MULTI CASUALTY INCIDENTS IN THE MOUNTAINS AND REMOTE AREAS

GENERAL ASPECTS

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MULTI CASUALTY INCIDENT IN THE MOUNTAINS:

Definition

- RESOURCES OF A LOCAL MOUNTAIN RESCUE TEAM ARE OVERWHELMED
- LACK OF TECHNICAL AND MEDICAL RESOURCES

**Urban MCI**
- Rapid response
- Usually easy access
- Infrastructural resources
- Highly qualified rescue personnel
- Large number of technical resources
- Robust communication systems
- Rapid evacuation
- Short transport times

**Mountain MCI**
- Delayed response
- Isolation, technical access
- Environmental exposure
- No infrastructure
- First responders at scene
- Limited (no) technical resources
- Difficult communications
- Technical extrication (ropes, pulleys)
- Prolonged transport
- Limited transport facilities
PRINCIPLES OF MANAGEMENT A MCI IN THE MOUNTAINS

Must be adapted to mountain rescue incidents

Preparedness of mountain rescue teams:

Conceptional framework:
- Appropriate planning
- Equipment planning
- Communication planning (radio, relay station...)
- Strategy for possibly expected incidents
- Risk assessment
- Training

Koening and Schultz, disaster medicine, Second edition 2016. P XVII)
**Recognition:**

assessment of emergency situation (MCI +/-)
decision to be declared immediately
appropriate communication to responding organizations

**Safety:**

first priority in all phases
risk assessment for access
delayed response until risk is acceptable
pressure from outside (media, authorities...)

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**DEFINITION**

**PRINCIPLES**

**SPECIFICS**

**INCIDENTS**
Initial response:

Command and control structure
Trained medical provider in the command structure
(medical commander)
Overall medical assessment
Cooperation with involved services (ski lift, witness...
allocate rescuers for initial assessment
triage all patients

No advanced medical care
Rapid interventions only
Leadership and command:

- medical coordination by medical commander
- coordination of all medical aspects
- coordination with other teams → best plan of action

Requirements:

- trained in disaster medicine
- trained in mountain emergency medicine
- co location with incident commander
- joint making decision
- clear identification on site
Triage:

individual care → best outcome for the most victims

Medical commander:
allocate medical providers for triage
overview of all patients
prioritize treatment and transport adapted to location, environment and transport capacity
allocate medical resources

Tools:
Triage systems: quick and easy, usable in bad weather
e.g. avalanche resuscitation checklist adapted to the specific environment trained by rescuers

Effective Communication / and orders Rules:
Organization of evacuation:

Reliable information on number and types of casualties
priority of evacuation depending on technical considerations
identification of most appropriate medical centre
pre notification of hospitals

Clearing area for victims before evacuation
shelter
Reassessment and further treatment
Fluids for exhausted victims
Protection from cold (consider all victims hypothermic)
Assess possibly walking victims
Walking people need do be guided by experienced rescuers
Identification and traceability:  
usually large disaster area  
different registration areas  
people trying to leave site of the accident  

wrist straps  
triage tag  

all victims must be assessed and identified  

Written recording of environmental and logistical impact  
on decision making by the medical commander is important (legal issues)  

Learning from experience and training  
institutional memory (need of interagency working, inadequate training, poor planning, ineffective communication, lack of leadership...)  

Implementation of Standard operation procedures
TIME – TERRAIN – WEATHER

Natural hazards determining pace of mission
rockfall, avalanches, weather changes, visibility

Priority of rapid evacuation over medical treatment

HELIICOPTERS:

transport of rescue teams
evacuation of patients
balance of medical evacuation and logistical needs
Helicopters may save lives (Bekelis et al, 2015)

COMMUNICATION:

limited telephone networks and radio communication
different channels and frequencies by different teams
medical coordination may be live saving
MANAGEMENT OF UNINJURED VICTIMS

uninjured people are casualties or “walking wounded”
evacuation to a warm and safe place
psychological trauma
exhaustion

prevention of deterioration
crisis intervention
Lightning injuries
   “resuscitate the apparently dead first” - reverse triage
   (Cooper Wilderness Medicine)

   prolonged ventilatory support until return of spontaneous ventilation

Avalanches:
   lack of application of current guidelines
   ICAR MEDCOM avalanche resuscitation checklist

Trapped group of people:
   Tend to leave site of the incident
   Injuries during evacuation
   unclear number of victims → search operations
   strictly enforced regulations for mass and sport events
CONCLUSION

Mountain rescue team should be familiar with the MCI principles

They should be prepared

One person = One role

Training

Interagency cooperation (Rescue teams, Authorities, HEMS)

Leadership organization

Planification