



## International Commission for Alpine Rescue

ICAR – International Commission for Alpine Rescue + [www.alpine-rescue.org](http://www.alpine-rescue.org)  
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International Commission for Mountain Emergency Medicine (ICAR MEDCOM)  
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### **Minutes**

### **List of attendants**

### **Certificate of attendance**

## **ICAR MEDCOM – FALL MEETING**

**Thursday October 20 – Friday 21, 2016**

### **Welcome**

President Fidel Elsensohn welcomed the members of the Commission and guests. There were 56 members in attendance, the largest number yet. Members and guests introduced themselves.

**Members Attending :** Please see Appendix

**Apologies:** Günther Suman, Michael Swangard, Sven C. Skaaja,

**Introductions.** Members and guests introduced themselves.

**Program** Fidel outlined the program for the meeting.

### **Minutes of the last meeting.**

The minutes of the 2015 Fall meeting and the minutes from the 2016 Spring meeting were approved without changes.

### **President's report**

Fidel reviewed the 2016 Spring meeting in Cape Town, South Africa and the 2016 World Congress of Mountain Medicine and High Altitude Medicine and Physiology and Wilderness Medicine in Telluride, Colorado USA, organized the Wilderness Medical Society. At that meeting, Hermann Brugger received the Paul Auerbach Award of the Wilderness Medical Society. ICAR is currently searching for a new Treasurer.

Fidel discussed the last meeting of the ICAR Board. He also mentioned the organization of the preconference. The number of participants has grown to the limits that can be accommodated by the current structure.

### **Financial Report**

No change from previous. The money is safe in Liechtenstein.

## **PAPERS IN PREPARATION**

### ***Multi-Casualty Incidents in the Mountains***

Lead author: Marc Blancher

Marc presented the paper, which was discussed by the entire commission. Some revision is still necessary.

### ***Evidence-based recommendations for on-site management and transport of patients in canyoning incidents***

Lead author: Giacomo Strapazzon

Giacomo Strapazzon led a discussion emphasizing evaluation and classification of the evidence with emphasis of the application of the grading scheme of the American College of Chest Physicians that we now use for all papers

## **PROJECTS**

### ***Avalanche checklist***

Presenter: Alex Kottman

The Avalanche Checklist is now in use in many areas. In Switzerland, use of the checklist seems to have improved the quality of care for avalanche victims. Formal research is planned. Alex discussed the future of the checklist. The checklist and teaching presentation have now been translated into French, Italian, German and English. A Swedish translation is in progress. The checklist has been translated into a few other languages ahead of translation of the teaching presentation. Another limitation is the inability to track people who have downloaded the checklist and teaching presentation.

### ***International Avalanche Registry***

Presenters: Hermann Brugger and Monika Brodmann

The International Avalanche Registry is a co-operation between EURAC and ICAR. Each entry will include technical data concerning the avalanche, pre-hospital and in-hospital clinical data and outcome data. The system will have its first trial in South Tyrol. Monika Brodmann, gave a demonstration of data entry into the registry, aided by a naïve user (Steve Roy). The main aim is to assess the impact of various factors on outcomes.

## **SHORT COMMUNICATIONS**

### ***Indian Mountaineering Foundation – Expedition Medicine course.***

Presenter: Inigo Soteras

Inigo participated in this expedition that took place initially in Delhi, then in Uttar Kashi at the Indian Institute for Mountaineering and finally in Gangotri. The students had varied backgrounds. Two people summited a 6000 m peak.

### ***Technical canyoning meeting and course in Spain***

Presenter: Inigo Soteras

This course took place in wet canyons in the Sierra de Guara.

### ***Changes in mountain casualties in Japan***

Presenter: Kazue Oshiro

The numbers of casualties have increased dramatically over the last 10 years. In the last 5 years, there were over 5000 casualties. The number of deaths has remained nearly constant. There were over 500 deaths in the last 5 years. Trauma was the most common cause of death in Japan, but in Hokkaido, hypothermia was a more common cause than trauma. Cardiac death was most common in males in their 60s and 70s. A few injured patients were alive when rescuers reached them, but died afterwards. Hypothermia was most common during Spring months. Asphyxia was the most common cause of death due to avalanche.

