



## 2015 ICAR CONVENTION, KILLARNEY, IRELAND

### 2015 ICAR MEDCOM – FALL MEETING

**MINUTES** (by Ken Zafren)

#### DAY 1

**THURSDAY OCTOBER 15, 2015**

#### **Welcome**

President Fidel Elsensohn welcomed the members of the Commission and guests. Members and guests introduced themselves.

**Members Attending:** see list below (appendix)

**Apologies:** Alex Kottman, Dave Syme, Arthur Morgan, Tore Dahlberg, Urs Wiget, Herbert Foster, Xavier Ledoux

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

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

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

The minutes of the Fall 2014 meeting and the minutes from the 2015 Spring meeting were approved without changes.

#### **President's report**

Fidel discussed the importance of the close cooperation among ICAR MedCom, UIAA MedCom and the International Society of Mountain Medicine (ISMM). He also mentioned issues discussed at the ICAR Executive Committee (EC). There is a new ICAR logo that replaces the old logo as well as all the old commission logos. **The new domain name is: [www.alpine-rescue.org](http://www.alpine-rescue.org)**. The administrative group for the Diploma in Mountain Medicine and the Diploma in Mountain Emergency Medicine has been very active.

#### **UIAA MedCom meeting.**

David Hillebrandt presented a summary of the UIAA MedCom meeting in Greece. The UIAA has been very interested in use and misuse of drugs in the mountains. There is a final draft of the paper on this subject. Future papers will cover diabetes in the mountains. The role of the UIAA is to prevent problems in the mountains. The role of ICAR is to solve those problems that occur.

### **Nepal Mountain Emergency Medicine Course.**

Hermann Brugger gave a brief account of the Nepal Mountain Emergency Medicine Course organized by the Institute of Mountain Emergency Medicine in Bolzano, Italy in cooperation with ICAR MEDCOM. The final session of the current series was an instructor-training course that took place in August in Kathmandu. The physicians and technical rescuers are now certified as instructors. There was further progress on the establishment of a mountain rescue service in Nepal. The first step is likely to be the organization of a training academy for mountain rescue in Kathmandu.

There is a short video of the recent course:

<https://www.youtube.com/watch?v=hdjfWGn29JE>

### **Letters**

Invitation from Markus Stuhr in Hamburg. He proposed a collaboration between ICAR MedCom and his organization SARRAH (Search and Rescue, Resuscitation and Rewarming in Accidental Hypothermia; <http://www.sarrrah.de/>).

Inquiry from Sebastian Donato regarding a 17-day rescue training course during the next climbing season at Aconcagua

### **August Executive Committee Meeting.**

John Ellerton reported on the August Executive Committee Meeting. There will be several new members. The membership types may change after discussion next year. It is likely that there will be the addition of a category for manufacturers. The ICAR office is now running smoothly under Tom Spycher. The Terrestrial Commission has asked to give input to the Medical Commission paper on Mass Casualty Incidents.

### **Pre-conference workshop on Hypothermia.**

John Ellerton reviewed the pre-conference workshop on Hypothermia. This year's session built on last year's workshop about insulation and introduced the concept of intermittent CPR. There were about 160 people at the workshop, which took place in beautiful weather. Learning points included the variable quality of CPR from different groups and different learning styles of different groups. John suggested that the ICAR MedCom should have a station at every pre-conference workshop going forward.

### **Financial Report**

There were no changes in the last year. We still have about €9000 in our bank account.

## **PAPERS IN PREPARATION**

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

Points for discussion:

What is the number of casualties to qualify as an MCI?

Who are the target audience for the paper?

When do we change from providing care to triage?

Cooperation with other organizations

Medical Leadership

Human factors: risk assessment and situation awareness

Crew resource management

Damage control medicine

Post-traumatic stress disorder

The paper will not be a review of the principles of mass casualty principles but will emphasize the special features of mass casualty incidents in the mountains.

One proposal was that as soon as the team has inadequate resources there is a mass casualty incident, regardless of number.

Another proposal was for a minimum number of five casualties.

The necessary resources are not only based on the number of patients, but also on their condition and environmental conditions (altitude, weather, etc.)

*Consensus: A MCI in the mountains is a major incident in which the number of potential casualties and the required rescue resources (personal and technical) might exceed the standard facilities that are normally available in that area.*

*Topographical and environmental factors may change a normal rescue mission into a MCI*

Marc Blancher is collecting statistics regarding mass casualty incidents by country from 2006 to 2015: type of incident, country, year, number involved, dead, severely injured, injured, number of rescuers, number of helicopters, comments.

