



## **Presentations Terrestrial Rescue Commission**

Place: Borovets (Bulgaria), Hotel Samakov

Date: October 22, 2016

Time: 8 a.m.

Participants: Members of all commissions

Chairmen: Dan Halvorsen and Jon Ellerton

Minutes: Fabienne Jelk

### **From Theory to Terrain (Mathieu Pasquier CHUV, Raphael Richard, Patrick Fauchère OCVS)**

Presented is an operation where all conditions for a successful rescue were optimal (weather, terrain, rescue units). On April 12, 2015 an avalanche came down. It was known that the victims were carrying avalanche beacons, so during the flight the antenna could be prepared ahead of time. On scene the rescuers saw that the risk on the avalanche runout was minimal. Therefore, the mountain guide decided to not use the antenna but to have it put on the runout. It is important to not be fixated on a specific process during a rescue but to adapt the processes and decisions to the circumstances. As soon as one is on scene, a first assessment is necessary, a kind of mind mapping. Four persons were buried in this particular incident. One person had been found by a friend, three more were still buried. Based on this information the mountain guide in charge decided that he needed more personnel and more physicians. After 30 minutes all three buried persons had been found. Five mountain guides, three physicians, nine rescuers, one dog handler, and four helicopters were involved.

Medical aspect: Many theories have been developed on how to assess the survival chances of a buried person, and they have been constantly revised, which is a sign that there is not enough experience in this matter. Therefore, an annual course for physicians was introduced in which rescue physicians learn the use of new material, test new theories, and to ensure that all physicians follow the same methods during a mission. Physicians need to be equipped with skis, avalanche beacon, shovel, probe, and airbag. As soon as the head of the buried person is freed, the physician needs to attend to the patient. There are guidelines on how to proceed with medical care. At the accident of April 12 two patients were lightly hurt and two were in cardiac arrest. Both patients with cardiac arrest died.

In summary, theories without relevant training in the field are useless. Training and practice is essential. In the field one has to improvise a lot. Only in a few cases can the theories be applied as learned.

Questions/Comments:

Q: Gebhard Barbisch: So there were four mountain guides with four helicopters and nine additional rescuers on scene?

A: At the end there were 20 people on scene.

Q: How often should the theories be practiced?

A: That depends on the team and whether or not they are professionals or volunteers. In Wallis there are two parallel structures; one for professional rescuers and one for volunteers who are mountain guides. There is a one-week training per year. Air Glacier adds another 6-8 training days internally. For avalanche rescues two days training each winter are held.

### **Brief Update on the PCDS Situation (Patrick Fauchère OCVS)**

Result from the discussion with EASA: Rescuers can use their own climbing harness as long as it conforms to the EN norm.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-001-PCDS\_Update.pdf*

### **Railroad Accident in Bad Aibling (Johannes Schiffer, Mountain Rescue Bavaria)**

Shortly before 7 a.m. on February 9, 2016 two trains collided on a single track route in Bad Aibling. At that time of the morning the trains are usually full, so the assumption was that there were at least 60 casualties. The terrain at the scene was steep and forested on one side and bordered by a canal on the other side. Accessing the accident site was very difficult. Since a large number of casualties that needed to be flown out were expected, a corresponding number of recovery bags were needed. These are with the mountain rescue, which is how the mountain rescue got involved. The mountain rescue took control of the coordination of the landing sites. The victims were rescued by the fire department and taken to a first aid station where physicians took care of them. Only one patient had been taken care of initially inside the train.

In the end there were 11 dead and five severely injured. Luckily, the train had not been as full as usual because of a holiday. The timing of the accident also coincided with an hour at which surgeries in hospitals are not yet underway and operating rooms were available.

The rescuers were able to reduce tension by taking over coordination of the landing site, which they were well versed in. Nowadays, mountain rescuers are more often called to other accidents that are not related to mountain rescue.

Questions/Comments:

Q: John Ellerton: How often are the rescuers trained?

A: One annual training within the mountain rescue organization. There is a special training center in Bavaria. This noticeably reduced the stress and frenzy during such missions.

*File: 20161022-TER-AVA-AIR-MED-002-Train-Accident-Aibling.pdf  
20161022-TER-AVA-AIR-MED-003-Train-Accident-Aibling.WMV  
20161022-TER-AVA-AIR-MED-004-Train-Accident-Aibling.WMV*

### **SAR Management Methodology (Andres Bardill ARS)**

The choice of equipment and methods for search and rescue missions is getting larger, especially technologically. Additionally, there are more and more non-professionally trained persons who offer their help during a rescue. One has to decide whether to accept their help or not. An assessment of the situation is imperative. Incident commanders are supported by appropriate training and standardized algorithms. For example, the decision on how to help a victim whose climbing iron broke should be made by the mountain rescuer and not a hobby drone pilot. This does not mean, however, that new means shouldn't be used.

