

During the last three years, an interdisciplinary research group at the University of Osnabruck collected empirical data about the quality of vocational training of EMTs in Germany. This investigation used a special, standardized "Emergency-Parcours" at vocational training schools in Germany. This "Emergency-Parcours" included: 1) stations of IV access; 2) intubation; 3) electrocardiogram interpretation; 4) splinting a fracture; 5) helmet-removal with immobilization of the cervical spine; and 6) extended cardio-pulmonary resuscitation (BCLS and ACLS). The trainees, who were tested in this "Emergency-Parcours" were videotaped by a professional film team. The film documents were made in order to analyze and evaluate the study in an objective and standardized way.

Some of the results were surprising:

- 1) The quality of the vocational training of EMS in Germany varied considerably among schools since it is not standardized. The study showed that the qualification of EMTs after finishing their vocational training, is not similar. Patients with the same symptoms are not necessarily treated in the same way by EMTs; and
- 2) Most of the EMTs who were tested in the study are well-prepared in ACLS, but many have great deficits in BCLS, particularly in the area of CPR. Trainees performed ACLS functions such as an intubation or a defibrillation well. The trainees consistently utilized incorrect cardiac compression and ventilation rates during CPR.

**Key Words:** advanced cardiac life support; basic cardiac life support; competency; emergency medical technicians; quality vocational training; "emergency-parcours"

#### Training of Specialists-Coordination Within the System of Disaster Medicine Service

*S.V. Trifonov; V.A. Zhukov; I.I. Sakhno*

All-Russian Centre for Disaster Medicine "Zaschita," Moscow, Russia

Disaster Medicine, as a scientific discipline of graduate and postgraduate training of medical personnel, was introduced in Russia at the beginning of the 1990s. The Chairs of Disaster Medicine were established in all medical colleges and postgraduate training institutions. A Methodological Council was set up at above chairs within the framework of the Russian Federation (RF) Ministry of Public Health on the basis of the All-Russian Centre for Disaster Medicine (ARCDM), "Zaschita." The Council deals with the certification of training institutions entitled to teach specialists in Disaster Medicine services and with the pursuing the common policy in teaching of this discipline.

To develop planning of postgraduate Disaster Medicine specialists training, ARCDM "Zaschita" conducts research into estimating the demands of such specialists regarding social and demographic factors and the scope of previous training.

The head chair in the training of the service executive personnel was established in 1994 on the basis of

ARCDM "Zaschita." Thus far, 540 specialists-coordinators of Disaster Medicine services have undergone postgraduate training under the direction of the chair. The education of the specialists is accomplished at a permanent centre and on the traveling basis. The lectures on the traveling basis receive a great deal of attention, as they are the most economical ones.

The main educational forms specified by the unified curriculum of postgraduate physician (pharmacist) training in Disaster Medicine consist of: lectures, practical studies, seminars, staff training (exercises), business games, etc. The aims and tasks of postgraduate training of the service specialists and coordinators belonging to different hierarchical levels correspond to their functional and professional status.

**Key Words:** disaster medicine; training of the personnel

#### The Positive Training Impact for 489 Physicians and Surgeons on Duty at the Public Hospitals of Rio de Janeiro

*Marcos Musafir; Roberto Frota Pessoa;*

*Ronaldo Gazolla; Eduardo Kanaan*

Rio de Janeiro, Brazil

The Trauma Association of Rio de Janeiro and the local order of the Orthopaedic and Traumatology Association combined with the public emergency city government, provided 16 courses to 30 doctors each in hospitals in the Systematic Management of the Polytraumatized Patient, directed at the reality and necessity of the 8 million people living in that area, where the provision of emergency care is totally free.

The courses of two days each were held from September until November, 1996 at the Veterinarian Institute. They were composed of lectures, panel discussions, case presentations, practice models, accident simulations, and written tests.

The students believed that frequent training in emergencies and trauma, is very important for improving the quality of the patient care. The positive impact of the courses was related to the inclusion of the routines required to manage the polytraumatized patient, the motivation of the health care workers on duty, the tremendous economy of materials, medication, machines, and products. But, the most important effect was the re-reduction of the mortality rate by 18% in Rio. All the details and statistics will be shown during the presentation.

**Key Words:** courses; polytrauma; quality; systematic management

#### Disaster Management in Extreme Environments

*Victor S. Koscheyev, MD, PhD*

Division of Kinesiology, University of Minnesota, Minneapolis, Minnesota USA

The effects of severe environments, such as extreme cold or heat, are factors that must be included in response planning and in the early and continuing management of disasters. These environmental conditions have an

impact on the length of the health recovery period of both the disaster workers and the affected populations.

