ORGANIZATION

ACCIDENT DATE

BLS

Version 36
EN 05

Avalanche Accident – Out-Of-Hospital Medical Treatment

ACCIDENT TIME ____hh ____mm	ALARM TIME ____hh ____mm	PATIENT ID

Search and Excavate

Head access time ____hh ____mm

BURIAL DURATION ____hh ____mm

Patient conscious with no life-threatening injuries?
- ☐ YES(1)
- ☐ NO

Airway obstructed?
- ☐ YES, FULLY*
- ☐ YES, PARTIALLY
- ☐ NO

Clear airway

Breathing normally?
- ☐ YES
- ☐ NO

Five rescue breaths(2)

Signs of life?(3)
- ☐ YES
- ☐ NO

Start CPR(4)

CPR in Avalanche Rescue:
Series of 30 chest compressions followed by 2 breaths.

Are all buried subjects currently being excavated?
- ☐ YES
- ☐ NO

Injuries incompatible with life?(5)
- ☐ YES
- ☐ NO

Postpone full excavation

Are all buried subjects currently being excavated?
- ☐ NO
- ☐ YES

CPR^AED

CPR^AED

Signs of life?(3)
- ☐ YES
- ☐ NO

CPR^AED

Treat life threatening conditions and injuries

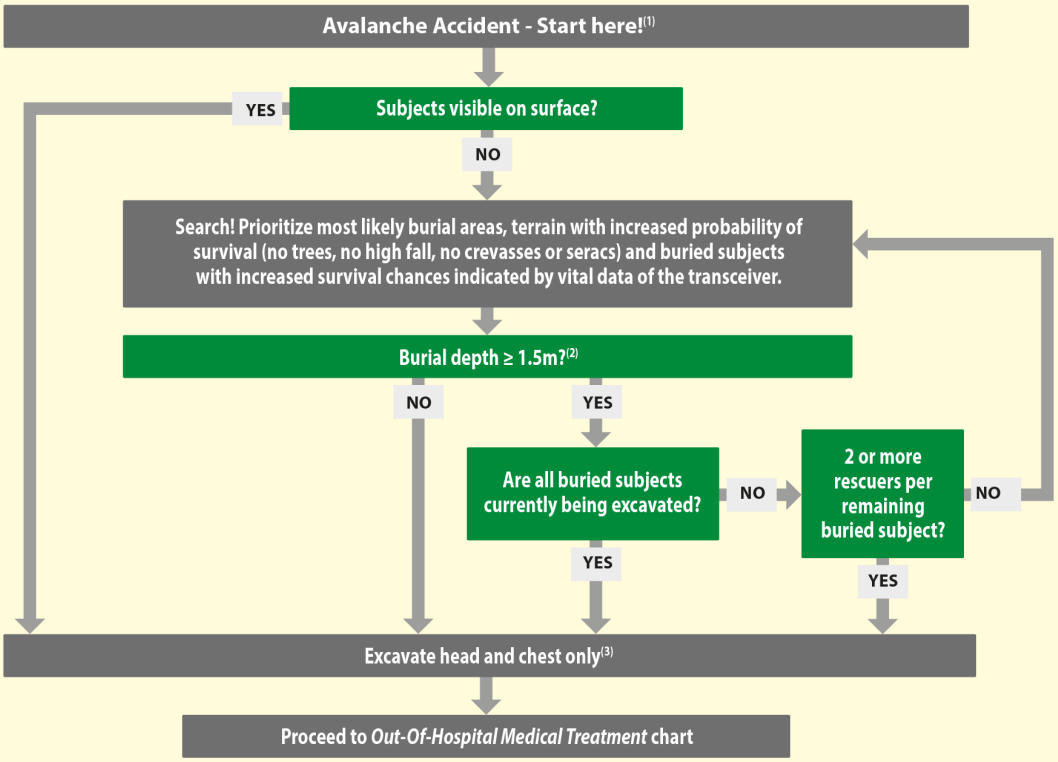
Are all buried subjects currently being excavated?
- ☐ NO
- ☐ YES

Full excavation; check and first aid for all patients as required.
Avoid further cooling, CPR for patients in cardiac arrest.