The following strategy when looking for lost persons has proven itself:

Phase 1: Assessment and reconnaissance

Phase 2: Primary search area (paths and routes)

Phase 3: Expansion of search area

Presented is an example:

Missing person's report on April 3, 2016 in Arosa/Lenzerheide. The call to the police came in at 10:31 p.m. One skier was missing in the ski area. The ski patrol had already searched the open slopes in the Arosa and Lenzerheide areas without success. The following several means were used: IMSI catcher, infrared camera, Snowcats, helicopter, 15 mountain rescuer for a terrain search. At 2:13 a.m. an avalanche, unexpectedly, was reported by one of the rescuers in the Arosar Alp. The missing person was in the avalanche and was quickly found. At 2:50 a.m. resuscitation began. Even though the weather was bad, a

helicopter with a physician onboard was able to land. The physician could only declare the person dead, however. Review of the webcams in the area, which required a specialist and wasn't done until later, showed that the avalanche had been set off in the afternoon.

Mountain rescuers should and need to tackle new technology. It is important, though, that the lead of the rescue stays with the mountain rescue and is not taken over by technical advancements and hobby organizations.

C: During a rescue mission of a missing person in a ski area over several days, commuters are also a factor. It was difficult to explain to the distraught parents that the search was not going to be done according to an outsider's opinion.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-005-ARS-SAR-Bardil-Notes.pdf  
20161022-TER-AVA-AIR-MED-006-ARS-SAR-Bardil.pdf*

### **Alpine Safety Knowledge Base (Martin Gurdet ÖBRD, Dominique Létang ANENA, Manuel Genswein)**

*Martin Gurdet:*

ICAR has changed and grown over the years. The exchange of knowledge is therefore more important. This databank is meant to collect and exchange knowledge worldwide.

The following categories are being recorded in the databank:

- Safety, accident prevention and rescue in crag climbing
- Safety, accident prevention and rescue in ice climbing
- Safety, accident prevention and rescue on glaciers
- Safety, accident prevention and rescue in canyons
- Safety, accident prevention and rescue in avalanche areas
- Safety, accident prevention and rescue in cold areas
- Safety, accident prevention and rescue in caves
- Safety, accident prevention and rescue in air rescue and mountain medicine

Each category has subcategories in which the knowledge, including graphics, is recorded.

Example:

Avalanche rescue – search- probe lines – coarse probing – slalom probing

*Manuel Genswein:*

The databank collects already existing systems, techniques, strategies and methods from individuals and groups. The content should be standardized and harmonized through work groups.

ICAR and UIAA as well as many external organizations need to be involved. A work group including 17 people was formed. The group has been meeting regularly, performed tests, and discussed what should be recommended.

The databank does not automatically form a standard which doesn't allow for changes. Each organization or individual has the right to submit changes, optimizations, and additions. The submissions are reviewed by the work group. If the group agrees, the submission will be made available to all users of the databank.

The databank is economical but still needs financial means. Professionalism, longevity, standardization, and global cooperation are important.

*Marc Beverly:*

This is a project of ICAR, IFMGA, and UIMLA in cooperation with UIAA, which supports the databank. Scientific partners are ENSA and SLF.

Questions/Comments:

Q: Fidel Elsensohn: Who is in the work group? All ICAR recommendations are published in professional magazines. This poses a copyright issue. The recommendation cannot be published on another platform that can be downloaded against payment.

A: Manuel Genswein: The databank is neither a substitute for nor competition to the scientific journals. In emergency medicine ICAR MEDCOM is part of it. This requires the best consensus among all.

C: Charley Shimanski: The databank needs to be supported. The information needs to be shared.

C: Gebhard Barbisch: The ICAR Executive Committee decided yesterday that the databank will be discussed in the technical committee. The ICAR commissions' presidents need to set ICAR goals for this databank. The knowledge needs to be organized. ICAR recommendations need to be

integrated without discussion. There should not be a price to pay for knowledge.

A: Manuel Genswein: The work group is looking forward to the presidents' feedback. Feedback is welcome and the work group is open to changes.

Q: Felix Meier: There are many legal and financial questions. A business plan is needed. What is the legal basis and how is it financed?

A: There is a 30-page draft paper. A business plan was established.

Q: Oliver Reisten: No monetary amount has been mentioned. Do small organizations have to pay the same as larger ones?

