



**International Commission for Mountain  
Emergency Medicine  
ICAR MEDCOM  
FALL MEETING 2014  
LAKE TAHOE, CALIFORNIA USA**

**Tuesday October 7, 2014**

**Welcome**

President Fidel Elsensohn welcomed the members of the Commission and guests.

**Attending**

*Please see ICAR MEDCOM 2014 attendee list*

**Apologies**

*Pending*

**Report of the preconference workshops**

The preconference workshops were a great success. Fidel thanked everyone who participated and especially those who organized the workshop: Alex Kottman, Mark Blancher, Jeff Boyd Dave Watson, Johannes Schiffer and Fidel Elsensohn.

**Introductions.** Introduction of members and guests.

**Outline of the program.** Fidel outlined the program for the meeting.

**President's report**

The ICAR Board meeting was in Liechtenstein. Due to financial considerations there will be no simultaneous translation beginning at the General Assembly next year. All future ICAR business and meetings will be conducted in English. The ICAR logo will change. The old ICAR logo will be retired. There will also no longer be logos for the individual commissions. The ICAR internet domain name will also change

The new ICAR secretary, Thomas Spycher, discovered an old contract from 1982 between the UIAA MEDCOM and ICAR MEDCOM. We plan to update this with a cooperative agreement and extend the agreement to the ISMM and the WMS.

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

The minutes from from the Spring 2014 meeting were approved without changes.

### **Financial Report and Bank Account**

We will contact the vendor of the DVDs from whom we have not heard in 2 years. Our current balance as of Oct 2013 is €8531.96. *Fidel – please check this. This is the “Saldo.” I don’t know what “Saldo” means.*

### **Report of Spring Meeting in Bolzano and the X. ISMM World Congress 2014**

Hermann Brugger gave a report on the X. ISMM World Congress 25-31 May 2014 in Bolzano, Italy at which we had our Spring meeting. The Congress was a great success.

### **BRIEF PRESENTATIONS**

#### **Nepalese DiMM course and Gosainkund Temporary Health Camp**

Ken Zafren presented two topics, the Nepalese DiMM course in February/March 2014 and the HRA Gosainkund Temporary Health Camp Nepal in August 2014. The Nepalese DiMM course is a complete DiMM course lasting 4 weeks. There were 14 students. The field session was held in Langtang. The Gosainkund Health Camp took place during the Janai Purnima festival at Gosainkund Lake at 4380 m. There were about 10,000 pilgrims. Five Nepali doctors, one medical student, two medical assistants and one foreign senior consultant saw 771 patients, 551 of them in the last day and a half. There were hundreds of patients with high altitude headache and acute mountain sickness. We evacuated 11 patients with high altitude cerebral edema, all by porter. Helicopters could not fly in monsoon conditions.

#### **Nepal Mountain Rescue Development Program**

Hermann Brugger gave a brief summary of the Nepal Mountain Rescue Development Program. The first phase has been completed and planning of the next phase is in progress.

#### **Diploma in Mountain Medicine: Applications and Approvals**

John Ellerton reported on the Diploma in Mountain Medicine program.

#### **Report from UIAA MEDCOM**

David Hillebrandt's presentation was, "What the UIAA MEDCOM has been up to." The UIAA MEDCOM is mainly concerned with prevention, by "advice papers" (recommendations) on the web site and in peer reviewed journals, prevention by persuasion and advice to other parts of UIAA. The UIAA MEDCOM also manages the Diploma in Mountain Medicine in concert with ISMM and ICAR MEDCOM.

## **PAPERS IN PREPARATION**

**Avalanche Victim Resuscitation Checklist.** M. Blancher, A. Kottman  
Alex Kottman and Marc Blancher presented the paper. The authors have also developed a teaching 60-slide PowerPoint presentation that is an integral part of the training to use the checklist. The checklist has been translated into several languages. The teaching presentation has been translated from French into German and English, but the translations still need to be reviewed. The paper will be submitted to Resuscitation. We will explore sponsorship for bringing the paper out as an "Open Access" paper. The paper was formally accepted.