### ***The “White Battles” in the Adamello Massif 1915-1918 (Italy)***

Presenter: Giancelso Agazzi

This presentation featured many historical photos from World War I. There were fatalities on both sides, Austrian-Hungarian and Italian, due to the enemy and due to avalanches and hypothermia. There were also many wounded soldiers and casualties due to environmental causes, including frostbite. Acute mountain sickness was common. Dr. Giuseppe Carcano was the doctor at the Garibaldi Refuge. He was an inspirational figure who treated wounded soldiers during the “White Battles.”

### ***Immersion hypothermia cases in Sweden***

Presenter: Marie Nordgren

A multi-casualty hypothermia incident occurred during cool, windy conditions in a lake near Åre, Sweden, which hosted the 2011 ICAR General Assembly. One of the victims had asystole and had a core temperature of 18.5°C. Another victim was in the water for 79 minutes. The rescuers thought he was the “most dead” person they had ever seen. He had a core temperature of 14.5°C when he reached the hospital across the border in Norway. These two teenage victims are recovering with neurologic problems, including peripheral neuropathies.

### ***Integrating Mountain Medicine into Traditional Medical Education***

Presenter: Steve Roy

Steve presented a month-long resident elective in Wilderness Medicine that he organized in the Province of Quebec, Canada. Much of the training was outdoors during March and early April 2016. He is planning further projects. The next course will be at the same time of year in 2018.

### ***Use of Medicines in Mountain Rescue England and Wales: Can Non-Health Care Professionals Use Drug***

Presenter: Michael Greene

A very small percentage of rescuers are medical professionals. In the UK, after a great deal of effort to pass enabling legislation, non-medical personnel can legally use drugs, including controlled substances. Mike presented data from Mountain Rescue England and Wales from 2012-2015. There were 711 episodes in which medications were used and 669 episodes in which medical gases (oxygen or nitrous oxide) were administered. Paracetamol and nonsteroidal anti-inflammatory drugs (NSAIDs) were the most common “personal” drugs that were given. There were also a few incidences of administration of aspirin. Aspirin was only indicated for suspected acute coronary syndrome. Morphine was the most commonly administered drug from the Team Kit, with 217 uses. Oxygen was given 209 times. Nitrous oxide was used 460 times. Naloxone was used only once, for a deliberate overdose. At least a third of analgesics were given by non-health care professionals. Many of the analgesics were given by non-health care professionals by the intranasal route (***Diamorphine – is this dihydromorphone?*** - 61 times) and the buccal route (fentanyl 35 times). No adverse events were recorded.

Conclusions: Providing medications for use by non-health care providers allowed early care, including analgesia, for some patients. Alternate routes of delivery (intranasal and buccal) were used by non-health care providers.

### ***Himalayan Gold Rush***

Presenter: Ken Zafren

Every year, thousands of people in Nepal go to austere, high-altitude environments to collect Yarsagumba fungus, also known as “Himalayan Viagra.” Yarsagumba fungus (*Ophiocordyceps sinensis*), parasitizes larvae (caterpillars) of “ghost moths.” Known since at least the 15<sup>th</sup> Century in Tibetan medicine, the main commercial use of Yarsagumba is as an aphrodisiac in China. Yarsagumba is found throughout the Himalayas at 4000-5000 m.

Nepal is a poor country with few jobs. Yarsagumba can be a financial bonanza, but as in most gold rushes few people benefit while many sink deeper into poverty.

Ken presented the findings of a health needs survey that he conducted with 3 Nepali physicians in May 2016 in the Manang District. There were about 800

Yarasagumba collectors near Yak Kharka. Living conditions are harsh for most of the collectors. They work long days, walking uphill for 2-3 hours to the collecting sites and generally eating only one meal a day. Many collectors come from the lowlands and are inadequately clothed. Many suffer from acute mountain sickness. Sanitation is poor and health resources are limited. The Himalayan Rescue Association is planning to provide aid for this disadvantaged population

## **PAPERS IN PREPARATION**

### ***Evidence-based recommendations for on-site management and transport of patients in canyoning incidents***

Lead author: Giacomo Strapazon

The discussion concluded with a review of the recommendations. The paper was accepted pending revision based on the discussion of the recommendations.

