



# International Commission for Mountain Emergency Medicine (ICAR Medcom)

October 18-22, 2023  
Toblach, Italy

## Draft Minutes

**Participants:** List is circulating - please add to it - see Appendix 1  
64 members and guests representing 38 ICAR member organisations.

**Apologies:** Viktor Lugnet (Sweden), Naomi Dodds (Scotland), Mike Greene (England and Wales), Aaron Reilly (US), Niels Holthof (CH), Alastair Glennie (Scotland), Sven Christjar Skaiaa (Norway), Hermann Brugger (Italy), Julia Fieler (Norway), Jason Williams (US) - will join on. Zoom later

Unable to register: Günther Sumann (Austria), Øyvind Thomassen (Norway), Luigi Festi (Italy)

**Register of Sponsors:**

None

**Register of conflicts of interest:**

None

Wifi password - Union1720

Fire exit and toilets -

Coffee - 1st floor in Gustav Mahler Hall

## Programme - changes in red

Thursday	MEDCOM
06:30 - 08:00	
08:00 - 08:30	President's Report
08:30 - 09:00	
09:00 - 09:30	Tribute to Michael Swanguard ( <b>Dave Watson</b> ) & The life of Oskar Bernard (Gege Aggazi / Italian Society of Mountain Medicine)
09:30 - 10:00	Coffee Break
10:00 - 10:30	<b>Stress Injury, Alison Sheets / MRA:</b> UKSAR Guiding Principles for Volunteer Wellbeing & Prevention of psychological stress in SAR organisations, Jon White / MRE&W and Psychological First Aid for Wilderness Trauma: Interventions for Expedition or Search and Rescue Team Members, Roger Mortimer / NCRC & South Tyrolian mountain rescue Peer Support group, Willi Fiechter / BRD Innichen & ICAR MedCom Guidelines on Stress Injury
10:30 - 11:00	
11:00 - 11:30	
11:30 - 12:00	
12:00 - 13:30	Lunch
13:30 - 14:30	Information from our Partners and Exhibitors (TERCOM)
14:30 - 15:00	Prospective Study of Avalanche Deaths - a complete overview of the Rescuing Chain. French Group (F.Albasini et al.) (TERCOM)
15:00 - 15:30	Coffee Break
15:30 - 16:00	Mountain Emergency Medicine in Latin America, Martin Musi / Rocky Mountain Rescue & Manu Funk / CAB
16:00 - 16:30	<b>ICAR MedCom Suspension guideline. John Ellerton / President MedCom</b>
16:30 - 17:00	Performance of chemical heat devices, Mike Greene (virtual/recorded) / MRE&W
17:00 - 17:30	Development Session: Spinal Protection and Splinting in Mountain Rescue - an update of previous recommendations, Jason Williams / UNM-IMMC / <b>Darryl Macias - Zoom</b>
17:30 - 18:00	Death in the alp: experiences in utilising the ICAR Determination of Death guidelines, Christopher van Tilberg / Crag Rats Mountain Rescue
18:30 - 19:30	ICAR Board (JE)
19:30 - 22:30	Dinner
Friday	MEDCOM
06:30 - 08:00	
08:00 - 08:30	<b>Critical Appraisal Session:</b> Occupational Accidents Among Search and Rescue Providers During Mountain Rescue Operations and Training Events, Mario Milani / CNSAS
08:30 - 09:00	Causes of death and characteristics of non-survivors rescued during recreational mountain activities in Japan between 2011 and 2015, Kaz Oshiro / AMMR
09:00 - 09:30	Crevasse rescue in Alaska and Antarctica, Ken Zafren / Honorary member (With AvaCom - in <b>MEDCOM</b> room)

09:30 - 10:00	Coffee Break
10:00 - 10:30	An exceptional complex long ground rescue complicated by 5 CA, Fabio Passet / CNSAS SNAMed
10:30 - 11:00	Utilizing ketamine intramuscular as primary pain medication, Christopher van Tilberg / Crag Rats Mountain Rescue
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14:00 - 14:30	New avalanche survival curve, Hermann Brugger & Simon Rauch / EURAC (TERCOM)
14:30 - 15:00	ICAR recommendation – Termination of Resuscitation, John Ellerton / President MedCom
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18:00 - 23:00	Dinner
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06:30 - 08:00	
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08:30 - 09:00	Interdisciplinary Drone Workgroup (IDWG) Report out of the practical day and the discussions during the conference (Will Smith / Chair of IDWG)
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11:30 - 12:00	Marmolata Glacier Accident Simon Rauch and Giacomo Strapazon / MedCom
12:00 - 13:30	Lunch (at your hotel)
13:30 - 15:00	Workshops or Panel Discussion to the Topic: Climate Change and the Impact to Mountain Rescue

08:00 - 08:30	<b>President's Report</b>
08:30 - 09:00	

### Minutes of 2022 Montreux

The draft minutes are here: <https://icarmedcom.boards.net/thread/135/programme-ga-montreux>.. These were accepted as a true record.

