ICAR MEDCOM – FALL MEETING
Thursday 19 Oct 2017

Welcome
President Fidel Elsensohn welcomed the members of the Commission and guests. There were 69 members in attendance, the largest number yet.

Introductions
Members and guests introduced themselves.

Members Attending and Apologies
Listed at the end of the minutes

Program
Fidel outlined the program for the meeting.

Minutes of the last meeting
The minutes from the 2017 Spring meeting were approved without changes.

Financial Report
ICAR Medcom bank balance remains at €8645. No change from previous. Nicole Vogt (Liechtenstein) is no longer involved in MR and looking to relinquish her duties as Treasurer. John will look at options moving forward.

PRESIDENT'S REPORT
Fidel announced the deaths of 4 Commission members. Alfred Thomas – Germany. Marcel Escoda – Andorra died in 2003. Jose Ramon Morandeira – Spain died in 2012. Bruno Durrer – Switzerland 2016

Hermann Brugger gave a short tribute to Bruno Durrer.

Spring meeting in Porto Venere, Italy
Fidel gave a report of the 2017 Spring meeting in Porto Venere, Italy. The canyoning and multi-casualty Incidents papers were discussed.

Proposed new papers
Quality indicators in avalanche rescues by Alex Kottmann.
Management of multiple trauma and shock by Peter Paal.
Knowledge base project by Natalie Hölzl.

New book
Luigi Festi and Hermann Brugger are planning a new textbook of Mountain Emergency Medicine. Topics and authors have been assigned.

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Short presentations:
Rigopiano Earthquake/Avalanche – Gian Luca Facchietti
CNSAS Complex Emergency Interventions – Simone Marcuzzi
UIAA MedCom report – Enrico Donegani
Central Appenines Earthquake, Italy August 2016 – Mario Milani
HEMS EURAC Mountain Emergency Medicine Course – Giacomo Strapazzon.

Framework of 2018 World Congress of Mountain Medicine

The meeting concluded with a day trip to a 'closed' island and the wonderful villages of Cinque Terre. The weather was inclement for part of the day!

Change of leadership

After 8 years as President of International Commission of Mountain Emergency Medicine (ICAR MEDCOM) Fidel will pass the baton to John Ellerton. He concluded, "THANK YOU ICAR MEDCOM FRIENDS. Thanks to all members of the Executive Board of ICAR for their support and to all members and delegates of ICAR."

ICAR BUSINESS

2018 Fall meeting (Chamonix, France) will have the practical workshop on Friday. Arrive on Tuesday ready for the Medcom meeting on Wednesday and Thursday; Cogress and Assembly of Delegates on Saturday. It is the 70th anniversary of ICAR

Membership categories and voting privileges will be discussed in the Assembly of Delegates. New categories are being proposed that will concentrate the voting power to mountain rescue organizations yet allow a global and diverse ICAR membership.

ICAR will increase financial support for the ICAR videos.

Mountain Safety Knowledge Base: Working group led by Manuel Genswein. A Memorandum of Understanding was adopted in August at a meeting of all the stakeholders. The principles are:

To establish best practices in mountain safety.
Nonbinding.
Respects member organizations and cultural practices.
Commercial but not-for-profit. Yearly subscription model.
Limited to organizations with a global presence.
Content to be elaborated by working groups.

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PROPOSED PAPERS AND PROJECTS IN DEVELOPMENT

Multiple trauma management in alpine environments.
Peter Paal
This proposed paper builds on the 2009 paper regarding fluid management in mountain rescue. It will be a systematic review with PICO questions scored by the American Heart Association (AHA) evidence-based scoring system. The publication will be Open Access. The first author will be Günther Sumann and the senior author will be Peter Paal. The other initial authors will be: Mike Greene, Bruce Brink, Giacomo Strapazzon Monika Brodmann, Didier Moens, Mathieu Pasquier Poul Kongstad, Alison Sheets, Daryl Macias, Ken Zafren, Kazue Oshiro and possibly authors from Nepal and South Africa.