**Friday October 21, 2016**

## **JOINT MEETING OF THE AVALANCHE AND MEDICAL COMMISSIONS**

### ***Burial Duration, Depth And Air Pocket Explain Avalanche Survival Patterns in Austria and Switzerland***

Presenter: Hermann Brugger

Duration of burial was the most important factor affecting avalanche survival. Depth of burial was also significant. The presence of an air pocket could only be determined from the Austrian data. Especially in longer burials, the presence of an air pocket significantly increased the rate of survival. After 35 minutes a patent airway is necessary for survival. Victims with an air pocket have a higher long term survival. Survival remains as high as 85-90% during the first 15 minutes of burial. Rapid extrication at 15 minutes is critical for survival.

Reference

Procter E, Strapazon G, Dal Cappello T, et al. Burial Duration, Depth And Air Pocket Explain Avalanche Survival Patterns in Austria and Switzerland. *Resuscitation* 105:173-176, 2016.

### ***A prospective randomized controlled trial on the influence of low ambient temperature on epitympnic temperature measurement.***

Presenter: Giacomo Strapazon

Core temperature measurement in the field is rarely done in current practice. Esophageal temperature is the most accurate method of temperature measurement but is usually only used just for intubated patients. Epitympnic

temperature is much more accessible, but may not be accurate. Healthy sedentary subjects (n=31) were studied in warm (+20°C) and cold (-20°C) conditions in a chamber. Simultaneous esophageal and epitympanic temperatures were measured in all subjects. Bias was reduced with use of an ear protector.

***Triage strategies for multiple avalanche burial: A Monte Carlo simulation.***

Presenter: Manuel Genswein

When the number of rescuers is limited, how long should CPR be performed before looking for the next victim if initial CPR is not does not achieve return of spontaneous circulation (ROSC)? Previous guidelines followed standard triage guidelines. The current guidelines were developed using a Monte Carlo simulation. The crossover point in which survival of the first victim with continued CPR is lower than the survival of the second victim was 15 minutes. Total survival was best at 5-7 minutes. Conclusion: Perform CPR for approximately 5-7 minutes then stop CPR and attempt to find the second victim.

Hermann Brugger pointed out that survival with CPR is likely to be better in asphyxiated patients than the standard curve for victims of primary cardiac arrest. Avalanche victims buried less than 35 minutes may require 20 minutes of CPR before ROSC. This led to a spirited discussion of the differences between theory and simulations as opposed to practical considerations in the field.

## **PRESENTATIONS**

***Cut-off values for extracorporeal rewarming of avalanche victims in cardiac arrest at extrication.***

Presenter: Hermann Brugger

WMS has a paper in press with proposed cut-off values of duration of burial, core temperature and potassium beyond which resuscitation of buried avalanche victims in cardiac arrest is futile. The survival rate of avalanche victims with OHCA is as low as 110.9%. Sensitivity and specificity of cut-off values have never been estimated. The aim of this paper is to identify optimal cutoff values for ECLS rewarming, calculating sensitivity and specificity with confidence intervals, and receiver operating characteristics (ROC). This is a multicenter retrospective study of patients from 1995-2016 The false negative rate (not treating someone who would survive) should not exceed 5%. Positive and negative predictive values will also be calculated.

## **PRESENTATION FOR APPROVAL AFTER PUBLICATION**

***Accidental Hypothermia – An Update***

Presenter: Peter Paal

The paper has already been published. Peter reviewed the paper for the commission members. There was further discussion. The commission approved the paper as an official publication endorsed by ICAR MEDCOM.

Reference

Paal P, Gordon L, Strapazzon G, et al. *Scand J Trauma Resusc Emerg Med* 15: 24(1):111 2016.

## **PRESENTATIONS (continued)**

### ***Causes of death in avalanche victims in Switzerland***

Presenter: Corinna Schön.

The data came from 30 events in Switzerland with 43 fatalities. Corinna reviewed detailed data regarding the circumstances of the avalanches, depths and lengths of burials and outcomes. As in the majority of retrospective studies of avalanches, there were significant missing data. By far the most common cause of death in victims undergoing autopsy was asphyxia. When determined only by external examination, asphyxia and trauma were both significant causes of death. There was almost no information about the presence of an air pocket. Core temperature was unknown in many cases. There were 10 cases with information about temperature, but in many cases the time of measurement was unknown. There were two cases in which hypothermia was thought to be the cause of death. There was no difference in petechial bleeding between different burial conditions or whether the head was down.