Transport of the patient and handing over to medical service

(1) In case of severe shortage of rescuers, people who were caught by the avalanche and rescued may assist in the rescue of the remaining buried subjects.
The criteria for the decision if and for what purpose they can be included in the rescue are:
1. Effort to fully excavate them, 2. Their potential to assist the rescue and 3. Continuous assessment of their condition.
(2) Rescue breaths HIGHLY recommended as avalanche patients often asphyxiate. No rescue breaths –> no oxygen –> no return of spontaneous circulation –> no survival.
(3) Agonal breathing in an unresponsive patient must not be interpreted as a sign of life.
It can be described as: breathing barely or occasionally present, gasping, groaning, moaning, snorting or ineffective, labored breathing.
(4) Firm surface crucial.
(5) Obvious evidence of severe mechanical impact/high fall/severe collision with trees or rocks or a head/truncal body position incompatible with life.

Search and Excavate



(1) Consider risk of rescuers and residual survival chances of buried subjects. Consider helicopter-based search and helicopter-attached "scoop and run" excavation. Limit number of exposed rescuers, use additional personal protection equipment, mitigate danger or postpone rescue if survival chances of the buried subjects are low compared to the risk of the rescue mission.
(2) Excavate immediately regardless of burial depth if finding additional buried subjects is unlikely, requires probe lines, or a similarly time-consuming search.
(3) Consider immediate evacuation in case of:
1. Considerable risk for rescue personnel,
2. Risk of delayed evacuation due to deteriorating weather or flying conditions,
3. Terrain conditions which make effective on-site treatment impossible.

Hypothermia Staging

Hypothermia Staging *Revised Swiss System*

Stage	Symptoms	Measures
1	**Alert**, clear answers	Active rewarming by moving, warm sugary drinks
2	Impaired consciousness, responds to **verbal** stimulation	Avoid further cooling, move carefully, warm sugary drinks
3	**Unconscious**, signs of life might be minimal	Avoid further cooling, move carefully, monitor
4	**No signs of life**	Apply AvaLife *Out-Of-Hospital Medical Treatment* algorithm

The colder the patient:
- The less heat production (due to reduced metabolism)
- The lower the level of consciousness
- The higher the risk of hypothermic cardiac arrest
- The more severe the hypothermia stage

–> Avoid further cooling!

For proposals, comments and questions, please contact the authors at: AvaLife@MountainSafety.info

Survival Chance Optimized Procedures in Rescue and How to Minimize Injuries During Excavation; Genswein M; ISSW2013; 1408-1417. | A concept for optimizing avalanche rescue strategies using a Monte Carlo simulation approach; Reiweger I, Genswein M, Paal P, Schweizer J (2017); PLoS ONE 12(5): e0175877. https://doi.org/10.1371/journal.pone.0175877 | Hypothermia outcome prediction after extracorporeal life support for hypothermic cardiac arrest patients: The HOPE score; Pasquier M, Hugli O, Paal P, Darocha T, Blancher M, Husby P, Silfvast T, Carron P N, Rousson V (2018); Resuscitation. 2018 May;126:58-64. doi: 10.1016/j.resuscitation. 2018.02.026. Epub2018 Mar 2. | Hypothermia outcome prediction after extracorporeal life support for hypothermic cardiac arrest patients: An external validation of the HOPE score; Pasquier M, Rousson V, Darocha T, Bouzat P, Kosinski S, Sawamoto K, Champigneulle B, Wiberg S, Wanscher MCJ, Brodmann Maeder M, Paal P, Hugli O (2019); Resuscitation. 2019 Mar 30. pii: S0300-9572(19)30086-3. doi: 10.1016/j.resuscitation.2019.03.017. | Guidelines for Cardiac arrest in special circumstances 2020; Lott C, Truhlař A, Alfonzo A, Barelli A, Gonzales-Salvado V, Hinkelbein J, Nolan J P, Paal P, Perkins G D, Thies K-C, Yeung J, Zideman D A, Soar J (2020); European Resuscitation Council 2020.

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