

The Utrecht Emergency Hospital has some unique facilities to assist the staff in achieving most of the conditions above. In the Emergency Hospital, the Utrecht University Hospital, the National Poisons Control Centre and the Central Military Hospital collaborate. These organizations guarantee the know-how and expertise in case of mechanical or chemical accidents and in logistical support. In the Emergency Hospital, a triage unit, an intensive care unit (ICU), nursing wards, operating theaters with a recovery unit, and an X-ray department, are immediately available for up to 100 patients. To prepare personnel, there are different educational and training programs. For the admission of large groups of patients, an automated, patient registration system has been developed.

Since 1991, the Emergency Hospital was used 18 times for the treatment of groups of patients. These patients either were victims of mechanical or chemical accidents or were wounded soldiers who were transported from Bosnia. The largest group that was admitted at one time consisted of 143 patients following the evacuation of another hospital.

A major development was the role of the Emergency Hospital to establish cohort isolation of groups of patients in case of required isolation, e.g., multiple resistant staphylococcus aureus (MRSA). Based on the experience of the last 5 years, the importance of an accurate patient registration system, an automated telephone warning system, professional psychological guidance of patients, family and personnel, the handling of patients as a group, privacy of the patient, information to the press, the use of medical treatment protocols and training and education are strongly emphasized.

**Key Words:** disaster management; emergency department; hospital; mass casualty incident; patient registration

#### **Training Facilities for Disaster Medicine in the Utrecht Emergency Hospital in the Netherlands**

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In order to prepare personnel for the admission and treatment of large groups of patients or victims of mass casualties, the medical and nursing staff must be educated and trained in this area, even when they are well-experienced in their own discipline. Most often, this training is provided in large-scale simulation exercises involving the use of many materials and personnel. Relative to the expenses of these exercises, the gain often is poor. In the Utrecht Emergency Hospital, which is the result of the collaboration between the Utrecht University Hospital, the National Poisons Control Centre, and the Central Military Hospital, a structured program was developed for the training of the personnel in Disaster Medicine. This program is used for the instruction of the nursing staff of the first-aid department and of one of the intensive care wards of the Utrecht University Hospital. Both of these departments play an important role in the disaster relief plan of the Utrecht Emergency Hospital.

This program also is used for the training of personnel from supportive services, the medical staff, and nurses from other departments. Furthermore, the training is used for military medical personnel who are dispatched for peace-keeping operations. The training program covers instruction on: 1) medical relief organization; 2) communication; 3) coordination and registration; 4) logistics; 5) triage; 6) medical treatment protocols; and 7) how to inform the press. There also is interest from other hospitals and organizations in the training program organized by personnel of the Utrecht Emergency Hospital.

Although the objective of the training program is to prepare personnel for exceptional occasions, the effectiveness of teamwork in the daily routines of the emergency ward also can benefit from use of this training program.

**Key Words:** disaster management training

#### **Surgical Emergencies in an Urban, Tropical Environment, University Hospital**

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The knowledge of the respective frequency of surgical emergencies cases can help to make a diagnostic process and help to organize and to plan an emergency unit.

The authors of this study made a retrospective study in the Kinshasa University Hospital in order to determine the emergent surgical pathology. Some results are: 1) trauma is the most frequent surgical pathology (51%) encountered, followed by abdominal emergencies (23.5%) and smooth tissue infection (13.7%); 2) males are operated on more frequently than are females, especially young men under 30 years of age; 3) Kinshasa University Hospital, the first hospital of reference in the country, now has become inaccessible to the majority of the people in surgical emergency situation; 4) the emergency unit should be restored in: a) its concept; b) its welcome structures; and c) its equipment; and 5) a permanent educational programme should be available.

**Key Words:** emergencies; surgical; tropical environment; urban

#### **Patient Tracking and Registration in a Hospital in Case of Mass Casualty Incidents**

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Admittance of groups of victims into a hospital after an accident easily can lead to chaos and disruption of the regular hospital organization. To ensure that the chaos that usually follows a mass casualty accident is not perpetuated inside of a hospital that receives a large number of victims, a correct and unique way for registration and continuous overview of registered patients can be very helpful.