Conclusions: Asphyxia was the main cause of death in autopsy cases. More autopsy data might be helpful to determine the best preventive measures.

### ***Swiss staging of hypothermia***

Presenter Matthieu Pasquier

The study suggested that temperature cutoffs should be revised in order more accurately classify the degree of hypothermia in patients in the field. Based on the data, Matthieu asked 3 questions: Would it be conceivable to abandon shivering as a staging criteria? Would it be conceivable to standardize the description of the state of consciousness using GCS or AVPU rather than descriptions in words? Would it be conceivable to lower the cut-off between mild and moderate hypothermia (HTII-HTIII) from 32° to 30°C? Matthieu also proposed changing the cutoff between moderate and severe (HTIII-HTIV) from 28° to 27°C. There was an animated discussion.

REFERENCE

Deslarzes T, Rousson V, Yersin B, et al. An evaluation of the Swiss staging model for hypothermia using case reports from the literature. *Scand J Trauma Resusc Emerg Med* 17 (24):16, 2016.

## **COMMISSION BUSINESS**

### **Organization and structure of meetings**

Short presentations are a very important part of the meeting.

### **Process of establishing new papers**

The first draft should be presented at a Spring Meeting. There should then be a near-final draft presented at the Fall meeting. This draft should be posted on the web site for general discussion well ahead of the Fall meeting.

Authors of other papers not produced directly for the ICAR MEDCOM should put their papers on the agenda of the ICAR MEDCOM for possible endorsement.

Peter Paal suggested that new papers should have at least two senior member of the ICAR. Oliver Reisten gave an appeal not to lose sight of the purpose of our papers which is to give practical advice and not to focus only on the grading and on the possible reactions of reviewers.

We will continue to use an evidence-based format for our guidelines. We will continue to use the evidence-based grading system of the American College of Chest Physicians, which has become the standard system for papers on mountain medicine.

There is a paper on the web site by Jeff Boyd that describes how to write a scientific paper. This paper does not yet have a discussion of the grading system. A small working group was appointed to update this paper, including adding an explanation of how to use the grading system.

## **PROJECT**

### **Mountain safety knowledge base**

There was a discussion regarding future projects by which we can disseminate information about mountain safety. The possibility of a book was raised, but books have important limitations. Our most likely project will likely be in electronic form and be distributed on the internet. A working group was appointed to explore possible means of disseminating knowledge.

## **PROPOSED RESEARCH PAPERS**

Matthias Haselbacher: ***Noninvasive core temperature measurement for mountain rescue***. The 3M Spot On is a temperature probe that is just placed on the skin. It is already in use of the operating room. Matthias adapted a model that uses a battery rather than requiring a 220 v electrical source. He has proposed a multicenter study. He asked that member who are interested in participating contact him. [matthias.haselbacher@bergrettung.at](mailto:matthias.haselbacher@bergrettung.at)

Hermann Brugger has proposed a possible paper on ***suspension trauma*** based on the research done at EURAC last year.

**Anyone is welcome to propose a new paper.**

## **FORTHCOMING EVENTS**

### **2016**

11 November: 5th International Symposium on Accidental Hypothermia “Cold Day” - Interlaken, Switzerland

12 November: 9<sup>th</sup> Swiss Mountain Rescue Medicine Meeting - Interlaken, Switzerland

11-13 November: BexMed – Garmisch-Partenkirchen, Germany

### **2017**

7-12 February: Hypoxia Symposium – Lake Louise, Alberta Canada

3-7 May **ICAR MEDCOM Spring Meeting** - Portovenere, Italy

18-21 October: **ICAR General Assembly** - Andorra

3 December: International Knowledge Sharing – German Red Cross Training Center Bad Tölz, Germany

### **2018**

17-20 October **ICAR General Assembly – Chamonix, France**

November World Congress of Mountain Medicine – Kathmandu, Nepal.

### **2019**

October **ICAR General Assembly – Zakopane, Poland**

**2020**

October **ICAR General Assembly – Thessaloniki, Greece**

## **CLOSING**

Fidel closed the meeting.