Notes from 2023 Spring meeting 26-30 April Riksgränsen Sweden and the virtual meetings in Feb and August 2023 are on the MedCom forum.

**Annual Report to the AOD:** This has been uploaded to the forum.

**List of Members publications: see Appendix 2**

No questions on these documents were raised

### Financial Report

Here is the actual expenditure for 2023 and a budget for 2024. Support for the EURAC research carried out in Oct 2023 has been taken from the ‘Time is Life’ education fund.

No disagreement or questions were raised

Financial report	2023		2024	
	Budget	Actual to date	Budget	Actual
<b>Annual ICAR MedCom €3000</b>				
Open Access fee	€1500	€0	€1000	
Website	~ €150	€108*	€120	
JE expenses non-reimbursed	€1000	€450	€1500 - World Congress in US	
<b>‘Time is Life’ education fund</b>	~€8000	-€1000	~€7000	
<b>* updated as of Nov 2023</b>				

### MedCom Website future

Continue with duality of ICAR website at the moment. Access rights to ICAR website in relation to the term ‘delegates’ has been discussed. Naomi and Niels have offered to help Natalie with the IT noting that Natalie will have a lot of work from Oct 2025!

**Review of ‘Spring’ MedCom meeting.** Are we to continue beyond 2024? The meeting supported continuing these meetings.

**ICAR PreCongress Oct 2023.** 40 members involved. Very positive feedback. Good value.

**ICAR Practical Day:** Review of new format. Thanks to Natalie / presenters. Future multi-commission workshops would be good.



### **UIAA MedCom report and representation:**

UIAA MedCom are meeting in Turkey as we speak. I continue to be the ICAR MedCom contact. I think Steve Roy/Peter Paal are members. Are there others? 2024 Bariloche representation requested. Recent 'UIAA MedCom' publication on occupational health of rescuers is NOT an official UIAA document. "Neither the UIAA nor the UIAA MedCom nor I have had any knowledge at all or have authorized this paper. The authors are neither or no longer members of the UIAA MedCom, ...."

*Letter of apology received November 2023 (placed on forum)*

### **Paris Secours expo Jan 31- Feb2 2024 for information:**

Can Peter, Natalie, Marc and other French delegates and Inigo meet me perhaps over lunch? *(Following further discussion with the Board and delegates, it was decided to pull out of this event. November 2023)*

### **Rescue bags as Medical Devices**

A presentation at the Congress will be made on this subject. Thank you Natalie for leading on this.

### **IHT registry**

IHT registry will become an ICAR member on Saturday. *(They did!)*

### **Freezing cold injury (FCI) International Working Group**

Members (mix of Defence and Civilian): Prof Chris Imray, Dr Alex Poole, Ms Josianne Gauthier, Dr Rachel Nygaard, Dr Arek Wiktor, Dr Titus Rund, Dr Jennifer Dow, Dr Sarah Hollis, Dr John Castellani, Ms Afton Seeley

Aims: To produce guidelines for identification, grading and management of FCI, incorporating Cauchy and Hennepin scoring systems and Iloprost treatment plans for pre-hospital and hospital settings. To develop an international team of clinicians contributing to a peripheral cold weather injury data set.

**Phase 1:** Develop a list of clinicians who regularly treat FCI and are interested in collaborating with the core working group.

**Contact:** Sarah Hollis ([shollis@doctors.org.uk](mailto:shollis@doctors.org.uk))

**Central American programmes.** DiMM Chile programme requested help with lectures:

'The theory component will be covered in an online pre-course consisting of 21 lectures, each addressing essential mountain medicine topics. Unfortunately, 10 of these lectures do not have a designated teacher to present them. Could you kindly assist us in finding suitable educators for these topics?