ICAR MEDCOM recommendations on suspension syndrome.
Hermann Brugger
The pathophysiological mechanism of suspension syndrome has been debated for decades. Partial results of a new Italian study at the EURAC Institute of Mountain Emergency Medicine (IMEM) in collaboration with the Medical University of Innsbruck were presented by Giacomo Strapazzon.
Methods: The subjects were suspended either after resting or after climbing on a climbing wall. Parameters to be measured were hemodynamics, echocardiography (although this proved impossible), venous pooling by ultrasound and venous O2 content by NIRS. The subjects were instructed to stay as still as possible.
Results: There were 20 subjects. Presyncope occurred in 30% of subjects. There were marked increases in venous pooling and decreases in heart rate in the subjects with presnycope but not in subjects without presyncope. Results were similar with regard to blood pressure.
Conclusion: The most likely cause of presyncope in suspended subjects is neurally mediated.
Recommendations; Syncope can be avoided by active movement. Victims of suspension syndrome should be rescued as rapidly as possible and placed in the supine position. There is no evidence in favor of a semi-recumbent position.

A discussion followed: Many books still recommend not putting patients in the supine position but in a sitting position. In addition to the IMEM study, there is a recently study from New Mexico. The New Mexico study showed no increase in potassium or creatine kinase in subjects with presyncope. The IMEM used standard climbing harnesses, while the New Mexico study used industrial harnesses. Both studies had similar results. There are also case reports. In one case report the victim had been hanging from a paraglider for 45 minutes and was in no apparent distress, but then had a sudden syncope. The victim was rescued a few minutes later in cardiac arrest.

Hermann and Giacamo will work on the ICAR Medcom recommendations and present their work for adoption by ICAR Medcom and ICAR in Fall 2018.

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Psychosocial health of ski patrollers and mountain rescuers.

Marie Nordgren

Before presenting the new paper, Marie gave a follow-up from the hypothermia incident she presented last year.

"He (Leo) was the most dead person of all the dead persons he had seen." Leo's core temperature was 14.5°C. His potassium was 5.2 mmol/L after he arrived at the hospital in Trondheim. He has a hard time with short time memory, some problems with his hands and right leg, but he can jog and ride a motorbike. He is now a freshman in high school on an engineering program. Gabriel's core temperature was 18°C. He has a hard time with his hands due to tendon instability and muscle fatigue. He is a sophomore in high school.

Ulrika Tranaeus and Marie Nordgren have begun a qualitative project interviewing ski patrollers and mountain rescuers. The mean age is 37.5 years. Ski patrollers in Sweden are paid full-time professionals. Mountain rescuers are volunteers although they are paid for rescues. A literature review of PTSD had been carried out. Swedish, Italian and UK studies found that volunteer rescuers coped better than professional rescuers, possibly due to a sense that they were performing a worthwhile service. Professionals usually had other duties that were not related to rescue. A study of French mountain rescuers on prevalence and factors leading to PTSD exists but does not seem to be in PubMed.

It was proposed that the work would be developed with a working group reporting in the 2018 Spring and Fall meetings with a view to publishing a paper.

Medical Resource Website

Natalie Hölzl

Natalie outlined the formation of a working group to develop a knowledge base for ICAR MEDCOM that was approved by consensus at the 2017 Spring meeting. The knowledge base will be an internet-based library. It will not use the ICAR website which has limited capacity and does not allow continuous edits. The site should be user-friendly for the contributors as well for those accessing the knowledge base. There is a demonstration site: www.alptrauma.com

Natalie discussed the needs and budget for this project.

There was acknowledgement that there was some overlap with the Mountain Safety Knowledge (MSK) base but that a standalone platform was preferable for ICAR Medcom members. Work was to continue whilst the impact of the MSK and the future of the Stage4 ICAR Medcom platform became clear.

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Proposed future ICAR recommendation: Quality improvement for avalanche rescue missions.

Alex Kottmann and Mathieu Pasquier

Alex and Mathieu reviewed the last 15 years of avalanche rescues for REGA and were able to describe the technical and medical requirements for avalanche rescue misssions, as well as the clinical exposure of the crew members.

Previously, Strapazzon et al showed that there is a lack of adherence to guidelines.

Strapazzon G, MIgliaccio D, Fontana D. et al. Knowledge of the Avalanche Victim Resuscitation Checklist and utility of a standardized lecture in Italy. Wilderness Environ Med 2017 [epub ahead of print].

Kottmann et al. made a baseline measurement to determine areas where quality improvement efforts could be focused on and accordingly proposed potential interventions for quality improvement. One of these is the use of the avalanche victime resuscitation checklist.

Kottmann A, Blancher M, Pasquier M, Brugger H. Avalanche Victim Resuscitation Checklist adaptation to the 2015 ERC Resuscitation Guidelines. Resuscitation 2017 [epub ahead of print].