The Emergency Hospital Utrecht which is part of the Utrecht University Hospital and the Central Military Hospital, has been confronted several times within

the last few years with groups of patients who had to be admitted immediately. Several systems of tracking these patients were evaluated and the most simple and practical applicable system was a bar-code system using the EAN (European Article Numbering) 128 symbol technique. This system is called the ABC (Automation Bar-code and Chaos) system. Using this system, the team that is in charge of command and control has been able to maintain a continuous overview of the situation. Apart from patient identification and tracking, the system also includes in the registration process indicators of urgency and primary diagnoses.

This system has been used during several accidents associated with the admission of multiple victims. The highest number of patients admitted using this system was 143 during the evacuation of another hospital because of the threat of a flood.

It seems that less errors were made in comparison with manual registration while more information was stored. Pilot studies are being performed to evaluate this method by using it first in a prehospital environment.

The ABC system already has attracted national and international attention. In principle, bar-codes can be used for regular care, replacing the existing hospital punch cards. In the Emergency Hospital, the system already has proven its value.

**Key Words:** automatic data processing; bar-codes; disaster management and planning; patient registration; triage systems

### Organization of Emergency Medical Aid in Patients with Polytrauma in a Specialized Department of Multiple and Combined Trauma of Emergency Hospital

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The Department of Multiple and Combined Trauma contains 75 beds in a city of 1.5 million population and has been functioning for five years. The team includes: 33 general surgeons, 2 orthopedic surgeons, and one neurosurgeon on-call 24 hours per day. The examination period which parallels the beginning of liquidation of severe disturbances of the cardiovascular system lasts 30 minutes. Examination includes: pleural puncture and drainage, peritoneal lavage, laparoscopy, ultrasound examination, echoencephalography, CT-scanning, X-ray and laboratory examinations. Videolaparoscopy and videothoracoscopy are used widely in cases of superficial ruptures of abdominal solid organs, for stopping of hemorrhage from injured intercostal vessels, for sewing lung ruptures, and for liquification of curdled haemothorax, etc. There were 12,242 operations performed in the Department of Multiple and Combined Trauma during the five years. There were 6,393 patients with polytrauma treated, of which 49.8% were severe cases. The mortality rate decreased progressively from 37.2% in 1991 to 26.5% in 1996, due to the improvement of the organization of medical aid and the use of modern equipment.

By the year 2000, we plan to set up the City Center of Disaster Medicine which will include the Departments of Multiple and Combined Trauma, Burn Trauma, Toxicology, as well as Department of Gravitation Surgery, and Critical Care Department on the base of Emergency Hospital.

**Key Words:** efficacy; emergency aid; organizational perspective; polytrauma

### An Organizational Model of a Hospital Information Center

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This presentation describes an organizational model of an information center developed by the Social Work Department of Tel Aviv Sourasky Medical Center based on our experience with mass disasters. The Information Center is designed to provide information upon the arrival of mass casualties at the hospital following terrorist attacks or other catastrophes. The Information Center is comprised of a number of inter-related units within the hospital, and is in contact with a range of organizations in the community. The structure and activities of the various units is described. A number of aspects relevant to personnel organization in crisis intervention is discussed.

**Key Words:** information center; organizational preparation; terrorist attacks

### Session 3B: Hospitals and Disaster

Chairpersons:

E. Šock (Slovenia)

K.O. Sundnes (Norway)

### An Interhospital Disaster Mutual-Aid Plan

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**Introduction:** The United States (US) health care system is an integral part of its national response to disasters. Thus, all acute care hospitals are required to have internal and external disaster plans. Formalized agreements for the exchange of emergency resources on a reciprocal basis, known as mutual aid, are considered mandatory in the Fire/Rescue/Emergency Medical Services and law enforcement communities. Curiously, mutual-aid plans rarely are found among civilian U.S. hospitals.

**Objective:** To design a disaster mutual-aid agreement for the 18 District of Columbia Hospital Association facilities.

**Methods:** A task force of representatives from the disaster committees of the acute care hospitals and appropriate municipal authorities within the District of Columbia met monthly for one year. Their assignment was to create a document that provided a common language