

**ABSTRACTS OF
SCIENTIFIC PAPERS
AND SYMPOSIA
STOCKHOLM, SWEDEN**

**International Conference on
Emergency and Intensive Care
in Disasters
27 November–29 November 1994**

An international conference on emergency and intensive care in disasters was staged in Stockholm, Sweden, in November 1994, to celebrate the opening of the Disaster and Emergency Medical Center (DEMC) at Stockholm Soder Hospital. A unique decontamination station for research and training is at DEMC, and the special focus was chemical, nuclear, and biological disasters, with a number of symposia devoted to this theme. A chemical-disaster exercise also was presented in DEMC's facilities.

Medical priorities and ethical problems when handling mass casualties in disaster and war situations were the subject of other symposia. The experience of telemedicine in disasters and in urgent and emergency care also was reported from centers in Italy, Norway, and Canada, and a special workshop demonstrating the technique was given. In the following abstracts, the various symposia are outlined.

**I.1
The Adaptation of Medical Care to Patient
Overload or Lack of Drugs and Materials**

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In a severe crisis or national disaster, there may not be sufficient resources available for typical peacetime ambitions and, as a result, setting priorities will be necessary. Generally, the following priorities are accepted for war-disaster situations: 1) save lives; 2) preserve function; and 3) provide palliation.

The Swedish National Board of Health and Welfare, with the help of experts, has studied these problems in a project covering a large number of medical specialties. The results will be published as general advice and guidelines to be followed in the provision of medical care in such circumstances.

The aim has been that the necessary changes should not affect drastically the end medical results. It is of the utmost importance that the required reduction of medical care is performed in a balanced way. The following fields have been studied: 1) wartime hospital care—medicine and surgery; 2) general medicine in primary care; 3) nephrology and dialysis; 4) what to do with the children if war or disaster strikes; 5) civilian dental care; 6) transients; 7) infectious diseases; 8) intensive care; 9) technical methods in medical care; 10) laboratory analyses: clinical, chemistry, and microbiology; 11) hospital psychiatry; 12) infusion fluids; 13) rehabilitation; 14) war surgery; and 15) anesthesia. The medical facilities needed to treat individual patients can be minimized. Adequate supplies of essential drugs, materi-

als, and equipment, however, must be available to avoid compromising optimal medical results. Furthermore, social, psychological, and psychiatric problems caused by disaster and war situations must be taken into account.

Conclusions from our studies include:

- 1) Making room for the wounded (Swedish hospitals can decrease the number of beds available for medicine, peacetime surgery, etc., by $1/3$ – $1/2$), and these patients need to be taken care of by the primary-care services;
- 2) Drugs and materials must be used sparingly;
- 3) Priorities have to be changed (see the aforementioned accepted priorities), but medical results for the great majority of patients should be aimed at achieving peacetime levels; and
- 4) Significant decreases in the medical standards must be accepted for certain categories of patients.

Thus, the various areas of medical care can be divided into two groups:

- 1) Peacetime care can be decreased by a large extent, 30%–50% or more (e.g., elective medicine, surgery, intensive care); and
- 2) Care necessary to continue or to increase (e.g., trauma care, burns, dialysis).

Training of doctors to manage the demands of a period of crisis is of utmost importance. Research, development, and education in this field will be beneficial not only for disaster medicine, but also for the optimal use of restricted resources in standard medical care.

**I.2
Medical Priorities in Disasters:
Ethical Problems**

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During the most recent hostility in which the United States participated actively, i.e., retaliating the Iraqi invasion of Kuwait, the U.S. Army utilized only three triage categories. These were: 1) those who needed immediate treatment for a significant chance of survival; 2) those whose treatment could be delayed, yet resulted in acceptable outcome; and 3) those considered hopeless, regardless of medical and surgical intervention. However, in peacetime, it is more common to utilize the following four categories: 1) patients who require immediate intervention to save their lives; 2) patients who require intervention within a

reasonable time period to avoid significant deterioration or possible death; 3) those who can wait for delayed intervention without undue compromise—mostly having minor injuries that are not life threatening; and 4) those who have sustained injury considered incompatible with life, regardless of any intervention.