The specific topics where we need help are as follows:

- Exercise physiology, Nutrition, fluid balance, and exhaustion, Submersion and immersion in water, Practical traumatology, Effects of pre-existing clinical condition, Children and mountains, Travel Medicine, Infection control and water safety, Death in the Mountains, Medical emergencies and Anaphylaxis



Our idea is to reach out to physicians with a special interest and expertise in these areas. They will be asked to record a lecture (ideally in Spanish, but English is acceptable too), and we can add Spanish subtitles if needed.

Please contact Nico if you can help – [dimm@gremm.cl](mailto:dimm@gremm.cl)

**Online/Digital Medical Training and Education (Volker) Update?**

Nothing to report - German language programme continues

## **DiMM updated regulations - approval**

These can be accessed at: <https://icarmedcom.boards.net/thread/151/dimm-regulations> and are now active.

### **Initiatives**

#### **Current ICAR MedCom recommendations**

- Management of Multi Casualty Incidents in Mountain Rescue (2018) We should be thinking about reviewing these. No offers to do this as yet
- Management of Moderate and Severe Pain in Mountain Rescue (2019)
- Multiple Trauma Management in Mountain Environments (2020)
- Determination of Death in Mountain Rescue (2020)
- Clinical Staging of Accidental Hypothermia: The Revised Swiss System (2021) Duncan is suggesting that we look at altering AVPU to a scale that includes confusion – ACVPU. Review this in 2025
- Suspension Syndrome (2023) - paper has been submitted to SJTREM and at 2nd review phase..We should formally adopt as ICAR MedCom recommendations – on agenda. This was done.
- Guidelines for Mountain Rescue During the COVID-19 Pandemic (2021)
- Medical Aspects of Avalanche Rescue (2023) The revised checklist has been translated into Czech, French, German, Italian, Polish and Spanish languages. Great work, thank you.

#### **Proposed ICAR MedCom recommendations**

- TOR (2023) - paper has been published in HAMB, open access confirmed and accepted as ICAR MedCom recommendations.
- Psycho-social guideline (2023). Alison. Renamed Operational Stress Injury recommendations,.The Wilderness Medical Society author group is progressing with the clinical practice guidelines on operational stress injury with a document and recommendations which will be peer reviewed and rated for quality of the supportive evidence

#### **Current ICAR recommendations (passed at an AOD)**

- Medical Aspects of Avalanche Rescue (2022)
- Revised Hypothermia Swiss staging (2021)
- Suspension syndrome recommendation (2021)
- Guidelines for Mountain Rescue during the COVID-19 Pandemic (2021)

## Proposed ICAR recommendations (for AOD 2023)

- Operational Stress Injury Recommendations for Alpine (2023) on agenda. These became ICAR recommendations at the AOD.
- TOR (2023) on agenda. These became ICAR recommendations at the AOD.

## In progress

- Spinal Protection and Splinting in Mountain Rescue: Jason; **on agenda**
- First Aid kit: Oli, status update.
- High Altitude Rescue paper: Kyle; **on agenda**
- POCUS (Niels, Didier, Andrea, Natalie and Peter) – in progress draft to discuss in Spring 2024 *‘We would like to propose a project with two parts:*
  - *First, an original article on the current indications and usage of POCUS in alpine rescue / mountain emergency medicine, based on a questionnaire which will be sent to all ICAR MedCom member organisations. ....We will start working on this in the second half of November,*
  - *Second, a narrative review in HAMB or WMS which will give recommendations based on our own results as well as previously published work.*

## Aspirational!

- Blood Products (Sven, John) Aaron Reilly and Drew Harrell UNM and Oli are interested.
- Rescuer first aid competence document (Kaz, Mike)
- Health Care Professional training?
- New ones: Drowning? Heat Illness?

No active work was planned on projects 2 and 3 or suggested new ones.

## Other Projects

- **ICAR Registry of Rescuer deaths.**

Despite further discussion and encouragement on ICAR platforms no further forms have been forthcoming though one from my team will be added soon.

Age (decade) at death	Rescue years	Paid/ Volunteer	Type of mission	Cause(s)
6	19	Volunteer	Rescue - helicopter based	Tail rotor failure/ Human error
		Volunteer		Suicide
4	16	Volunteer	Training - terrestrial	Slip - Human error
6	41	Volunteer	Training - terrestrial	Slip - Human error
6	3	Volunteer	Terrestrial	Slip - Human error*



The Registry of Rescuers' deaths is about people that we count as rescuers and friends. This photo of Chris Lewis reminds me of this.