The new recommendation will try to identify quality indicators for avalanche rescue mission by answering the questions: What do we do and how well do we do it?

The recommendation needs a mission statement and primary objectives.

Alex and Mathieu proposed brainstorming to develop quality indicators.

Consensus should be reached by clinicians, subject experts and stakeholders.

Quality indicators are a tool to collect, monitor and report data, interpret information and help rescue services to make decisions on potential quality improvement strategies.

The recommendation should adopt the most useful quality indicators for avalanche rescue missions.

There should also be a template for uniform reporting of data for avalanche rescue mission, which will be developped in parallel.

The quality indicators will be developed by consensus using a modified nominal group technique with a literature search, e-mail rounds and a consensus meeting.

An update would be presented at the ICAR Medcom Spring meeting

Brainstorming session (quality indicators)

Timeline: launch delay, response times, scene times

Training frequency

Degradation of clinical care in multi-casualty accidents

Preparedness of avalanche rescuers

Level of care to be given by rescuers (ALS/BLS)

Destination hospitals – transfer to local hospitals, availability of ECMO centers

Workload of the team (annual number of avalanche accidents)

Methods of finding a buried victim

Outcomes

Availability of medical devices and indications, including mechanical chest compression devices

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Incidence of complete burials
Has someone evaluated the risk to the rescue team of further avalanches?
Is there a difference in outcome with physicians or according to the training of the physicians?
Incident Command System (ICS) or other command system.
Quality of communication from the scene to the receiving center
Quality of communication about the scene prior to arrival of the rescuers

SHORT PRESENTATIONS

Knowledge of avalanche checklist.
Giacomo Strapazzon
Reference: Strapazzon G, Miglaccio D, Fontana D. Knowledge of the Avalanche Victim Resuscitation Checklist and Utility of a Standardized Lecture in Italy. Wilderness Environ Med 2017 [epub ahead of print].
A retrospective study in Italy had shown low adherence to avalanche guidelines, a low rate of assessing airway status and a low rate of performing CPR in avalanche accidents. The rate of performing CPR decreased as burial time increased. This study was a pre- and post-lecture survey during 8 mountain rescue courses in Italy. In the pre-lecture survey, 65% of participants had never taken an avalanche course, 76% had no avalanche rescue experience and only 34% had heard of the Avalanche Checklist. Prior to the course 36% of the participants knew the correct burial time cutoff for withholding CPR in a completely buried victim with an obstructed airway. This increased to 84% after the course.

Mountain Registries.
Monika Brodmann
For low incidence – high impact incidents, registries can be useful.
In an attempt to increase the number of cases in mountain registries, three international registries will be accessible from a single site:
Hypothermia Registry (IHR)
Alpine Trauma Registry (IATR)
Avalanche Registry (IAVAR)
These will all be accessible using www.mountain-registries.org which will go online on November 1, 2017

Survey of MR teams' Management of Severe Hypothermia.
Andreij Gorka
Reference: Podsiadio P, Darocha T, Kosinki S, et al. Severe hypothermia management in mountain rescue: a survey study. High Alt Med Biol 2017 [epub ahead of print].
Aim: To assess whether mountain rescue teams (MRTS) are able to follow guidelines.
Methods: A questionnaire was sent to 123 MRTs in 27 countries.
Results: There was a low rate of return of questionnaires and a low incidence of severe hypothermia.
Many teams were not equipped with electrocardiographic (ECG) monitoring, automated external defibrillators (AEDs) or low-reading thermometers

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Some patients were sent to local hospitals rather than to hospitals capable of extracorporeal rewarming (ECLS).
The majority of MRTs are not equipped to provide Advanced Life Support (ALS) especially in victims who are in cardiac arrest.

Snow density study: Effects of snow properties on humans breathing into an artificial air pocket.

Giacomo Strappazon
Beyond 35 minutes there is no survival with a blocked airway.
Methods: Subjects breathed into artificial air pockets except for subjects in the control group, who had no air pockets. There were multiple measurements including snow density and permeability. There were 3 levels of snow density.
Results: There was a high rate of early trial termination in the highest snow density group. Only snow density was correlated with air pocket gas values.
Conclusion: A rapid decline in SpO2 occurred without an air pocket and in the highest density snow.

Potassium cutoff level in avalanche victims.

