



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...)



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 \rightarrow 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

Prioritiy of rapid evacuation over medical treatment

HELICOPTERS:

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



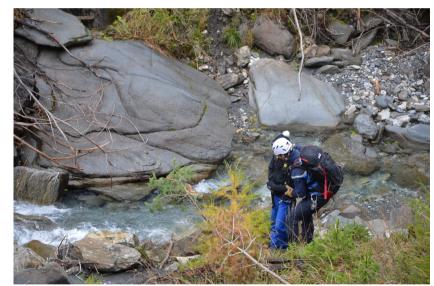
MANAGEMENT OF UNINJURED VICTIMS

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 spontaeous 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