Patterdale MRT have now almost completed their review of the incident that led to Chris's death. The processes have seemed long and hard. They have mirrored much of the resilience work we are discussing later this morning. Contributing causes in this case will always be conjecture and open to individual interpretation but have left a legacy that is positive. The support from the wider mountain rescue community and the general public has been inspiring. I remain certain that collecting these tragic cases together will give us important knowledge that will make rescuers' lives safer.



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10:00 - 10:30	<b>Stress Injury, Alison Sheets / MRA:</b> UKSAR Guiding Principles for Volunteer Wellbeing & Prevention of psychological stress in SAR organisations, Jon White / MRE&W and Psychological First Aid for Wilderness Trauma: Interventions for Expedition or Search and Rescue Team Members, Roger Mortimer / NCRC & South Tyrolian mountain rescue Peer Support group, Willi Fiechter / BRD Innichen & ICAR MedCom Guidelines on Stress Injury ( <b>Appendix 5</b> )
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16:00 - 16:30	<b>ICAR MedCom Suspension guideline. John Ellerton / President MedCom see Appendix 3</b>
16:30 - 17:00	Performance of chemical heat devices, Mike Greene (virtual/recorded) / MRE&W <a href="https://us02web.zoom.us/j/87336527229?pwd=SnJiN1kyK3hFdWIBYy9SSmJjV0syUT09">https://us02web.zoom.us/j/87336527229?pwd=SnJiN1kyK3hFdWIBYy9SSmJjV0syUT09</a>
17:00 - 17:30	Development Session: Spinal Protection and Splinting in Mountain Rescue - an update of previous recommendations, Jason Williams / UNM-IMMC - <b>this session will be led by Darryl Macias +/- Zoom Join Zoom Meeting</b> <a href="https://hsc-unm.zoom.us/j/93486289936">https://hsc-unm.zoom.us/j/93486289936</a>
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## Future events

	Year	Date	Place
ICAR MedCom 'Spring'	2024	3nd- 5th April	Glenmore Lodge, Aviemore, Scotland. <b>Host - Naomi. Further information is on the forum. Places will need confirming and payment made by Jan 2024</b>
	2024	6th April	International Hypothermia Symposium, Aberdeen hosted by IHR BASICS, Aberdeen ECMO. <b>Focus on drowning</b>
	2025		Bad Tolz, Germany. <b>Host - Natalie</b>
	2026		? Sardinia/Milan (Winter Olympics)
ICAR MedCom Training	2023	16-17th April	TerraXcube, Bolzano?
	2023	December	Preparation of pre-recorded lectures requested for DiMM Chile
EURAC training	2024	Oct- December?	Possible MedCom support for Nepal MEM course - <b>Hermann</b>
ISMM World Congress	2024	28 July - 1 August	Utah, USA with WMS. Details from: George Rodway or Monika <a href="mailto:gwrodway@hotmail.com">gwrodway@hotmail.com</a>
ICAR Virtual Conference	2024	TBA	3 hr of prerecorded updates with questions from participants
ICAR Congress	2024	16-19 Oct	Thessaloniki, Greece . <b>Standard maximum price €780</b>
	2025		Jackson Hole, USA
	2026		Austria
UIAA MedCom	2023	21 Oct	Trabzon, Turkey
	2024		Bariloche, Argentina

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## Appendix 1

### Members and Guests present:

<b>Mountain Rescue Association</b>		
	Alison Sheets	United States
	Christopher Van Tilburg	United States
	Heiko Stopsack	United States
	Joel Pomerinke	United States
	Ken Zafren	United States
<b>Mountain Rescue England and Wales</b>		
	Alistair Morris	United Kingdom
	Jon White	United Kingdom
	Les Gordon	United Kingdom
	Suzie Wilson	United Kingdom
<b>Kantonale Walliser Rettungsorganisation</b>		
	Oliver Reisten	Switzerland
<b>Braemar Mountain Rescue Association</b>		
	Ewen Mcleod	United Kingdom
	Steve Teale	United Kingdom
<b>Parks Canada</b>		
	Kyle McLaughlin	Canada
<b>Norsk Folkehjelp</b>		
	Live Kummen	Norway
<b>International Society for Mountain Medicine</b>		
	Steven Roy	Canada
<b>Association for Mountain Medical Rescue</b>		
	Kazue Oshiro	Japan
<b>Land SAR New Zealand</b>		
	Richard Desmond Price	New Zealand
	Sara Gordon	New Zealand
<b>Tatrzańskie Ochotnicze Pogotowie Ratunkowe (Tatra Mountains Rescue Serv</b>		