There exists also a reverse-triage problem that may occur whenever mass casualties are anticipated from a peacetime disaster. This means that a large number of ambulatory victims may appear in the emergency ward of the involved hospital before its personnel are aware of a disaster in progress.

In both of these scenarios, it is important that a competent triage team be dispatched to the disaster scene. This team should not be involved in patient transport or individual patient care, but should be devoted strictly to quick patient assessment and categorization to prioritize for dispatching to the appropriate treatment facility.

I.3 Medical Disaster Organization in Stockholm County

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According to the National Board of Health and Welfare, every county council in Sweden should have a medical disaster plan. The medical disaster plan for Stockholm County is based on the general guidelines from the National Board of Health and Welfare. Medical care service in all rescue operations within Stockholm County are directed from one emergency service center (SOS-A). In the event of serious accidents or disaster situations, a central medical disaster management group, consisting of the staff doctor, a duty officer, and personnel from the SOS-A, directs the medical work. All radio communications to and from the injury site and to and from the hospitals involved must go via SOS-A.

In the injury area, a well-trained senior medical officer is in charge of the medical operation supported by a command ambulance orderly for communication. An injury-site doctor and medical teams work at the accident site and the assembly point. Five emergency hospitals can send medical teams to an injury area. A medical team consists of one doctor and two nurses, all well-trained in emergency and disaster medicine. Stockholm has nine emergency hospitals. Each hospital must have a local plan to rapidly assume disaster preparedness and become receiving hospitals.

For emergency transportation, Stockholm County has about 50 ambulances and two ambulance helicopters. To support ambulance orderlies in emergency cases, Stockholm has four emergency vehicles, each with an anesthetist-nurse and an ambulance orderly. In the rescue operation, medical-care personnel work together with other authorities and organizations. The most important of these are the municipal rescue service, the police, MRCC, and ARCC. The medical-care personnel provide collaboration of education and training. The Central Disaster Medical Planning Department (CAK) has a contract with each of the hospitals and includes disaster preparedness, the ability to send medical teams to injury sites, and annual education and training.

I.4 Disaster Medicine Policy in Latvia

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The system of disaster medicine presently is forming in Latvia. In the former Soviet Union, this service did not exist as a separate branch, but instead only the civil defense system functioned. The strategic goal of disaster medicine in Latvia is an efficient medical-care system for emergencies and disasters formed within 10 years, and developing and achieving the European level of effective operational and qualitative disaster medical care. The main directions of the disaster-medicine policy in Latvia are: 1) organization and management of disaster medicine; 2) organization of operational service; 3) training and education research; 4) provision of medical materials, technical provision, and financing; and 5) coordination and cooperation.

I.5 Prehospital Medical Care in Disasters in Lithuania: Cooperation Between Military and Civilian Services

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The commencement of medical care in disasters and accidents usually coincides with the arrival of the ambulance. The ambulance team (one doctor, one nurse, and one ambulance) is able to provide medical care (advanced life support) for three to five patients, and is able to transport one patient to the hospital. In disasters with large numbers of casualties, the abilities of two to three ambulances are insufficient to provide optimal care for all casualties within an optimal time.

We proposed and created, on the basis of military medical service, the special mobile station on the basis of the battalion station. This station (two doctors, two ambulance drivers and three nurses) has sufficient supplies of medical equipment to take care of 15–25 casualties, to prepare them for transportation and evacuation, and to provide decontamination. This station is on duty and able to provide service within one to two hours.

I.6 Interhospital Transport of the Critically Ill in a Rural Setting

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Many rural hospitals lack the facilities that would allow adequate management of certain critically ill patients. This problem is true especially for developing countries, such as those in Latin America. Patients often are transported in ambulances that do not meet minimum standards. More importantly, patients that require constant medical care during their trans-