We discussed the expected outcomes from using the checklist. The largest European study showed that only half of patients who should have had attempted resuscitation according to ICAR MEDCOM guidelines had no attempted resuscitation, while resuscitation was attempted in about half of patients who had no chance of survival. Use of the checklist should decrease the numbers of patients who are treated incorrectly. It is unknown if this will increase the number of unsuccessful resuscitations in patients who meet criteria for resuscitation. On the other hand, use of the checklist should decrease the number of unsuccessful resuscitations of patients who do not meet the criteria for resuscitation. The effect of on overall survival is also unknown. We will monitor these results carefully.

**Modular First Aid Kit.** Reisten O, Blancher M, Soteras I, Watson D, Wiget U.  
Oliver Reisten presented the paper briefly, touching on some of the controversial areas. We have already discussed the paper exhaustively over the course of several years. After brief further discussion, the commission formally approved the paper.

## **NEW PAPER**

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

There was a wide-ranging discussion concerning the content of this paper.

The definition is standard, but we have to decide what we will cover.

Areas for discussion: avalanche, trauma, lightning?

Should we cover medical aspects only or medical and operational aspects?

Can we separate medical aspects from operational aspects?

What differentiates triage in the mountains from triage in non-wilderness settings?

Can we take a case-based approach?

Should we use actual or fictional cases?

We should cover all situations, not just avalanche or mountaineering. Example: an avalanche that hits a road with a lot of people.

We can have 1 scenario and investigate the approach in different parts of the world or we can look at the response of different professions (physician, rescuer, etc.)

The principles of disaster medicine (mass casualty triage) are the same everywhere, although the implementation differs geographically.

Would a checklist be useful?

We should cover special aspects for disaster management in mountain rescue.

Should we collaborate with an established disaster organization?

We do not want to establish a new algorithm. (All agreed)

We should take an existing algorithm and adapt it to mountain conditions.

What are the most important concepts in disaster medicine to be adapted?

What makes mountain incidents different than other MCIs?

What tools do we need? (eg avalanche cards)

Training programs: organized simulations (same scenario in different countries)

We will have a joint meeting with avalanche and terrestrial tomorrow and again next year in order to work on this paper.

**Thursday October 8, 2014**

## **SHORT COMMUNICATIONS**

### **Alpine accident in Italy in 1912**

Giancelso Agazzi presented an alpine accident from 102 years ago in 1912 on the *Cima delle Garnate* in Italy. Two climbers fell, likely in bad weather, and died of their injuries. The searchers took one week to find the bodies. Their efforts were hampered by the 1 meter of snow that fell starting on the day of the accident and for several days afterwards.

### **Caving accident at the *Riesendinghöhle* in Germany**

Johannes Schiffer presented a caving accident in the *Riesendinghöhle* (Giant Thing Cave) in Germany. The victim, a very experienced caver, suffered a severe head injury from rockfall. The first responders reached the patient in a very fast 7 hours. Many organizations, starting with REGA from Switzerland, sent teams to assist with the rescue. Some teams from outside Germany had participation delayed or were unable to participate due to bureaucratic obstacles. There were

also difficulties in communication during the rescue due to language barriers among rescue teams.

A message was sent that the patient would certainly die from his injuries, but a later communication revealed that his condition had improved spontaneously. The initial message delayed the medical response. Many rescuers were unable to reach the patient due to the length and difficulty of the access route. The first doctors reached the patient after three and a half days. It took a further 5 days to evacuate the patient. The patient was conscious during the evacuation. He survived although he has little memory of the rescue. He has returned to work. Two doctors worked in shifts during the evacuation, but had few opportunities to monitor the patient because of the conditions, with the litter moving through vertical areas and narrow passages. There were 700 rescuers from 6 countries of whom 200 were in the cave. Nine physicians reached the patient.

The patient had a large right temporoparietal intracerebral hemorrhage with resultant edema causing hemiparesis. Fluid restriction, not planned but due to lack of IV fluids, early on and dexamethasone, given later, likely had beneficial effects by limiting brain swelling.