	Maciej Mikiewicz	Poland
<b>Bergwacht Bayern</b>		
	Matthias Jacob	Germany
<b>Wilderness Medical Society</b>		
	Craig Nuttall	United States
	Elan Small	United States
	Martin Musi	United States
<b>University of New Mexiko / International Mountain Medicine Center</b>		
	Darryl Macias MD	United States
<b>Corpo Nazionale Soccorso Alpino e Speleologico</b>		
	Alexandre Tomasi	Italy
	Dr. Mario MILANI	Italy
	Giacomo Strapazzon	Italy
<b>Groupe de Secours en Montagne</b>		
	François Albasini	France
	Marc Blancher	France
	POPOF Sonia	France
<b>Deutsche Gesellschaft für Berg- und Expeditionsmedizin e.V.</b>		
	Helga Vollendorf	Germany
	Natalie Hölzl	Germany
<b>Japan Mountain Guides Association</b>		
	Hidenori Kanazawa	Japan
<b>Club Andino Bariloche</b>		
	J. Manuel Funk	Argentina
<b>Italian Alpine Club Medical Commission</b>		
	Gege Agazzi	Italy
<b>National Cave Rescue Commission</b>		
	Roger Mortimer	United States
<b>Canadian Society of Mountain Medicine</b>		

	Anthony Chahal	Canada
	Barton Thiessen	Canada
	Bruce Brink	Canada
	Michael Inniss	Canada
<b>Bulgarian Red Cross Mountain Rescue Service</b>		
	Nikolay Nikolaev Ivanov	Bulgaria
<b>Scottish Mountain Rescue</b>		
	Jonathon Will	United Kingdom
	Ken Crossley	United Kingdom
<b>Hospital de Cerdanya</b>		
	Iñigo Soteras	Spain
<b>Mountain Rescue Ireland</b>		
	Jan Franta	Ireland
<b>Norsk Luftambulanse AS</b>		
	Ane Helland	Norway
	Sigurd Mydske	Norway
<b>Gorska reševalna zveza Slovenije</b>		
	IZTOK TOMAZIN	Slovenia
	MIHA GAŠPERIN	Slovenia
<b>Wasatch Backcountry Rescue</b>		
	Scott McIntosh	United States
<b>Teton County Search and Rescue</b>		
	Mike Moyer	United States
<b>Gorska Slucba Spasavanja Crne Gore Montenegro</b>		
	Mijušković Marija	Montenegro
<b>Horská záchranná služba</b>		
	Marián Alman	Slovakia
<b>International Hypothermia Registry/Mitglied Alpin Rettung Schweiz</b>		
	Evelien Cools	Switzerland

<b>Tsukuba Medical Center</b>		
	Noriyoshi Ohashi	Japan
<b>US Air Force</b>		
	Jared Sleeman	Italy
	Matthew Merriman	Italy
<b>AREU Lombardia</b>		
	Daminelli Francesco	Italy
<b>DRK - Deutsches Rotes Kreuz / Bergwacht</b>		
	Volker Lischke	Germany
<b>BRD-AVS - Bergrettungsdienst im Alpenverein Südtirol</b>		
	Peter Paal	Italy
<b>Other</b>		
	Luigi Festi	Italy
<b>ICAR Board and Honorary</b>		
	Fidel Elsensohn	Austria
	Marie Nordgren	Sweden
<b>RCS - Red Cross of Serbia</b>		
	Ivan Jovahovic	Serbia



## Appendix 2

### List of members' publications:

Sorry, title first and only 3 authors listed. Please add to the thread over the next month and I'll update our minutes:

Psychological First Aid for Wilderness Trauma: Interventions for Expedition or Search and Rescue Team Members. Amanda R. Mortimer, Roger B. Mortimer WEMJ 2023; <https://doi.org/10.1016/j.wem.2023.02.009>

Active ascent accelerates the time course but not the overall incidence and severity of acute mountain sickness at 3,600 m Beth A. Beidleman, Peter S. Figueiredo, Steven D. Landsburg, et al.. Journal of Applied Physiology 2023 135:2, 436-444

Performance Assessment of Out-of-Hospital Use of Pelvic Circumferential Compression Devices for Severely Injured Patients in Switzerland: A Nationwide Retrospective Cross-Sectional Study. Balet L, Ageron FX, Pasquier M, et al. J Clin Med 2023;12:5509.