We had a discussion about terminology. During an incident, the resource needs may be unclear. Many resources may be mobilized in case they are needed.

There are three specific topics we will cover in the paper. The first topic is avalanche incidents. Marc Blancher presented a case in which 2 dispatch centers were involved, but the first was busy. Initially, there were 1 doctor and 2 rescuers. There were 8 casualties, but all were out of the snow. There were 3 casualties in cardiac arrest and 1 unconscious. The rest of the avalanche victims were safe. Conditions were very windy – about 120 kph. It was only possible to communicate from the rescue scene to the dispatch center by having the helicopter relay information. There was an animated discussion regarding triage criteria for avalanche victims in cardiac arrest.

For lightning victims in cardiac arrest, bystanders should perform standard (not compression only) CPR. Most commonly lightning

causes asystole with rapid return of spontaneous cardiac activity. If the victim has a pulse but is not breathing, ventilatory support is all that is necessary. Rescue breathing may need to be continued for hours before spontaneous ventilation resumes. Dispatchers should be trained to instruct bystanders how to do CPR with both chest compressions and rescue breathing. By the time rescuers arrive, victims without vital signs are dead. The remaining victims should be triaged in the usual fashion.

The last topic concerns lost groups of people or people trapped in hazardous terrain or on a chair lift or gondola. We discussed the conditions under which hypothermia victims should be encouraged to walk to safety. In general, the safest course would be to provide patients who are shivering with insulation or shelter and calories for 30 minutes before attempting to have them walk, but this might need to be modified if it is not possible to provide insulation, shelter and food or sugar-containing drinks. Some victims might need to walk as soon as possible although this may entail some risk.

***Evidence-based recommendations for on-site management and transport of patients in canyoning incidents (ICAR MedCom)***

Giacomo Strapazzon led the commission through the paper from start to finish, so that the members could edit the presentation and recommendations in preparation for finalizing the paper.

**DAY 2**  
**FRIDAY OCTOBER 16, 2014**

**PRESENTATIONS**

**Avalanche Victim Resuscitation Checklist.**

Marc Blancher presented a new version of the checklist on behalf of Alex Kottman. Alex had a daughter 3 days ago. Congratulations Alex! The consensus of the commission was that this was a reasonable excuse for missing the meeting.

The updated version has 3 changes to the criteria for resuscitation with rewarming based on new publications. Only patients with hypothermic cardiac arrest have a chance of survival. New data suggest that at least 60 minutes of cooling are necessary to produce sufficient hypothermia prior to cardiac arrest. In addition, there is no documented survival of hypothermic avalanche patients above a core temperature of 30°C. Serum potassium is a marker of asphyxia. The highest documented potassium with survival from avalanche burial is 6.4. There was one resuscitation with ultimate death at a potassium of 8.

Summary:

1. The cutoff for burial time has been changed from 35 minutes to 60 minutes.
2. The cutoff for core temperature has been changed from 32°C to 30°C.
3. The cutoff for serum potassium has been changed from 12 mmol/L to 8 mmol/L.

On the checklist card, we will eliminate the box: Circulation Stable and Core temp >28°C. It would be too confusing to have cutoffs of 28°C and 30°C. The cutoff of 30°C is for determination of death, while the cutoff of 28°C was intended to guide treatment. Now victims with a core temperature of 30°C should be transferred to an ECLS facility if possible. We will also eliminate the box: “Transport to appropriate facility,” and just say: “Follow ALS protocol.”

The checklist will be distributed by download from the ICAR web site. In order to download the checklist, the user will need to register with an e-mail address so that we can send updates. Users will be encouraged to laminate the copies and use special pens that write on the laminated cards. We will also require or encourage anybody downloading the checklist to download the teaching materials.

## **BRIEF PRESENTATIONS**

### **Ice Avalanches in the Himalayas - Ken Zafren**

Two recent avalanches on Mt. Everest produced mass casualty incidents. The first occurred in the Khumbu Icefall during the 2014 climbing season, killing 16 people. The second, which killed 19 people and injured 83 in Everest Base Camp, was triggered by the magnitude 8.3 earthquake of April 25, 2015. Both of these were ice rather than snow avalanches. In the Khumbu Icefall avalanche, more properly described as a serac fall, the victims died from being hit by large falling chunks of glacier ice. In the Everest Base Camp (EBC) avalanche, a large mass of ice was shaken loose from a flank of Pumori. The ice was pulverized when it hit the ground, producing a large moving mass of fine debris. The wind blast produced by the movement of this debris killed and injured the victims at EBC by knocking them down and by throwing them through the air. Most, if not all, the fatalities were from head injuries.