A: The financially stronger countries pay a little more than financially poorer countries.

Q: Hermann Brugger: The idea is good but more a service for organizations that are already working on recommendations. We don't need new recommendations but distribution of the current ones. It is more a service so that the knowledge can be passed on to users with less scientific knowledge.

A: That is so. Nothing is being replaced.

C: Gebhard Barbisch: I was surprised at the speed with which this databank was developed. It is a good idea but now we need to work on unifying the different ideas about it.

A: This was presented as a proposal. Of course, we are open to discussion of this.

*File: 20161022-TER-AVA-AIR-MED-007-Mountain Safety Knowledge.pdf*

**HEMS Can Provide ATLS in Mountainous and Remote Areas (Giacomo Strapazzon); Multi-Casualty Incidents in the Mountains and Remote Areas (Blancher, Elsensohn); Update on Accidental Hypothermia (Peter Paal); Retrospective Tyrolean Study on Pre-Hospital Management**

*Giacomo Strapazzon:*

Presented is a study regarding advanced trauma life support using HEMS in mountain rescue. It is about cases in which the patient cannot be flown to the hospital in a timely manner and ambulances are not suitable. The following data was collected: Patient information and accident history, medical data and care

before hospitalization, success of medical care and survival rate. Victims with severe trauma were also included in the study. Fifty-three percent of patients had life-threatening injuries. Also included were rescue times, which ranged from 28 minutes to several hours. In which rescues 25% received basic life support and 75% advanced life support. Seven percent of patients died before reaching the hospital and 10 percent died after admission. Summary: HEMS (helicopter emergency medical systems) can provide advanced trauma life support (ATLS) in remote and mountainous areas not accessible to motor vehicles.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-008-HEMS-ALS-Strapazzon.pdf*

*Marc Blancher.*

Talks about accidents with multiple casualties. These incidents always have the same problems, which is why MEDCOM decided to publish recommendations for such incidents. It is an MCI when the available resources are less than needed, and when technical and medical resources are lacking.

The principles of MCI are known and were adapted to the mountains. The first question needs to be whether or not one can handle the situation with the available resources. First priority is safety of the rescuers. Even if the incident is enormous, the rescuer needs to ensure his own safety first. This risk assessment cannot be influenced by the media. The first rescuers on scene need to assess the situation and come up with a plan. An incident commander needs to be appointed. Medically speaking, in this phase, only basic care will be provided. Then patients will be triaged; which ones need urgent care and which ones can wait. The most common system for triage is the color system; each patient gets a color and number. Communication is important, and the chain of command needs to be clearly defined. Each person can only have one command giver and can only forward this order to 5 more people. The evacuation of the patients needs to be organized. A debriefing after the incident is necessary to learn from mistakes and to avoid them in the future.

This is the foundation that now needs to be adapted to situations in mountain rescue. Uninjured victims also need care. Presented are three principles from a medical perspective: Lightning victims need to be ventilated longer than other victims. For avalanches the ICAR MEDCOM checklist is applied. Principles pertaining to the specific groups: tend to leave the accident site, accident risk during evacuation, unclear number of victims, clear guidelines are needed for mass or sporting events.

Summary: the rescue team needs to know MCI principles and be prepared for such an incident. Each team member needs a specific role. Regular training is important. The different organizations need to collaborate well. Leadership needs to be clearly defined. Good planning is important.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-009-MCI-Remote-Area.pdf*

*Peter Paal:*

Talks about updates in hypothermia studies. A lot has changed, which was updated in all papers. It is important to know that hypothermia leads to reduced oxygen consumption of 7% per degree. Therefore, resuscitation efforts need to be prolonged. It can happen that persons with a low temperature and low respiration rate are declared dead too early.

Summary: Insulate before hospital arrival, rewarming is not possible. Triage is important. Once in the hospital, the person is rewarmed, invasively or noninvasively. There needs to be an algorithm in all countries for the care of hypothermic patients.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-010-Accidental-Hypothermia.pdf*

**Avalanche Registry (Monika Brodmann); Case Report on Avalanche Survival after Rescue with the RECCO Rescue System (Giacomo Strapazzon); Mountain Rescue Techniques in a Major Catastrophic Incident (Schiffer); Avalanche MCI in Val Fréjus (Albasini)**

*Giacomo Strapazzon:*

Presented is a study. Hypothermic patients need to be differentiated between hypothermic or suffocating. The decision to reanimate is based on several factors such as time buried. There are algorithms that can be followed. The study involved patients in cardiac arrest. The treatment before admission to the hospital was studied.