Hermann Brugger
Introduction:
The highest recorded serum potassium in an avalanche survivor is 6.4mmol/L. ICAR MEDCOM and the European Resuscitation Council (ERC) propose potassium >8 mmol/L and core temperature (Tc) >30°C as cutoffs for not using extracorporeal life support (ECLS) in avalanche victims. Sensitivity and specificity of these cutoffs, confidence intervals and receiver operating curve (ROC) analysis have never been estimated.

This was a retrospective study of avalanche victims with out-of-hospital cardiac arrest (OHCA). The hypothesis was that serum potassium is useful to determine the chance of survival. The null hypothesis was that serum potassium is not related to the chance success of extracorporeal rewarming. Estimating the false positive rate can be used to improve the selection for use of extracorporeal life support (ECLS) of avalanche victims with reversible OHCA from hypothermia.

Methods
Inclusion criteria: Avalanche victims with OHCA admitted for ECLS 1995-2016. Although centers in Europe and North America were invited, all responses came from Europe. Data was collected using the Utstein form. Prehospital parameters included duration of complete burial and airway status. In-hospital data include the initial core temperature, cardiac rhythm and serum potassium.

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Results
Of the prehospital parameters, only duration of burial could be used. Burial duration did not distinguish survivors from non-survivors. Non-survivors had higher mean serum potassium. The difference in serum potassium between non-survivors and survivors was statistically significant. Survivors had lower Tc than non-survivors. The ROC was most accurate for serum potassium, less accurate for Tc and least accurate for burial duration.

MR First Aid Training Course for non medical rescuers

Kazue Oshiro

Kaz presented the development and implementation of frist aid training to non-medical mountain rescuers and guides. Results have shown training increases exam results and she presented a case history of a hypothermic walker. Her aim is to establish international standard for a structured training course for non-medical people which is endorsed by ICAR and establish a unifying international certification system in each country for non-medical people following international standard which is endorsed by ICAR.
Members were asked to offer their help and collaborate with Kaz to develop these ideas.

Determination of death

Corinna Schön

ICAR Medcom would find it helpful if an attempt was made that would guide rescuers in deciding if a casualty had died. This would be most useful if it could be done remotely as a way reducing risk to rescuers in dangerous environments. Difficulties related to differing practises in different countries may be surmountable. A group of members were happy to assist in further development of the suggestion.

Optimizing avalanche rescue strategies using a Monte Carlo simulation approach.

Peter Paal and Manuel Genswein

We are rescuing the brain. We should consider the “Chain of Survival.” In normothermia, brain damage begins within 3-5 minutes of cardiac arrest without CPR.
Reynolds JC, Frisch A, Rittenberger JC, Callaway CW. Duration of resuscitation efforts and functional outcome after out-of-hospital cardiac arrest: when should we change to novel therapies? Circulation 2013; 128(23):2488-94.
This study looked at neurologic outcome by Modified Rankin Scale. Longer CPR in normothermia increased survival but resulted in worse neurologic outcome in additional survivors.
Moroder, L, Mair B, Brugger H et al. Outcome of avalanche victims with out-of-hospital cardiac arrest. Resuscitation 2015; 89:114-118.
Only two patients had ROSC, both after short burials and both with bystander CPR.
Lexow K. Severe accidental hypothermia survival after 6 hours 30 minutes of cardiopulmonary resuscitation. Arctic Med Res. 1991; 50 Suppl 6:112-4.
Hypothermic patients can survive very long durations of cardiac arrest if hypothermia precedes hypoxia.
Conclusions:

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- Avalanche burial-related cardiac arrest is often due to asphyxia.
- Asphyxia-related cardiac arrest has a very low chance of neurologically good outcome.
- Arrested avalanche survivors with neurologically good outcomes were resuscitated within minutes.

Monte Carlo simulation uses repeated random sampling of input variables, each with its own distribution, to calculate the distribution of expected outputs.
Example: Extrication time
Patient 1 is not breathing. Input variable: survival curve
Patient 2: is still buried and not yet located. Input variables: search + extrication time (using Swiss avalanche data)
Survival curve of patient 1 minus survival curve of patient 2 is the probability function for expected survival. This changes over time.