Planning needs include better coordination among the many agencies that must respond in extreme environments, and the selection and utilization of specific techniques, equipment, and medical and support staff who are able to work in such conditions. Despite the current use of different types of protective equipment, there is a continuing need to enhance the physical and psychological comfort of disaster workers, and thus increase their effectiveness in extreme conditions.

Examples of the types of problems encountered in extreme environments are presented, based on the author's first-hand knowledge of the Chernobyl and Armenian earthquake disasters, and more recently, winter exercises held in Minnesota to enhance disaster response effectiveness in harsh climatic conditions. The Health Protection Center recently developed at the University of Minnesota is described, including its focus on helping individuals cope with the many problems encountered in extreme environments. Research currently is underway on the management of astronauts in the environmental extremes of simultaneous heat and cold that occur in open space, in which it is highly important to stabilize overall and local comfort. The focus of these investigations is on the development of informative and effective feedback techniques regarding physiological functioning and human performance, and tactics for health protection and safety. Planning for the provision of medical services in such extremes, including various emergency conditions, also is a research goal.

**Key Words:** disaster workers; extreme cold conditions; extreme heat; population protection

### Training of Doctors In Cardiopulmonary Resuscitation—The Saxonia Model

*C.H. Rudolph; K. Kramer; D. Olthoff*

Department of Anaesthesiology and Intensive Care Medicine, University of Leipzig, Leipzig, Germany

The success of cardiopulmonary resuscitation (CPR) depends primarily upon the quickness and knowledge of the first helper. Consequently, the first-aid capabilities of the emergency witness is the principal limiting factor in the rescue chain. This also applies to general practitioners as well as doctors working in hospitals and in university clinics.

From the experiences gathered at the Department of Anaesthesia, University of Leipzig, we show that the doctors have a deficit in the knowledge of the basic steps in CPR. Based on these facts, the proposal for obligatory resuscitation training for doctors in all fields of specialization was accepted unanimously by the delegates of the 3rd Saxonia Doctors' Congress in 1993.

We have provided such training at our clinic since April 1994. Under the patronship of the Medical Council of Saxonia (MCS), the courses are being conducted at more than 15 centres. This was possible through the purchase of skill materials (Skillmeter Anne by Laerdal) valued at 75,000 DM, financed by the

Medical Council of Saxonia. The theoretical and practical instructions are in accordance with a standardized curriculum, authorized by the MCS which also adheres to the recommendation of the European Resuscitation Council (ERC). The participants received eight hours of training from an experienced anaesthetist. The independent and repetitive practice on mannequins are the main aspects of this training. If any participant possesses an emergency kit, he/she is allowed to bring it along and practice with it on the mannequin.

At present, 1,300 doctors in Saxonia have been trained. In 10 of Berufsordnung der Sächsischen Landesärztekammer (service regulations of Saxonia's doctors), the duty for further education and practical resuscitation training is included. The training was well-received by the participants and confirmed the necessity of such training along with the studies. It would be desirable for the enhancement of general quality that all the doctors have the obligation of the described.

**Key Words:** Cardiopulmonary Resuscitation (CPR); continuing education; physicians; practice; quality

### Orotracheal Intubation in Anaesthesia: Method

*J.M. Fonrouge, MD;<sup>1</sup> P. Branche, MD;<sup>1</sup>*

*F. Lakdja, MD;<sup>2</sup> Professor P. Petit, MD<sup>1</sup>*

1. C.H.U. Hospital, E. Herriot, Lyon, France 2. Institut Bergonie Bordeaux, Bordeaux, France

Video Film: 14 minutes, French or English language

This film presents the method to perform an oro-tracheal intubation in anaesthesia. It includes:

- 1) patient examination;
- 2) classification of Mallampati, Cormack and Lehane;
- 3) technique of this practice;
- 4) validation of the probe position; and
- 5) analysis of the different views of the glottis.

**Key Words:** anaesthesia; tracheal intubation; training

### Session 5A: CardioPulmonary Resuscitation

Chairpersons:

F. Rutten (The Netherlands)

H. Geyvais (Germany)

### Modification of the Closed Circuit Underwater Breathing Apparatus, Lar V, Makes It Suitable for Artificial Ventilation in Mass Casualty, Ship Accidents

*B. Neubauer;<sup>1</sup> T.S. Mutzbauer<sup>2</sup>*

1. Federal German Navy (FGN) Weapons Divers Group, Germany 2. Department of Anesthesiology and Critical Care Medicine, University of Ulm, Ulm, Germany

**Objective:** Military divers are familiar with cardiopulmonary resuscitation (CPR) as well as with various kinds of diving equipment. The purpose of this study was to find out, if the closed circuit underwater, rebreathing set, LAR V (Dragger ERG, Lübeck, Germany) could serve as adjunct for ventilation in remote locations, for example,