### **Earthquake in Nepal - Ken Zafren**

Ken also gave an account of the very large earthquake of April 25, 2015. He was on the trail to EBC when the earthquake struck. There was violent shaking that made it almost impossible to stand up. After the earthquake, all communications were disrupted. The following day, he went to Pheriche to visit the doctors he had assigned to the Himalayan Rescue Association Aid Post. He learned that there had been an avalanche at EBC. Pheriche was the staging area for helicopters flying casualties between Base Camp and

the airport at Lukla. In order to move casualties as rapidly as possible from EBC, helicopters dropped off all casualties in Pheriche where they received further treatment and were retriaged before being flown down to Lukla. This plan was put into place following the Khumbu Icefall avalanche of 2014. Ken was able to assist with the treatment and retriaging.

After returning to Kathmandu, Ken led a needs assessment survey in the Sindhupalchok District, one of the hardest hit areas of Nepal. Although foreign doctors started pouring into Nepal a few days after the earthquake, there was little for them to do to provide medical care. Almost all victims with serious injuries were evacuated and treated in the first two to three days after the earthquake.

### **Mountain Medicine app - Maria Antonia Nerín**

Maria showed her Mountain Medicine app. Mediktor is a general medicine application with an added mountain medicine section. Wi-Fi, 3G or satellite connection is required. Medical “orientation” is free. Individual consultation is available for a fee. Use of the application is mostly self-explanatory. After the user answers a series of questions, the app returns a ranked list of likely diagnoses. If it diagnoses a serious condition, the user is encouraged to obtain an individual consultation.

The application can be found at: <https://www.mediktor.com>

Maria Antonia’s presentation can also be found online:

[https://prezi.com/c\\_zrloveny9a/mountain-medicine-app/](https://prezi.com/c_zrloveny9a/mountain-medicine-app/)

In order to improve this app, if you have any comments, please contact Maria: [manerin66@gmail.com](mailto:manerin66@gmail.com)

### **Core temperature measurement in the field - Sven Christjar Skaiaa**

Sven and his group are conducting a series of studies of core temperature measurement. In an in-hospital study, a new non-invasive thermometer, the Zero Heat Flux thermometer closely tracked epitympanic temperature and nasopharyngeal temperature during all phases, including cooling and rewarming. The subjects were patients undergoing supra-cardiac operations, mostly aortic arch procedures. It was not practical to measure esophageal temperature because these patients had transesophageal echocardiography (TEE) in which the probe generates a small amount of heat.

Last year, Sven and his group published a field study of thermistor base tympanic (“epitympanic”) thermometry. The thermometer overestimated the degree of hypothermia by 1.5-3.2°C after 5 minutes compared to rectal temperature in normothermic volunteers. Further studies of nasopharyngeal thermometry and the Zero Heat Flux thermometer are planned.

Reference: The impact of environmental factors in pre-hospital thermistor-based tympanic temperature measurement: a pilot field study.

Skaiaa SC, Brattebø G, Aßmus J, Thomassen Ø. Scand J Trauma Resusc Emerg Med. 2015 Sep 24;23(1):72. doi: 10.1186/s13049-015-0148-5.

**Quality of Continuous Cardiopulmonary Resuscitation during Terrestrial Mountain Rescue – Comparison between Manual and Mechanical Chest Compressions – Sven Christjar Skaiaa** Sven also presented a planned series of studies to measure the quality of chest compressions using manual chest compression, the Autopulse and the LUCAS 2. The first phase studied manual chest compressions. There are no results to report yet.

#### **Fatal Casualties in the Bernese Alps - Corrina Schön**

Corrina Schön from the Institute of Forensic Medicine, University of Bern reviewed fatalities from 2003-2014 in the Canton of Berne. Most of the cases were handled by the prosecutor's office in Thun, which is responsible for investigating deaths in the Bernese Alps. Most cases (246) were known by both the Prosecutor's Office and the Swiss Alpine Club, but 120 cases were known only by one or the other and could not be matched. Even after some corrections, 16% of cases were unknown to any official government agency. The autopsy rate was very low. Corrina mentioned that this is a general problem in Switzerland. Of all cases (not just mountain casualties) seen by her institute only 13% underwent autopsy.