**Fidel suggested that ICAR should work on facilitating a process by which rescue personnel can work across national borders without bureaucratic limitations.**

Giacomo Strapazzon continued by discussing the participation of the Italian rescue team that assisted in the rescue. There were several issues, including delays in permission for personnel to enter the cave. In addition, an Italian medical kit was found inside the cave with some of the contents removed. This caused problems for an Italian doctor whose treatment of the patient was limited due to missing items.

Issues included problems with interactions inside and outside the cave among different rescue organizations, including difficulties in communication due to different languages, and to the long time it took to receive messages, often as much as 9 hours. There were further difficulties due to differences in medical and rescue techniques. The scale of the rescue also presented challenges in positioning and movement of personnel within the cave.

Giacomo reviewed previous large cave rescues in Italy from 2000 and 2007. Using the experience of these rescues, Italian rescue organizations developed improved procedures and techniques for long cave rescues. A further example of international cooperation occurred in September 2014 in Peru. Many European rescuers flew to Peru to help in a long rescue of a Spanish caver.

**Giacomo asked the question: What is the position of ICAR MEDCOM? Is it time for cave rescue guidelines? The commission discussed what role ICAR MEDCOM should play in development of recommendations for cave rescue. Giacomo will invite the ECRA European Cave Rescue Association to join ICAR as a B or C member to encourage collaboration.**

### **Avalanche airbag study**

Hermann Brugger presented the recently published avalanche airbag study: Haegeli P, Falk M, Procter E, Zweifel B, Jarry F, Logan S, Kronholm K, Biskupič M, Brugger H. The effectiveness of avalanche airbags. Resuscitation. 2014 Sep;85(9):1197-203.

This was a case-control study. The control group were individuals who were not wearing an airbag and were caught in the same avalanche as an airbag user. Small avalanches were excluded. Of the 424 individuals using airbags, the mortality rate was 19%. The risk of complete ("critical") burial was reduced from 54% to 19%, and mortality was reduced from 34% to 11% if the airbag inflated. Overall the frequency of complete burials was reduced from 56% to 27%, but in 20% of accidents airbag did not inflate. About 50% of failures to inflate were due to human failure to deploy the airbag. The remainder of failures to inflate were due to failure of the device, maintenance errors, destruction of the airbag. In some cases the cause was unknown.

Overall, adjusted mortality was 22% with no airbag or if the airbag did not inflate and 11% if the airbag inflated. For unclear reasons mortality was lower for airbag users when the airbag didn't deploy than for non-users. The authors concluded that avalanche airbags are valuable as a safety device, although the impact on mortality was lower than previously reported. 11% vs 16%. Non-deployment remains the greatest limitation to effectiveness. Avalanche size is also important. Mortality is higher in larger avalanches. The mortality advantage of using an airbag corresponds to halving the size of the avalanche.

### **Hypothermia case from British Columbia, Canada**

Doug Brown presented a hypothermia case from British Columbia. A 24 year old woman was found 7.5 hours after last seen near a backcountry hut. The patient was found with agonal respirations. She lost vital signs with extrication (circum-rescue collapse) and CPR was started. A helicopter rescue team landed 2 hours later. The first recorded rhythm from the AED was coarse VF. She was defibrillated 11 times (recommended maximum 3). She had episodes of fine VF when no shock was advised. There was possible brief PEA. Epinephrine was given IO to a total of 4 mg (recommended maximum 3 mg). Due to bureaucratic problems, a rescue helicopter had to be used rather than an air ambulance. The esophageal temperature in the ambulance was 17°C, but 22°C in the OR a few minutes later. It is not clear what caused this large difference. The potassium was 4.3. VA

ECMO (fem-fem) was initiated after 4 hours of CPR. The core temperature was 37°C after 26 minutes of ECMO (a rise of >30°C/hour). At that time the patient was defibrillated to normal sinus rhythm in 1 attempt. She was discharged from hospital after day 6 with full neurologic recovery.

Doug concluded that the current chain of survival for severely hypothermic patients in BC is tenuous. He discussed the concept of an ideal multicenter ECLS program. As a first step he has formed a provincial working group that includes 10 hospitals for hypothermic cardiac arrest. The group have developed a guideline that is awaiting approval prior to implementation.

