disaster mitigation, Disaster Scenarios (DISC) together with a special DIMAK scale for measurement of any disaster are being developed in the KamCENDR since 1988. The DISC is created on base on: a) especially ordered GIS; b) matrix equations for estimation of damage that depend on multifactoral danger impact, damage formatting factors, worth and vulnerability of urbanization, daytime and season of the disaster; c) Methods of Expert-Logistic Estimation and System Analysis (MELESA).

Three levels of DISC are carried out: DISC-1, direct damage; DISC-2, multi-disaster; DISC-3, lifelines, survival and emergency readiness level.

The DIMAK-Scale is based on the fatalities (K) and on the losses (S), and uses as the principal integrated parameters:  $F = K + 3S$ , measured by "fates," or  $L = S + 3K$  measured by "loss." "One fate" and "one loss" are adopted units of any disaster. It allows to assess and to compare the happened and predicted disasters. In the framework of DIMAK, the clear-cut definition of accident, disaster, catastrophe, scales, and comparative levels of disaster, etc. are developed and presented. The use of DIMAK for measuring various disasters is demonstrated in the special tables. The step-by-step DISC technique, application, and the losses estimation methodology are described. The corresponding software "ONEGA" also is applied.

#### 045. Assessing the Impact of Flooding on the Delivery of Hospital Services in the Southeastern United States

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This study evaluates the impact of flooding on the delivery of hospital services during and following the summer 1994 floods in the Southeastern United States. Areas of concentration include the impact of the floods on continuation of patient care services, the extent of damage experienced, the levels of disaster planning conducted, and the readiness for disaster. Special emphasis was given to disaster planning and problems encountered in the area of information systems and data recovery.

A six-page mail survey was conducted of disaster preparation and the appropriateness of disaster planning in the 111 hospitals located in the 75 counties declared a "Federal Disaster Area." Thirty-nine surveys were returned (35.1% response rate), with the greatest level of response from Georgia (52%), the state most affected. Only 6% reported flooding within property lines. However, 21% reported structural damage and 26% said the flooding affected patient care access and care delivery. Three-fourths stated they had defined and planned for internal disasters. In retrospect, most (73%) felt their facility disaster plan was adequate for this situation, yet rated their community plan less adequate (63%). Seventeen percent had no community disaster plan. Medical information systems recovery plans were present only in 53% of the facilities.

This study describes current hospital disaster planning effectiveness in one region of the U.S. and makes recommendations for future research.

#### 109. The Role of the Medical Advisor at HQ North

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This presentation will outline the contingency planning, assets, and logistics relating to the total defense concept in Norway. This involves the responses to crisis, disaster times of tension, and war. Additionally, personnel also are involved with humanitarian support of other countries, e.g., Bosnia. Reference will be made to the relationship between the national military-civil resources and additional augmentation available on an international scale. The presenter will draw on his 25 years of service and experience in this field, coupled with the recent completion of an MSC in Civil Emergency Management.

#### 018. Continuous Training Program to Face Aircraft Accidents in the Ministro Pistarini Airport

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**Objectives:** To describe the continuous training program in disaster medicine carried out by Province of Buenos Aires Emergency Direction, Ezeiza Zonal Hospital, Airport Medical Department, Pistarini Medical Division, and the Operations Office both dependent on the Argentine Air Force.

**Program Description:** All the topics were presented in both the Airport and the Ezeiza Zonal Hospital. We tried to obtain the results that in case of an aircraft accident, the staff would be able to:

- a) Identify the correct sequence of priorities in disaster situations;
- b) Outline specific team role in different operative situations; and
- c) Demonstrate and perform suitable skills used in disaster management.

Since 1988 and following ICAO recommendations, 236 persons of the airport and hospital staff were trained during three years in six courses, each four months long. The second combined exercise in response to a hypothetical air crash within the boundaries of the airport was held June 1994. Meanwhile, two real events tested the organization: 1) August 1993, a Viasa DC-10 aircraft went off the runway during the landing operation; and 2) A British Airways jumbo jet aircraft flying with 260