Hypothermic cardiac arrest patients admitted to hospital who were not rewarmed with extracorporeal life support: A retrospective study. Hall N, Métrailler-Mermoud J, Cools E, et al. Resuscitation Plus 2023;15:100443.

On-site Treatment of Avalanche Victims: Scoping Review and 2023 Recommendations of the International Commission for Mountain Emergency Medicine (ICAR MedCom). Pasquier M, Strapazzon G, Kottmann A, et al.. Resuscitation 2023; 184, 109708.

Cardiomyopathy Following Complete Avalanche Burial: A Case Report. Libersa M, Marxer L, Zafren K, et al. High Alt Med Biol 2023; 24:149-51.  
Tamponnade cardiaque. Sabione I, Giacalone S, Herkert C. Ann Fr Med Urg 2023;13:115-21

Influence of positive end-expiratory pressure on arterial blood pressure in mechanically ventilated trauma patients in the field: a retrospective cohort study. Herff H, Krappinger D, Paal P, et al.. Med Gas Res. 2023 Apr-Jun;13(2):49-52. doi: 10.4103/2045-9912.344979.

During Cardiopulmonary Resuscitation in an Arrested Hypothermic Patient with a Potentially Stiff Chest, Carotid Ultrasound May Confirm Orthograde Blood Flow. Blasco Mariño R, Martínez Martínez M, Soteras Martínez I, Paal P. High Alt Med Biol. 2023 Mar;24(1):81-82. doi: 10.1089/ham.2022.0135. Epub 2023 Jan 25.

Survival in a Collapsed Stable for 37 Days After Avalanche Burial in 1755. Lechner R, Brugger H, Paal P, et al.. Wilderness Environ Med. 2023 Mar;34(1):113-119. doi: 10.1016/j.wem.2022.10.008. Epub 2022 Dec 14.

Ample room for cognitive bias in diagnosing accidental hypothermia. Blasco Mariño R, Roy S, Martin Orejas M, et al.. Diagnosis (Berl). 2023 Apr 5;10(3):322-324. doi: 10.1515/dx-2023-0005. eCollection 2023 Aug 1.



Psychological First Aid for Wilderness Trauma: Interventions for Expedition or Search and Rescue Team Members. Amanda R. Mortimer, Roger B. Mortimer WEMJ 2023; <https://doi.org/10.1016/j.wem.2023.02.009>

History of Avalanches in the Eastern Spanish Pyrenees. Blasco Mariño R, Martínez IS, Bacardit M, et al.. Wilderness Environ Med. 2023 Sep 9:S1080-6032(23)00158-8. doi: 10.1016/j.wem.2023.07.008. Online ahead of print.

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## Appendix 3

### ICAR MedCom RECOMMENDATIONS

<i>Nr.</i>	<i>Recommendation</i>	<i>Grade</i>
1	Rope work should never be conducted alone.	1A
2	Persons suspended in a harness should be rescued as soon as possible, even if the casualty is asymptomatic, as time to near or actual syncope and cardiac arrest is variable and unpredictable. <sup>13</sup>	1A
3	While awaiting rescue, persons suspended freely on a rope should move their legs in order to reduce venous pooling. <sup>13,26</sup>	2B
4	If no adjoining structures are in reach, foot loops should be used to step in and increase the activation of the muscle pump. <sup>1,4,13,31</sup>	2B
5	If the casualty is no longer able to act and it is safe to do so, the first rescuer reaching the casualty should raise the victim's legs to create a more horizontal position while measures are taken to lower the patient to the ground. <sup>13,31</sup>	2C
6	Once the casualty is on the ground, the casualty should be positioned supine. Assessment and treatment should follow standard advanced life support algorithms. Reversible causes of cardiac arrest, including hyperkalaemia and pulmonary embolism, should be considered and managed appropriately. <sup>1,4,13,31,36,39,41</sup>	1A
7	After prolonged hanging (>2 hours), monitoring of serum potassium and creatine kinase should be established and renal replacement therapy considered in patients with acute kidney injury. <sup>3,4,9</sup>	2C