Kazuo Oshiro presented the mass casualty incident due to volcanic eruption of Mount Ontake 3067m in Japan. The eruption occurred on 27 September 11:52 AM without warning. The official risk of eruption was low. Over 300 people were high on the mountain. More than 500 rescuers were mobilized on the first day. On day 2 550 rescuers were on site. They found 31 people near the summit “with no vital signs” (which means dead, but it is not allowed for rescuers to declare death in Japan). Seven injured victims were extracted by helicopter. At 2 PM, the H<sub>2</sub>S concentration increased and the search was suspended.

On day 3 the search was suspended at 1 PM due to an increased H<sub>2</sub>S level

On day 4, There were 800 searchers, but searching was suspended due to a tremor.

On day 5 the search continued and 47 bodies were transferred.

On day 6 the search suspended because of rain creating hazardous muddy conditions.

On days 7 and 8 searching was resumed using probe lines.

On days 9 and 10 the search was suspended because of a typhoon.

There were 55 fatalities, 48 of whom were severely injured and probably died from their injuries, possibly complicated by asphyxiation. One of the dead had respiratory tract burns and 6 died of unknown causes. Nine people are still missing

There were no rescuer fatalities. Some rescuers had acute mountain sickness (AMS) and hypothermia

Lessons learned: There was little or no time for people to escape or take shelter. Most rescuers lacked mountain skills, equipment or rescue experiences.

Iztok Tomazin gave a progress report on his book: “Mountain Rescue Doctors.” Experienced mountain rescue doctors from different countries have been asked to write about their most difficult missions with their thoughts and reflections.

There 18 articles by 15 authors from 10 countries. Iztok invited everyone, including paramedics, to contribute.

Tom Tull (supported by Michael Swangard) presented the extended protocols of the Canadian Ski Patrol. Canada is a large country with only 36 million people, most of whom live within 300 km of the border with the United States. Helicopters are not nearly as available as they are in Europe. Transport times can be long. They started with an advanced first aid program and decided to build a “bridge” to extended protocols. They developed an Extended Protocols Program starting at Silver Star Resort in south central British Columbia. The Extended Protocols provides a large addition to the Advanced First Aid certification of the Canadian Ski Patrol. Topics include:

Pain Management and nitrous oxide

Femur fractures

Salbutamol (albuterol) treatment

Cardiac arrest

Aspirin use

Glasgow Coma Scale

Anaphylaxis and allergic reactions

Results to 2013: Two more resorts have joined the program. Of the 324 interventions 297 were for the use of nitrous oxide for pain (312 at Silver Star Resort). About 80% of patients reported improvement on the 0-10 pain scale. Some legal details about the scope of medical practice remain to be worked out.

## **NEW PAPERS**

Giacomo Strapazzon gave a short communication regarding the ICAR Canyoning Recommendations. The existing recommendations are due to be updated. Some of the authors have been identified. So far there is no author from North America. The current authors have identified the topics to be covered.

Hermann Brugger introduced the proposed International Avalanche Registry including prehospital and hospital data. This will be similar to the existing International Trauma Registry.

## **FORTHCOMING EVENTS**

2015 23-25 23-24 January: FIPS (International Ski Patrol) meeting Montgenèvre, France.

2015 12-18 February WMS Winter Wilderness Medicine Park City, Utah USA

2015 3-8 March Hypoxia Symposium, Lake Louise, Alberta CANADA

2015 1-6 March SAREXPO Santiago, Chile



2015 exact dates TBD June Food on Expedition - Milano

2015 27-31 May: Spring meeting Ticino, Switzerland (Oliver Reisten and Gregoire Zen-Ruffinen)

2015 13-17 October. ICAR General Assembly: Killarney, Ireland

2016 (May?) ICAR MedCom Spring meeting. Cape Town, South Africa.

2016 July. ISMM World Congress of Mountain Medicine Telluride, CO USA

2016 18-23 October. ICAR General Assembly Borowitz, Bulgaria

2017 ICAR General Assembly Norway(?)

## **CLOSING**

Fidel closed the meeting.