

Overall, recorded death rate was 0.5/10,000 (all associated with diarrhea). 3,586 bodies were identified in the refugee camps and surrounding areas of Goma, almost all the result of trauma. Many died in the weeks before the exodus. Health centers were overwhelmed and many of the deficiencies in provision of health care identified in 1994 were again evident. Non-violent death rates were low, a reflection of the population's health status prior to migration and immunity from the 1994 cholera outbreak. Health facilities were over stretched, principally because of depleted local health care workers following the 1994 genocide. Health care facilities running parallel to the existing health care system functioned most effectively.

Session 3: Preparedness

Chairpersons:

- B. Brismar (Sweden)
- T. Silfvast (Norway)

A Law Defining the Transport of Unidentified Casualties: A Necessity to Allow Care on an International Scale

Dr. J. M. Fonrouge;¹ C. Allibert;²

Professor S.W.A. Gunn;³ Professor M. Bélanger⁴

1. C. H. U. Hospital, E. Herriot, Cedex, France 2. Faculté de Droit de Lyon, Lyon, France 3. President, World Association for Disaster and Emergency Medicine (WADDEM) and the World Health Organisation (WHO), Geneva, Switzerland 4. Professor, Université de Droit de Bordeaux, Bordeaux, France

The probability of the occurrence of a technological accident is increasing constantly in-line with the development of industrial societies. The right of access to care is a right recognized and accepted in all countries that grant their citizens a place in accordance with the Declaration of Human Rights.

What becomes of deceased persons is the subject of national and intergovernmental measures in order to identify the victims and to comply with the laws of each State. Forensic medicine services are mobilized, but recent cases at a European level, define the place of the procedures outlined by the services of Interpol.

The future of injured persons can pose similar problems when the lesions (burns) affect the faces of large numbers of victims, and cause the patients to lose consciousness. In this type of disaster, the country concerned may not have at its disposal an adequate number of specialized care units.

The evacuation of victims to other countries makes it necessary to respect civil laws regarding the first measures to identify those involved prior to crossing borders. It also is desirable that the introduction of a regional law be promoted that will allow, through agreements between states, the evacuation of even anonymous victims to specialized care services.

The example of the bilateral agreements established between Switzerland and France proves that the logic of

humanitarian law is progressing in this direction.

The authors will present their study of the different agreements ratified with the specificities particular to each convention. It is up to each state to further these measures, as much with respect to the acceptance of the reception of anonymous victims as to the agreement of transfer of unidentified victims.

Key Words: anonymous victims; burns; international law

Disaster Medicine Service of a Large Industrial Region

R.A. Halfin; V.F. Turnisky; A.I. Nikiforof;

E.K. Nikolaev; V.P. Popov; O.V. Kolasnikov;

U.V. Revenko

Center of Disaster Medicine, Ekaterinburg, Russia

The main concept of Disaster Medicine lies in the organization for tactical and medico-technological problems. The local service of Disaster Medicine was founded the Sverdlovsk Region in 1993. One of the main principles for its formation was the rational requirement of forces and equipment for the area of 270,000 sq. km. and the 5 million people who inhabit the Sverdlovsk region. The region consists of a sector with a large industrial concentration, and also some areas that are considerably remote. Special attention was paid to the formation of mobile departments that are self-contained and can work autonomously.

Five of these departments are on duty every 24 hours. During 1995–1996 emergency general anaesthesia was provided for 1,530 patients. Among these, 1,163 were done in the military conditions in Chechnya: three of these cases died. There were no such cases during the other 367 anesthetics provided in the territory of Sverdlovsky Region. Sixteen patients were transported by helicopter with the help of artificial lung ventilation; among them, two patients successfully were provided cardiopulmonary resuscitation (CPR). Successful CPR also was provided for two of the 38 patients while being transported by an automobile (ambulance). In all cases, we provided EDC respiratory support, intravenous infusions, indirect cardiac massage, and drug therapy. Thus, the first experiences of the Disaster Medicine Center demonstrated the effectiveness of providing treatment and decreasing the morbidity of patients in conditions of catastrophes.

We want to recognize with great respect, the name of the founder of Disaster Medicine, Rudolf Frey. Today, the realization of his ideas takes place in the whole world and are of great benefit to all mankind.