Minutes respectfully submitted by Ken Zafren

## **ICAR Medcom Thursday 20 Oct 2016 and Friday 21 Oct 2016**

### **List of participants (delegates in bold)**

1. Fidel Elsensohn (President, Austria)
2. **Ken Zafren (Vice President, MRA, USA)**
3. John Ellerton (Vice President, UK)
4. Giancecso Agazzi (Italian alpine club, Italy)
5. **François Albasini (ANMSM, France)**
6. **Borislav Aleraj (HGSS, Croatia)**
7. **Przemyslaw Barczentewicz (GOPR, Poland)**
8. Marc Blancher (ANMSM, France)
9. **Bruce Brink (Canadian Society of Mountain Medicine, Canada)**
10. Monika Brodmann Maeder (EURAC, Switzerland)
11. **Herman Brugger (EURAC, Italy)**
12. **Krassen Demirev (BRC-MRS, Bulgaria)**
13. Ranko Demirovic (Red Cross of Serbia)
14. **Julia Fieler (Norwegian Red Cross, Norway)**
15. **Mike Greene (MR England & Wales, UK)**

16. Karen Greene (MR England & Wales, UK)
17. **Matthias Haselbacher (Austrian Mountain Rescue Service, Austria)**
18. **Shiori Hashimoto (JSMM & JMGA, Japan)**
19. **Natalie Hölzl (BExMed, Germany)**
20. Marina Kolcheva (Bulgaria)
21. **Poul Kongstad (Swedish Mountain Rescue & FIPS, Sweden)**
22. **Laco Kotrusz (Horská záchranná služba, Slovakia)**
23. **Alex Kottman (Rega/ARS, Switzerland)**
24. **Ales Krivacek (MRS of Czech Republic)**
25. Jana Kubalova (ALFA-HELICOPTER, Ltd., Czech Republic)
26. Hana Kubinová (MRS of Czech Republic)
27. **Volker Lischke (DRK-Bergwacht, Germany)**
28. Aleksander Manolev (ASCLEPI, Macedonia)
29. Lyvbominr Marcher (Bulgaria)
30. **Kyle McLaughlin (Parks Canada & CMH Heli Ski, Canada)**
31. **Don McPhalen (Kananaskis Public Safety, Canada)**
32. **Maciej Mikiewicz (TOPR, Poland)**
33. **Mario Milani (CNSAS, Italy)**
34. Woiciech Moskac (MRS of Poland)
35. **Marie Nordgren (Swedish Mountain Rescue, Sweden)**
36. **Noriyoshi Ohashi (JSMM, Japan)**
37. Martina Orlovic (AMRS in BiH, Bosnia and Herzegovina)
38. Kazue Oshiro (JSMM, Japan)
39. **Peter Paal (Bergrettungsdienst im Alpenverein Südtirol, Italy)**
40. **Mathieu Pasquier (Emerg. Service Lausanne Chuv, Switzerland)**
41. **Marko Petrovic (MRS Serbia)**
42. **Danilo Pot (MRS Montenegro)**
43. **Oliver Reisten (OCVS/KWRO, Switzerland)**
44. Steven Roy (ISMM, Canada)
45. **Johannes Schiffer (Bergwacht Bayern, Germany)**
46. **Edin Širić (AMRS in BiH, Bosnia and Herzegovina)**
47. **Inigo Soteras (Hospital Cerdanya, Spain)**
48. Giacomo Strapazzoni (CNSAS, Italy)

- 49. Oleg Tcholakov (BMRS, Bulgaria)**
- 50. Iztok Tomazin (GRZS, Slovenia)**
- 51. Helga Vollendorf (BExMed, Germany)**
- 52. Thomas Von Wyl (ARS, Switzerland)**
- 53. Damir Vukušić (MRS of Croatia)**
- 54. David Watson (Canadian Society of Mountain Medicine, Canada)**
- 55. Jonathan White (MR England & Wales, UK)**
- 56. Grégoire Zen Ruffinen (OCVS, Switzerland)**

International Commission for Alpine Rescue



**International Commission  
for Mountain Emergency Medicine  
ICAR MEDCOM**

**FALL MEETING 2016  
BOROVETS, BULGARIA**

**Certification of attendance**

I certify that Dr.

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attended the meeting of the **INTERNATIONAL COMMISSION FOR MOUNTAIN  
EMERGENCY MEDICINE** as official member of

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The meeting was held from October 19 to 22 2016 in Borovets, Bulgaria

President

Fidel Elsensohn MD

Borovets, Oct. 22 2016

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