Five conclusions: The burial time was documented in 91% of the cases. Data on whether or not the airways were free during a long or unknown burial time was low. In case of longer burial times, less CPR was attempted and fewer transports to the hospital were done. Whenever a physician was on scene,

more triage was done. Only one patient with OHCA (out of hospital cardiac arrest).

Questions/Comments:

Q: Are there studies on the effect of mechanical reanimation?

A: It is not known if mechanical reanimation leads to a higher survival rate. Also, during mechanical reanimation one has to stop repeatedly.

*Monika Brodmann:*

Presents a registry for data collection on avalanche victims. The goal is to collect information on the patient, the injuries, the treatment before admission to the hospital, treatment in the hospital, and the result of the treatments. It also collects technical information such as the rescue method used, the terrain, etc. The registry's goal is to learn from past incidents which treatments were most effective for the patient before admission to the hospital.

Questions/Comments: None.

Q: Can such registries effect change in trauma care?

A: We want to gain practical experience that can be used in treatment.

*File: 20161022-TER-AVA-AIR-MED-011-AVA-Registry.pdf*

*Giacomo Strapazzon:*

In February 2015 four skiers set off an avalanche. Two were completely buried; the other two were not caught in the avalanche and were able to call for help. The skiers did not carry avalanche beacons. One of the buried skiers was found by Recco in less than 35 minutes; he had had a cell phone in one of his pockets. The second buried skier was found through probing after 45-50 minutes and was alive as well.

Data has been collected on incidents where patients were found with Recco. Patients with less burial time have better survival rates.

Questions/Comments: None.

*File: 20161022-TER-AVA-AIR-MED-012-Recco-Avalanche.pdf*

*Albasini Francois:*

Talks about disaster medicine. His team stationed at the base station Modane noticed that they were not sufficiently prepared and did not have sufficient or appropriate equipment. Therefore, new equipment was purchased; i.e. papers that are used for triage.

On January 18, 2016 around 1 p.m. there was an avalanche in Val Fréjus which buried several people. The physician who was the first one on scene had to make several decisions. First he ordered more resources and defined an assembly point for the victims where the helicopter was able to land. Data about the buried persons needed to be collected and the triage system needed to be defined. Francois Albasini was at the hospital when the call came in, so he informed all hospitals where the victims would be flown to so that they could be prepared. Each set of collected information generated a domino effect of others being informed and prepared.

The victims were a group of 52 soldiers; about 20 were buried, 5 were dead on scene, 1 died on the way to the hospital in Grenoble. About 15 were rescued by their fellow soldiers. Autopsies confirmed that none of the soldiers who died could have been rescued. So despite the deaths, the rescue was a success. Why it worked well: professionalism, preparedness and luck. Why luck: in theory the medical and technical leadership should be side by side on scene. This was not the case here. They also did not communicate by radio. Also, there were radio communication issues among the physicians. There was only one channel for all rescuers. Only three patients received an MCI card. Additionally, two patients had been counted twice which led to an incorrect triage in the treatment of two patients. The mission was still a success despite these mistakes; luck.

It is not just important to triage but to also stand behind one's decisions.

Personal experience: we only did what we had thought through beforehand. Something new cannot be decided in an emergency. One also needs to know that in the first few minutes one is not fit for action because you are overwhelmed. It requires an assessment of the situation and ordering one's thoughts first. The difficulty in disaster medicine is that you don't start with the severely injured that could possibly be rescued. The goal is to rescue as many as possible with as few fatalities as possible. It is important that no one dies unnecessarily.

Disaster medicine is defined as: Many casualties and/or many resources necessary and/or a large area and/or complex situation and/or many decision have to be made in a short amount of time.

Questions/Comments: None.

*Files: 20161022-TER-AVA-AIR-MED-013-MCI-Valf Frejus.pdf  
20161022-TER-AVA-AIR-MED-014-MCI-Valf Frejus.mp3*

### **Traditional, Social und New Media in Aid of Search Operations (Jakub Homowski)**

Presents several examples in which the media and social media were instrumental. In a couple of cases the pictures of the missing persons were distributed by the media and on social media, which led to one person being found. In another case the information was published in the media. This led to another person having been in the area at the same time to review the pictures he had taken and found a picture of the missing person.

Questions/Comments: None.

End of Meeting: 2:30 p.m.

For the English Translation: Olivia A. Cashner

### **Important information:**

If to this minutes belonging files are not available on our homepage, please send a mail to me ([terrestrial.rescue@alpine-rescue.org](mailto:terrestrial.rescue@alpine-rescue.org)). I can send you a link where a download of all this files are possible.

Rankweil, 14.12.2016  
Gebhard Barbisch