In the scenario, there are 2 extremes: Bogle et al: Don't even start CPR on 1st victim. Bogle LB, Boyd JJ, McLaughlin KA. Triaging multiple victims in an avalanche setting: the Avalanche Survival Optimizing Rescue Triage algorithmic approach. Wilderness Environ Med. 2010; 21(1):28-34.
An alternative approach: Don't stop until CPR has been performed (on Patient 1) for 20 minutes.
Optimal: Perform according to current simulation: CPR on Patient 1 for 5-7, minutes then proceed to patient 2
The current simulation includes various types of searches, extrication and behavior of rescuers. Future comprehensive simulations will include search and rescue medical parameters.

Hermann Brugger pointed out that asphyxia arrest differs from primary cardiac arrest. Oxygen is high in primary cardiac arrest, but low in asphyxial cardiac arrest. Hanging is not an optimal model for asphyxia cardiac arrest in an avalanche because hanging also obstructs the carotid arteries decreasing cerebral perfusion.
References:
Deasy C, Bray J, Smith K, et al. Hanging-associated out-of-hospital cardiac arrests in Melbourne, Australia. Emerg Med J 2013; 30(1)38-42.
This study included over 1000 patients. The initial rhythm was asystole in 75.5%, pulseless electrical activity (PEA) in 13.4% and ventricular fibrillation (VF) in 0.5%. While 29.3% achieved return of spontaneous circulation (ROSC) only
3.3% survived to hospital discharge.
Berg RA, Kern KB, Otto CW et al. Ventricular fibrillation in a swine model of acute pediatric asphyxia cardiac arrest. Resuscitation 1996; 33(2):147-53.
In this pig study blocked the endotracheal tube was clamped, causing asphyxia. Cardiac activity persisted for up to 20 minutes.

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Causes of death in avalanche fatalities in Colorado: a twenty-year review
Alison Sheets

The aim was to estimate the proportion of avalanche deaths in Colorado due to trauma. All avalanche fatalities were included. The cause of death for each fatality was determined by the county coroner. The injury severity score (ISS) was calculated for all patients with autopsies. Results were similar to Canadian results in which 24% of deaths were due to trauma (Boyd et al 2009). Multisystem trauma and head trauma caused over half of trauma deaths. The results were different from those in Europe (Hohlrieder et al 2007) and Utah (McIntosh et al 2007), in which trauma was a much less common cause of death.

References

Boyd J, Haegeli P, Abu-Laban RB et al. Patterns of death among avalanche fatalities: a 21-year review. CMAJ 2009; 180(5):507-512.
Pattern and severity of injury in avalanche victims. Hohlrieder M, Brugger H, Schubert HM et al. High Alt Med Biol 2007; 8(1):56-61.
Cause of death in avalanche fatalities. McIntosh SE, Grissom CK, Olivares CR, et al. Wilderness Environ Med 2007: 18(4):293-297.

Emergency ultrasound in an alpine setting
Andrea Orlandini

A literature search found 413 papers on prehospital ultrasound, but only 12 papers on ultrasound in alpine environments. Ultrasound can be used in a helicopter.
Uses of ultrasound in mountain environments:
Diagnosis of cardiac arrest, local anaesthetic nerve blockade, IV cannulation, confirming fractures and applying local anaesthetic, Focused assessment with sonography in trauma (FAST) and extended FAST (e-FAST) with lung sonography. Medical patients: diagnosis of the cause of cardiorespiratory failure. Check position of endotracheal tubes
Reference: Garabaghian L, Anderson KL, Lobo V. et al. Point-of-care ultrasound in austere environments: a complete review of its utilization, pitfalls, and technique for common applications in austere settings. Emerg Med Clin North Am 2017; 18(2):270-280.

Uses of ultrasound for high altitude illness
Differential diagnosis of high altitude pulmonary edema
Otto C, Hamilton DR, Levine BD, et al. Into thin air: extreme ultrasound on Mt. Everest. Wilderness Env Med 2009: 20(3):283-289.
Optic nerve sheath diameter (ONSD) in acute mountain sickness (AMS) and high altitude cerebral edema (HACE). ONSD is useful for research rather than clinical applications.

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The effect of body position on management of buried avalanche victims.