#### **Hypothermia Coordinator - Wojciech Moskal**

The Hypothermia Center at Krakow, Poland was established in 2013. Since that time, all SAR operations during late Fall, Winter and early Spring are reported to the Hypothermia Coordinator. Wojciech presented a case with circulatory arrest lasting 150 min before the patient was placed on ECMO. The patient achieved normothermia at 7.5 hours.

A video showing the a response to a hypothermia incident in Poland can be found at: <https://www.youtube.com/watch?v=rrD4SJqtDwU>

#### **Analysis of 3 avalanche accidents in Sweden - Marie Nordgren and Poul Kongstad**

Poul and Marie presented a review of 3 avalanche accidents in Sweden using a nationally standardized structured method. They presented the results in the form of lessons learned. One important lesson was that health and ambulance authorities must have knowledge about alpine rescue problems. Based on these 3 avalanche accidents they drew 3 conclusions:

1. In large rescue paramount importance initial responsible leader identify all incoming rescuers. - Vests
2. There is a need for a general and transparent incident report system in Sweden

3. The avalanche area must be cordoned off rapidly and safely

## **PROPOSED NEW PAPERS**

### ***Aviation and medical guidelines for long-range, long-line helicopter transport - Bruce Brink***

As a long-line load is lifted off the ground, torque and pilot workload increase. During flight both decrease. They increase again with putting down the load. For medical care, the main concern is the unmonitored interval, although many patients do not need continuous monitoring. Rescuer comfort is another consideration. This is proposed to be a joint effort with the helicopter rescue commission.

### ***Fluid resuscitation - Sven Christjar Skaiaa***

Our previous paper on fluid resuscitation was in 2009. There have been some changes since then. In contrast to the doctrine of permissive hypotension, there is now more understanding of the dangers of hypoperfusion. This area is rapidly evolving. This paper would update recommendations for fluid resuscitation based on new research.

### ***Afterdrop in accidental hypothermia - Oliver Reisten***

Much of the literature regarding the afterdrop is copied from older literature. The evidence may not be based on research. This paper would review what is known about afterdrop in order to make recommendations for the treatment of accidental hypothermia.

## **2016 SPRING MEETING – CAPE TOWN SOUTH AFRICA**

The meeting will be the 2-7 May. The Spring meeting will therefore be in the Southern Hemisphere Fall. The Mountain Club of South Africa has a web site that gives rescue statistics. Rik discussed the evolution of mountain rescue in South Africa. The current organization, Wilderness Search and Rescue has had a “chequered” history, but is now firmly established.

Rik recommended checking visa requirements and checking the Cape Town app before coming to South Africa.

## **PLANNING FOR THE ISMM WORLD CONGRESS**

The XI. ISMM World Congress of Mountain Medicine Telluride, CO USA 30 July - 4 August 2016 is currently in the final planning stages. Of special interest to ICAR MedCom members are:

2 August: ICAR MedCom will present a workshop from 0800-1130: Different access routes in pain treatment in prehospital care in the

mountains.

3 August: Rescue Day There will be morning sessions on mountain rescue in different regions of the world: North America, South America, Europe and Asia. Afternoon sessions will include Avalanche and Hypothermia (Hermann Brugger), Mass Casualty Incidents in the Mountains and Remote Areas (Fidel Elsensohn) and Medical Treatment in Canyoning Accidents (Giacomo Strapazzon).

## FORTHCOMING EVENTS

### 2016

2-7 May ICAR Spring Meeting, Cape Town, South Africa

30 July - 4 August. ISMM World Congress of Mountain Medicine, Telluride, CO USA

18-23 October. ICAR General Assembly, Borowitz, Bulgaria

11-13 November BEXMED Mountain Medicine Update, Garmisch-Partenkirchen, Germany

2-3 December. Exposition of the new training center at Bad Tölz, Germany

### 2017

February (during the full moon) Hypoxia Symposium, Lake Louise, Canada

ICAR General Assembly **Andorra**

## CLOSING

Fidel closed the meeting.

Minutes respectfully submitted by Ken Zafren



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International Commission for Alpine Rescu

## APPENDIX: ATTENDEES AND APOLOGIES

Attendees – Thursday 15 October (56 persons)

Hillebrandt	Dave	UIAA Medcom President	-	dh@hillebrandt.org.uk
Strapazzon	Giacomo	CNSAS, Italy	+	giacomo.strapazzon@eurac.edu
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