

Evaluation of Training and Quality Management during 8 Years

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Early defibrillation is an internationally recognised first aid concept in case of cardiac arrests caused by ventricular fibrillation. Comprehensive studies show a significant increase in the rate of successful resuscitations. However, due to the organisational structure of the rescue service, the immediate availability of a doctor for defibrillation in case of ventricular fibrillation is not always ensured. Therefore, this activity should be delegated to the medical assistant staff. This evaluation shows the application of this concept over a period of eight years.

The District of Dachau covers an area of 579 km² with approximately 129,000 inhabitants. The rescue service is provided exclusively by the Bavarian Red Cross. They operate four rescue stations and two emergency doctor vehicles around the clock. During daytime, the emergency doctors on call are provided by the hospitals of Dachau and Markt Indersdorf. At night and on weekends, the emergency doctors on call are provided by a group of specialist doctors only. In addition, there always is a "leading emergency doctor" on duty.

The training concept was carried out as follows: In June 1993, the first medical assistant staff was trained in a pilot project. At that time, mostly paramedics could participate in this project. The course included a 16-hour basic training in ECG interpretation and knowledge of medical equipment. Furthermore, the participants were taught the application of the preset algorithm by case simulations. The algorithm was preset by the persons in charge according to the general guidelines of the AHA and the ERC. The doctor-in-charge tested the training success by a written and practical examination. To maintain a high quality standard, the training was repeated every six months with a final refreshing examination. Already in 1994, the suggestion was taken up to train also medical staff whose education did not correspond with that of the paramedics. So, it was ensured that also first responders master early defibrillation. Therefore, the number of medical aids participating in the refresher courses has continued to grow. In 1993, 43 persons were trained, while in 2000 the number of participants rose to 125 whose prevailing role was as first responders.

In accordance with these requirements, requisition of equipment had to be increased. In 1993, only two defibrillation training units were available. Today, we are able to meet our requirements with AEDs on every ambulance, emergency vehicle and first responder.

Thanks to these efforts, the rate of primary successful resuscitations could be raised to 42% in the District of Dachau. The rate of long-term survivors amounts to approximately 12%. For example, in 2000, the AED was used eight times without the presence of a doctor with respect to a total of 90 resuscitations.

Thus, it can be shown that quality management leads to

higher quality standards also in the rescue service, significantly improving the medical care to the population.

Key words: automatic external defibrillation; first responders; paramedics; physicians; resuscitation; success; training
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Trauma Management in the Rescue Service: Circle Training as an Educational Concept and Analysis of a New Training Method

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Introduction: Trauma management is a challenge for every doctor on emergency call. An emergency with poly-traumatised patients always represents a special stress situation for the medical staff involved. This situation may be aggravated by the technical rescue teams with unknown equipment and different working methods. If communication and teamwork have not been trained at all levels, a rather simple, but potentially complex situation can quickly turn into a dangerous one for the patient and the rescue team. In order to reduce these uncertainties, a new training concept was tested within the service area of the Rescue Association of Dachau.

The District of Dachau covers an area of 579 km² with approx. 129,000 inhabitants. There exist two federal highways as well as a great number of winding country roads as potential dangers for creating trauma. The district is crossed by an ICE railway track. Moreover, the district is situated within the closer lane of approach to the Munich Airport Franz-Josef-Strauß, and is included into its primary plan of alert. The rescue service is provided exclusively by the Bavarian Red Cross that operates four rescue stations and two emergency doctor vehicles around the clock. During the daytime, the emergency doctors on call are provided by the hospitals of Dachau, Markt Indersdorf. At night and on weekends, the doctors on emergency doctors on call are provided only by a group of specialist doctors. In addition, there is always a "leading emergency doctor" on duty.

Method: The training concept was carried out as follows: (1) to the effect of a circle training, the participants were assigned into small groups. The training was offered as a lecture and performance simultaneously for assistant staff and emergency doctors; (2) the teams were formed only at the route of practice, but were not separated during the whole training program; (3) the teams consisting of at most 4 emergency doctors and 4 to 6 paramedics passed one after the other through realistic stations of practice, such as road accidents, explosion accidents, construction site accidents; and (4) a forward medical post with approximately 20 injured persons had to be built up—this being the most difficult task to organise from a tactical point of view. The training concept contained the support and guidance of the team by experienced emergency doctors and members of the Fire Brigade of Dachau on the basis of a tutor system. Special attention was paid to the organisation of the place of damage under the restricted conditions of first action.