Hermann Brugger

Background

The survival rate of completely buried victims is much higher when they are extricated by bystanders than by rescuers (74% versus 19% p=0.002)
Mair P, Frimmel C, Vergeiner G et al. Emergency medical helicopter operations for avalanche victims. Resuscitation 2013; 84(4):492-5.
This study raises the questions: Does the position of the completely buried victim affect CPR? How long does a lay rescuer take to bring a victim into a position allowing resuscitation.
Kornhall DK, Logan S, Dolven T. Body positions of buried avalanche victims. Wilderness Environ Med 2016; 27(2):321-5.
Prone and head down is more frequent than supine and head down
Head position: 159 victims: downhill 65%, uphill 23% and across slope 11%.
Body position 253 victims: prone 45%, supine 61%, sitting/standing 16%, on side 15%

Methods

This study used a simulated avalanche in natural snow compressed by a snow machine Manikins were buried 1 m deep prone or supine with head downhill or uphill. Rescuers were randomly assigned and blinded to scenario. In all positions 1 or 2 rescuers performed the rescue. Time points from the start of extrication were:
T1 until airway free
T2 until head free (ventilation theoretically possible)
T3 thorax or back free in the hole (CPR theoretically possible)
T4 patient in standard CPR position
T5 first ventilation given in standard CPR position
T6 CPR (chest compressions) in standard CPR position.

Conclusions.

The airway can be freed in all positions before the patient is extricated, saving significant time.
If the patient is in the prone position, ventilation cannot be performed before extrication (45% of completely buried victims).
Chest compressions can be performed in all positions before extrication, as soon as the chest or back is free. This could save time, but quality may not be adequate. Quality of chest compressions in positions other than supine requires further studies. Chest compressions without ventilation don't comply with BLS guidelines for asphyxia cardiac arrest.

Possible recommendations:

In both single and multiple victim scenarios free the airway as soon as possible. In a single victim scenario (victim/rescuer ratio ≤1), start CPR before extrication if the victim is supine and after extrication if the victim is prone. In multiple victim scenario (victim/rescuer ratio >1), start CPR before extrication if the victim is supine.

Virtual Learning Environment (VLE) using Moodle

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Mike Greene
There are many challenges to educating volunteers. Virtual learning environments (VLEs) are versatile and flexible. They can incorporate multimedia. VLEs are interactive rather than passive. They can be easily updated and can be
Used almost anywhere, any time the student has access to the internet. VLEs are less expensive than books.

Moodle is a free, open source VLE used by over 14,000 institutions. Tools are maintained by the Moodle Community. Moodle is a platform for blended, active learning. Moodle can be used for initial learning and for continued practice development
How do you start? Mike recommends that you first go skiing, then read the book, Moodle for Dummies.
There are costs for servers, training for administrators and a lot of time to write the material and keep it updates
Mike gave a tour of Moodle for Mountain Rescue England and Wales.

FORTHCOMING ICAR EVENTS

2018
April 25-28: ICAR Medcom Spring meeting; Tromsø, Norway.
Lead: Julia Fieler (juliafieler@gmail.com); main topic - hypothermia; some support reducing in-country costs; skiing possible in days before with Julia.

October 17-20: ICAR General Assembly; Chamonix, France
Note the extended format – we start work on Wednesday.

November 21-24: ISMM World Congress of Mountain Medicine; Kathmandu, Nepal.
ICAR will take the lead in establishing the Mountain Emergency Medicine programme. A list of names of potential lecturers was made – see Appendix. – could anyone else attending let John know. There may be a small contribution towards travel costs from the organizers. This was unknown. John would draw up a suggestion for the organizers. We are to focus on new information.
A pre-conference Diploma in Mountain Medicine (DiMM) course organizers event is planned for 20 and 21st of November before the Congress opens on the eve of the 21st. Monika proposes that the 1st day will be on teaching methods for course teachers and the second day will be about putting this into practice with additional 'students' from Nepal/Congress. The course teachers from day one will form pairs and then teach 4 'students' on a specific topic for 1 hour. The administrative group of the DiMM will be taking the lead.
Time will also be made for a DiMM meeting looking at refining the regulations to become effective in 2019/20.

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2019
Spring: ICAR Medcom meeting; Bolzano, Italy
Proposed to be at the TerraXcube simulation chamber!

October 9 – 13th: ICAR General Assembly; Zakopane, Poland
(Classic format with pre-conference day on Wednesday)

2020
Spring: ICAR Medcom meeting; Christchurch, New Zealand
Focus on polar medicine and research

October: ICAR General Assembly; Thessaloniki, Greece

2021
Spring: ICAR Medcom meeting; ?
Focus on ultrasound applications in MR

October: ICAR General Assembly; Austria

CLOSING
Fidel closed the meeting. A presentation was made to Fidel and Danielle by the ICAR President.

Minutes respectfully submitted by Ken Zafren

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		Organization			Nepal?
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