Key Words: anaesthesia; cardiopulmonary resuscitation (CPR); disaster medicine; management

Problems on the Earthquake Disaster

*Yoshio Murayama, MD; *Yukio Shimizu, MD; Shuuichi Okumura, MD*

*Director of Surgery, Akashi National Hospital, Akashi, Hyogo, Japan

At 05:46 hours on 17 January 1995, a major earthquake (magnitude 7.2 on the Richter scale) hit the southern

part of Hyogo Prefecture in Japan. Approximately 0.34% of the residents of Kobe City were killed instantly and at least 2.4% were injured. Nearly 20% of them became temporarily homeless. In the stricken area, 9% of hospitals completely collapsed, and approximately 10% of hospitals lost their functions because of the disruption of lifelines and the shortage of manpower. Only 58% of the physicians, 44% of the nurses, 66% of technicians, and 31% of medical clerks were able to reach their facilities on that day. Damage of turnpikes and public roads made it difficult to transport them and the patients. The playgrounds regarded as temporary helipads were not usable because cars belonging to refugees occupied them immediately after that quake.

This presentation will detail the seismic problems.

Key Words: damages of hospitals; disaster; earthquake

Casualties of the Earthquake Disaster

*Yukio Shimizu, MD; *Yoshio Murayama, MD*

*Director of Anesthesiology, Hakodate National Hospital, Hokkaido, Japan

A major earthquake kills and injures residents relative to its intensity. In Japan, a fairly large number of houses are wooden and vulnerable to the quake or fire. On 17 January, 1995, a major earthquake struck the southern part of Hyogo Prefecture. Approximately 0.34% of the residents were killed on that day. At least 2.4% of citizens were injured in Kobe City. In the most heavily stricken area of Kobe City, 0.87% of inhabitants were killed instantly and 3.4% of them were injured.

Generally speaking, an earthquake strikes suddenly, and it is very difficult to immediately estimate the degree and the extent of the damages. In the future, if an earthquake of the magnitude 7 on the Richter scale occurs somewhere in Japan, we must be prepared at once for the emergency treatment of at least 3% of the residents of the affected area.

Key Words: casualties; disaster; earthquake; Kobe

Principles of Evacuation of Shock Patients in Intensive Care Medicine in the Siberia Region

V. Slepukhin; S. Vassiliev; O. Fomki; I. Galeev; A. Ivochkin; L. Koroll

Institute of General Reanimatology, Novokuznetsk Branch, Novokuznetsk, Russia

Characteristic factors that influence the evacuation of shock patients in the Siberia Region include:

- 1) low ambient air temperature for seven months of each year;
- 2) lack of good quality roads;
- 3) long distances; and
- 4) lack of proper ambulance and air transportation.

Due to these characteristics, the following measures are necessary in order to provide medical assistance in emergency situations:

- 1) the use of special isolating bandages on limbs of patients with shock and combined (frozen) traumas;

- 2) proper immobilization of limbs and vertebral column using vacuum frames and mattresses;
- 3) quick and stable compensation of deficits of volume of circulating blood volume (7.5/0) using a solutions of normal saline and colloid blood substitute (1:1) calculated as 5 ml/kg of body mass;
- 4) sufficient sedation and anesthesia (diprivan and analgesics of agonist-antagonist type);
- 5) prolonged forced ventilation of lungs with fans working from the mains and back-ups (Beer-33);
- 6) hemodynamic stabilization (solumedrol, dobutrex);
- 7) prevention of organ insufficiency (administration of neothone, 5–6 g of glucagon, 1 mg aktovegin, 2 g of glucose);
- 8) monitoring of life providing functions (SpO₂, HR, AP, ECG); and
- 9) attendance of a resuscitation doctor, specially trained according to the program of intensive care medicine.

Key Words: ambulance; evacuation; hypothermia; resuscitation; shock; Siberia Region; transportation

Action Cards Used to Link

Human Behavior and Disaster Planning

Hans Svensson, RN

Department of Anesthesiology, Visby Hospital, Sweden

Background: Most disaster situations occur suddenly and without warning. With little information available, steps must be taken to build the organization of resources in a proper manner. Every participant must identify his/her starting position and know the direction for the first move. Using the Questions and Confusion Action Cards will provide good support for preparing the organization for the disaster.

Methods: In order that the common goal is made clear, everyone must have the same goal. The areas of responsibility must be balanced and the tasks divided—balance who is doing what and eliminate any duplication of jobs. Relevant factors as sectors, stations, and equipment should be coded and put into a computer program.

Results: Designing Action Cards with computer aid will provide a lot of complementary information. How staff will form the organization? What are the needs and level of qualifications in a specific sector or station? How are the sector teams manned in respect of what they are expected to do? The need of equipment can be of value to know in various parts of the organization.

Conclusion: Action Cards are superior to other methods to detail staff and save time. They will answer anyone's questions of "What to do?" and "Where to go?" and "With What?" in situations that often are foggy and turbid.

Key Words: action cards; disaster planning; human behavior