## Appendix 4:

### ICAR RECOMMENDATIONS - TOR

No.		Grade
	<b>Non-traumatic cardiac arrest</b>	
1	In patients with clinical condition suggestive of a non-traumatic cause of cardiac arrest, cardiopulmonary resuscitation should be initiated.	<b>1A</b>
	<b>Safety of rescuers</b>	
2	If the environment is unsafe, consider first transporting the patient to a safe place before commencing resuscitation.	<b>1A</b>
	<b>Termination of CPR</b>	
3	Resuscitation may be terminated when <b>all</b> 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.	<b>1A</b>
	<b>Use of automatic external defibrillator (AED)</b>	
4	The use of an automated external defibrillator (AED) improves management of a primary cardiac arrest.	<b>1A</b>
	<b>Mechanical chest compressions</b>	
5	Mechanical chest compression devices may be helpful with prolonged CPR or during travel through difficult terrain.	<b>1A</b>
	<b>Traumatic cardiac arrest</b>	
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.	<b>1A</b>
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.	<b>1B</b>
	<b>Hypothermia</b>	
8	Hypothermic patients without vital signs should be considered for CPR and ideally transported to a center capable of ECLS rewarming.	<b>1A</b>

	<b>Drowning</b>	
9	Withhold CPR in a drowning victim with a submersion time >30 minutes in water >6 C or >90 minutes in water <6 C.	<b>2A</b>
10	<del>In children, especially if &lt; 6 years old, consider performing CPR remembering that some have survived neurologically intact despite longer submersion times in water of &lt; 6°C when treated for hypothermic cardiac arrest with ECLS rewarming.</del>	<del><b>1C</b></del>
	<b>Avalanches</b>	
11	In avalanche victims with burial duration > 60 minutes, asystole, and an obstructed airway, consider withholding or terminating CPR.	<b>1A</b>
12	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.	<b>1C</b>
	<b>Lightning strikes</b>	
13	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.	<b>2A</b>
	<b>Burns</b>	
14	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.	<b>1C</b>
	<b>Poisoning</b>	
15	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.	<b>1C</b>



## Appendix 5:

# International Commission for Alpine Rescue

## 2023 Draft ICAR Recommendations for Stress Resilience in Alpine Rescue

Prepared for the AOD by John Ellerton (MedCom President) and Alison Sheets (MRA)

These ICAR recommendations are designed for all rescuers and mountain rescue organisations.

Mountain rescuers are exposed to significant stress in the work they perform. The injuries, illnesses and fatalities seen, and exposure to the bereaved families and friends takes a toll on the emotional wellbeing of the professionals that respond to these incidents. Over the last decade, and more recently with the additional stressors of the global pandemic, building awareness and resilience against operational stress injury has become an important focus in alpine rescue organisations and other first responder agencies.

We believe that all rescuers should have the knowledge, skills and an ability to cope with the difficult work we do. All rescuers should be supported in this by their organisations. We also believe these recommendations promote a healthier team culture and could encourage better retention of experienced members.

We would like to acknowledge the Responder Alliance (<https://www.responderalliance.com>) for their formative work and Marie Nordgren, Naomi Dodds, Jonathan White and others for their authorship. More detailed guidance is likely to become available in 2024.

Comments are welcome; please send them to: [mountain.medicine@alpine-rescue.org](mailto:mountain.medicine@alpine-rescue.org)

## Recommendations:

We have divided the larger topic of operational stress injury in to three areas where education and training can be focused.

Nr.	Recommendation
	<b>Preparation and pre-planning</b>
1	Understanding exposure to stress, the formation of stress injury, its physical effects and risk factors should be part of all medical training.
2	Stress injury training should be recurring to normalize and destigmatize the discussion of emotional and mental health topics.
3	Organisations should develop a method to promote resilience and connection within its teams. This could be a resilience team within the team or other peer support to coordinate resilience efforts. Organisations should ensure there is continuous education about stress injury.
4	Mountain rescue organisations should develop strategies for the assessment of, the on going monitoring of, and the team response to a potentially traumatising event (PTE - see below) or other critical incident such as a line of duty death. Other responding agencies should be included in this planning.
5	Successful organisations reduce exposure to stressors and proactively offer support. They should develop social cohesion and have zero tolerance policies on bullying, harassment, emotional and physical abuse.
	<b>During an incident or exposure</b>
6	Stress continuum utilisation (Table 2) should be routine in the day-to-day activities of the team and the individual rescuer.
7	Stress First Aid* (SFA) should be practiced in order to provide practical, effective, and timely interventions. The five intervention principles (safety, calm, self-efficacy, connection, and hope) should be used when implementing SFA.
8	If feasible, rescuers should be able to “opt out” of traumatic exposures. Consider a “tactical pause” when there has been a major change to the mission goals. For example, a change from rescue to body recovery.
	* Stress First Aid focuses on the rescuer; Psychological First Aid embraces both rescuer and casualty/bystanders. The intervention principles are very similar.

