

International Commission for Mountain Emergency Medicine ICAR MEDCOM FALL MEETING 2012 KRYNICA, POLAND

Report to the Mountain Rescue Association By Ken Zafren, MD, Vice President of the ICAR MEDCOM Representing the MRA – United States

It was my privilege to represent the Mountain Rescue Association at the Fall 2012 meeting of the ICAR MEDCOM in Krynica Poland. The meeting took place on October 4-6, 2012. For those who are interested in the details of the meeting, I have submitted the minutes as a separate document. This report presents two important new guidelines for mountain rescue.

In addition to support for registration and intra-European travel from the Mountain Rescue Association, my travel to and from Europe was supported by the Institute of Mountain Emergency Medicine (IMEM) of the European Academy (EURAC) in Bolzano, Italy. I am a member of the Scientific Advisory Board of the IMEM, which met on October 9, 2012 at EURAC in Bolzano.

I hope you will find this report useful.

Respectfully submitted, Ken Zafren, MD

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TERMINATION OF CARDIOPULMONARY RESUSCITATION IN MOUNTAIN RESCUE

Paal P, Milani, M, Brown D, Boyd J, Ellerton J Termination of Cardiopulmonary Resuscitation in Mountain Rescue. *High Alt Med Biol* 2012 Sep; 13(3):200-208.

The goal of this paper was to "establish scientifically supported recommendations for the termination of cardiopulmonary resuscitation (CPR) in mountain rescue, which can be applied by physicians and nonphysicians." The decisions whether to start and when to terminate CPR are often made by nonphysicians. A decision to resuscitate an apparently lifeless victim often increases the risk of injury or death of the rescuers. For example, 6 European rescuers died in January 2010 while trying to extricate avalanche victims when subsequent avalanches occurred. This paper gives recommendations for withholding or terminating CPR. It concludes: "Medical directors of rescue teams should interpret these recommendations in the context of local conditions and laws, and create team-specific training and protocols for determining when to withhold and terminate CPR in a patient with absent vital signs."



FIG. 1. Algorithm for termination of CPR in mountain rescue.

*Other special circumstances include for instance drowning, lightning, and poisoning. In cardiac arrest due to special circumstances, such as these conditions, prolonged CPR may be associated with a good neurological outcome (see text for details) (Gilbert et al., 2000; Ibsen et al., 2002; Moser et al., 2005; Oberhammer et al., 2008). {When transport delays are excessive and special circumstances do not apply, it may be reasonable to terminate CPR after a 20 min period without ROSC provided that there has been no shock advised by AED or only asystole on ECG during the 20 min (this may apply to both witnessed and unwitnessed arrests without special circumstances). In special circumstances, where extended CPR is warranted, if transport to hospital is not possible then the rescuer will ideally mitigate the special circumstance prior to terminating CPR. In situations where transport is not possible, mitigation of special circumstances is not possible and further resuscitation is futile, CPR should be terminated.

{Non-physicians should contact a suitably qualified physician if available

RESUSCITATION OF AVALANCHE VICTIMS

Brugger H, Boyd J, Elsensohn F, Paal P, Strapazzon G, Winterberger E, Zafren K. Resuscitation of avalanche victims: 2012 Evidence-based guidelines of the International Commission for Mountain Emergency Medicine *Resuscitation.* In Press

This paper has a long history. It is the lineal descendent of the seminal paper on the subject, published in Resuscitation 16 years ago: Brugger H, Durrer B, Adler-Kastner L. On-site triage of avalanche victims with asystole by the emergency doctor. *Resuscitation.* 1996 (31) 11-16.

The algorithm in the present paper (on page 6) is similar to the 1996 algorithm, but it has been refined based on systematically developed evidence-based guidelines using a formal process that did not exist in 1996. The presentation of the algorithm has also been simplified to make it more user-friendly. The term "air pocket" has been replaced by patent airway in the interest of clarity. The traditional "air pocket" was difficult to discern during the extrication of avalanche victims. The airway is considered patent if it is not blocked with snow at the time of extrication.

Asphyxia may occur with trauma and hypothermia. A patent airway is necessary for survival for >35 minutes.

Victims who are extricated within 35 minutes who are in cardiac arrest are presumed to have asphyxia and should receive standard CPR with ventilation as soon as possible.

Victims who are extricated after 35 minutes with a patent airway who are in cardiac arrest should also receive standard CPR with ventilation as soon as possible. If the cardiac arrest is determined to asystolic, CPR should be terminated.

Victims who are extricated after 35 minutes in asystolic cardiac arrest without a patent airway should not be resuscitated.

One of the important pieces of evidence is the avalanche survival curve below, adapted from Haegeli P, Falk M, Brugger H, Etter HJ, Boyd J. Comparison of avalanche survival patterns in Canada and Switzerland. *CMAJ.* 2011 (183) 789-795. The early drop in survival is due to injuries sustained in the avalanche and to asphyxia in victims who do not have a patent airway. The lower early survival in Canada seems to be due to a higher rate of death from trauma and earlier asphyxia because of denser snow in coastal regions.





Avalanche management algorithm