



International Commission for Alpine Rescue

2023 Final ICAR Termination of Resuscitation in Mountain Rescue updated Recommendations

Prepared for the AOD by John Ellerton (MedCom President) and based on the ICAR MedCom recommendations published in High Altitude Medicine and Biology.

Passed by the Assembly of Delegates 21st October 2023.
For review in 5 years

These ICAR recommendations are designed for rescuers operating at a Basic Life Support (BLS) level. They aim to help mountain rescuers in decision making* on whether to start, withhold or terminate CPR in a variety of situations encountered in mountain rescue. The full ICAR MedCom paper is available at: xxxx.

Recommendations have a grade (ie 1B) for the evidence underlying the statement. The American College of Chest Physicians grading system is used. This measures the importance of the recommendation and strength of the supporting evidence. (Table 1) 1A is the highest grade; 2C is a weak and poorly evidenced recommendation.

* Decision making maybe prescribed by national, regional or organisational rules and these are likely to take priority over ICAR recommendations where conflict occurs. Medical directors of mountain rescue teams should consider creating local protocols for termination of resuscitation in traumatic cardiac arrest bearing in mind that current urban guidelines consider terminating CPR if the transport time is greater than 15 minutes.

Comments are welcome; please send them to:
mountain.medicine@alpine-rescue.org

Recommendations:

No.		Grade
	Non-traumatic cardiac arrest	
1	In patients with clinical condition suggestive of a non-traumatic cause of cardiac arrest, cardiopulmonary resuscitation should be initiated.	1A
	Safety of rescuers	
2	If the environment is unsafe, consider first transporting the patient to a safe place before commencing resuscitation.	1A
	Termination of CPR	
3	Resuscitation may be terminated when all of the following criteria apply: unwitnessed loss of vital signs, no return of spontaneous circulation during 20 minutes of CPR, no shock advised at any time by AED or only asystole on ECG, and no hypothermia or other special circumstances that warrant extended CPR. If no AED is available, consider terminating CPR after 20 minutes of unsuccessful CPR.	1A
	Use of automatic external defibrillator (AED)	
4	The use of an automated external defibrillator (AED) improves management of a primary cardiac arrest.	1A
	Mechanical chest compressions	
5	Mechanical chest compression devices may be helpful with prolonged CPR or during travel through difficult terrain.	1A
	Traumatic cardiac arrest	
6	Resuscitation should be withheld in victims with signs of un-survivable trauma such as decapitation, loss of brain tissue, truncal transection, incineration and penetrating cardiac trauma.	1A
7	In traumatic cardiac arrest patients, reversible causes should be treated. In patients still without vital signs after >10 min of CPR termination of resuscitation should be considered.	1B
	Hypothermia	
8	Hypothermic patients without vital signs should be considered for CPR and ideally transported to a center capable of ECLS rewarming.	1A

	Drowning	
9	Withhold CPR in a drowning victim with a submersion time >30 minutes in water >6 C or >90 minutes in water <6 C.	2A
	Avalanches	
10	In avalanche victims with burial duration > 60 minutes, asystole, and an obstructed airway, consider withholding or terminating CPR.	1A
11	Avalanche victims with a core temperature < 30°C without evidence of an obstructed airway or lethal injuries should be managed with full resuscitative measures and transported to an ECLS capable center.	1C
	Lightning strikes	
12	In cardiac arrest patients caused by a lightning strike, prolonged CPR should be performed. Prolonged ventilatory support may be necessary even when cardiac output has returned.	2A
	Burns	
13	Patients who suffer cardiac arrest from burns are unlikely to survive with good neurological outcome. Cardiopulmonary resuscitation should be terminated after 20 minutes if there is no return of a spontaneous circulation.	1C
	Poisoning	
14	In patients with cardiac arrest because of suspected poisoning or substance overdose, contact with a poison control center should be considered before termination of CPR.	1C

The Grading System of the American College of Chest Physicians

Grade	Description	Benefits vs risks and burdens	Methodological quality of supporting evidence
1A	Strong recommendation, high-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	RCTs without important limitations or overwhelming evidence from observational studies
1B	Strong recommendation, moderate-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	RCTs with important limitations or exceptionally strong evidence from observational studies
1C	Strong recommendation, low-quality or very low-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	Observational studies or case series
2A	Weak recommendation, high-quality evidence	Benefits closely balanced with risks and burdens	RCTs without important limitations or overwhelming evidence from observational studies
2B	Weak recommendation, moderate-quality evidence	Benefits closely balanced with risks and burdens	RCTs with important limitations or exceptionally strong evidence from observational studies
2C	Weak recommendation, low-quality or very low-quality evidence	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk, and burden may be closely balanced	Observational studies or case series

American College of Chest Physicians classification scheme for grading evidence and recommendations in clinical guidelines. RCT, randomized controlled trial. Source: Guyatt et al. Chest 2006;129:174-81.