	<b>After the incident or exposure</b>
9	After action reviews or critical incident debriefs should be timely when a potentially traumatising event is identified. The focus should be on establishing the facts of the incident, what went right and areas for improvement. Acknowledgment of the incident stressors should occur but this should not retraumatise the participants.
10	Rescuers and team leaders should understand the elements of stress injury recovery and the normal timing of the stress cycle.
11	The 3:3:3 (see below) model for follow up and the traumatic stress questionnaire should be utilized to provide support to exposed rescuers and agencies.
12	Mental health professionals working with SAR personnel should be familiar with the rescuers' tasks and culture of the organisation. A common language should be used consistently.

## TRAUMATIC EXPOSURE PROTOCOL

### POTENTIALLY TRAUMATIZING EVENT (PTE) CRITERIA

- FAMILY CONTACT
- PERSONAL CONNECTION OR EMPLOYEE INVOLVEMENT
- DUTY TO ACT
- MISSION INJURY/HELPLESSNESS
- EXTREMES OF EXPOSURE
- OVERWHELMED/DEPLETION
- INCIDENTS INVOLVING CHILDREN
- COMPLEXITY OF INCIDENT
- FIRST TIME EXPOSURE

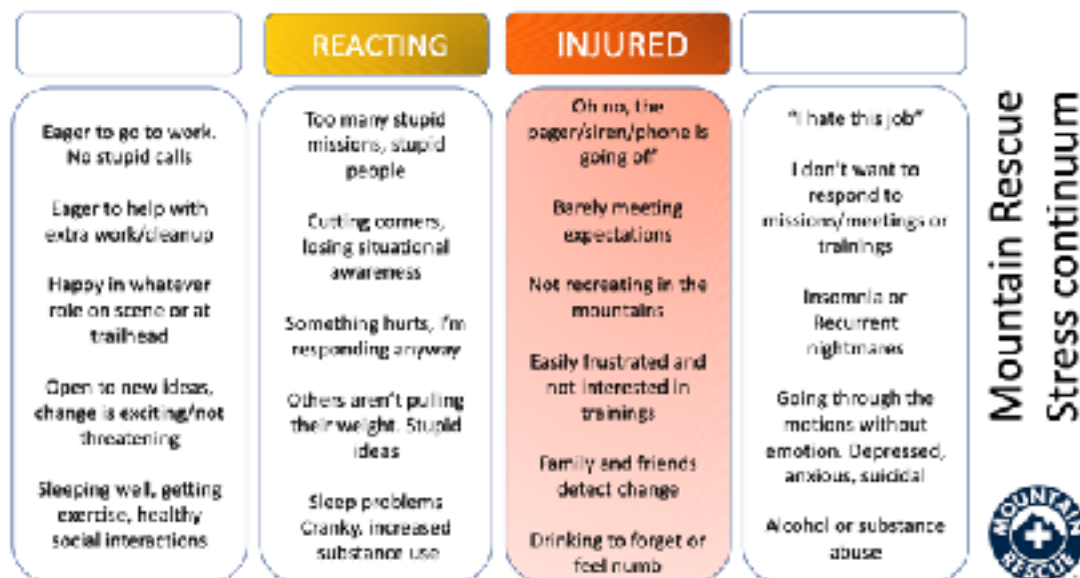
### 3-3-3 EXPOSURE PROTOCOL

3 DAYS POST INCIDENT	3 WEEKS POST INCIDENT	3 MONTHS POST INCIDENT
Stress Continuum Check-in Normalization/Education Leverage GREEN Choices (make a plan) Self & Partner Awareness (Support Return to Baseline) Life Stressors Check-in	Complete TSO Scores > 6 – Increase risk of stress injury development Provide Resources for Professional Help Stress Continuum Check-in Increase Self-Awareness of Stress Injury Revisit Plan to return to Green Baseline	Stress Continuum Check-in Revisit Plan to return to Green Baseline Offer Resources and Connection Offer Further check-ins if requested.

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## MRA Stress Continuum model



Mountain Rescue  
Stress continuum

