

Avalanche Victim Resuscitation Checklist

Changing process for saving lives

ICAR MEDCOM: Kottmann A, Blancher M, Boyd J, Spichiger T, Brugger H

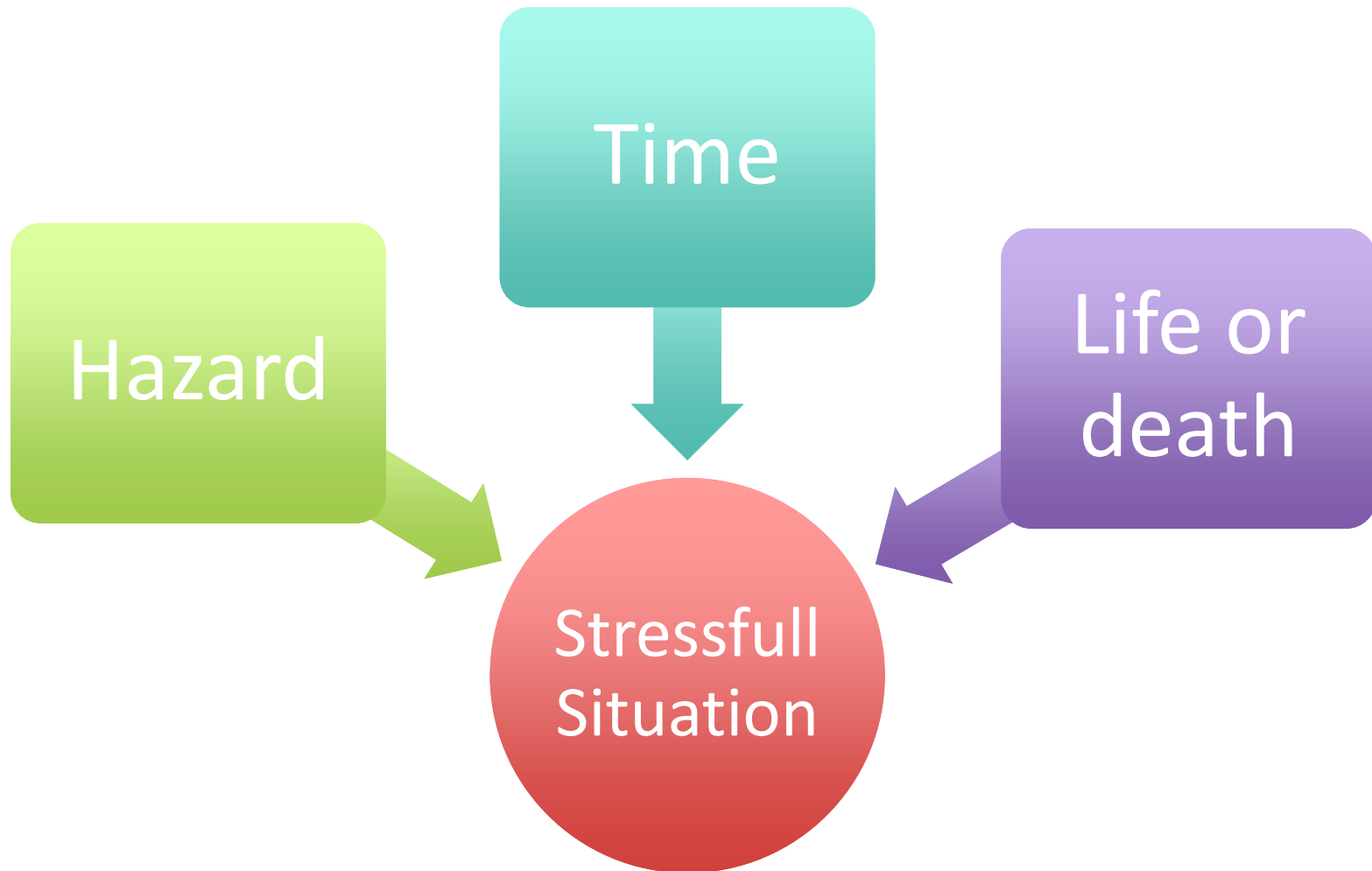


Dr A. Kottmann **rega** 

 **alpine**rettungschweiz



Avalanche

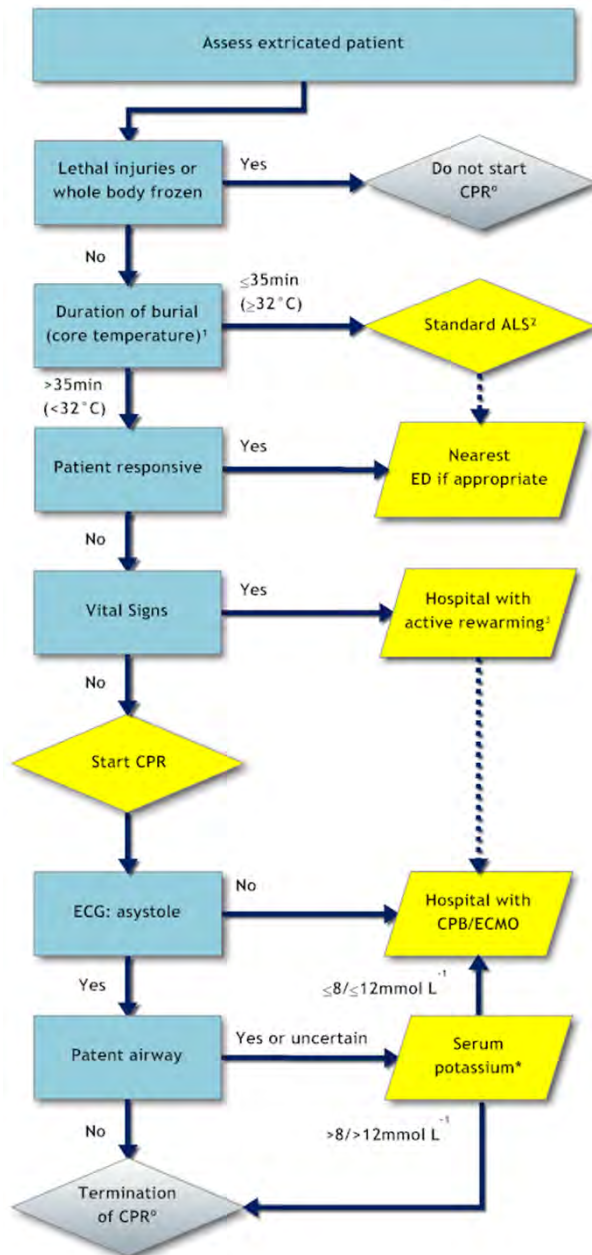


Background



- Important informations can be collected at extrication.
- They will have a big influence on further decisions.
- The initial steps and decisions have a crucial impact on patient's outcome.

Avalanche management algorithm



Algorithm = help to take decisions

-Easy to understand!

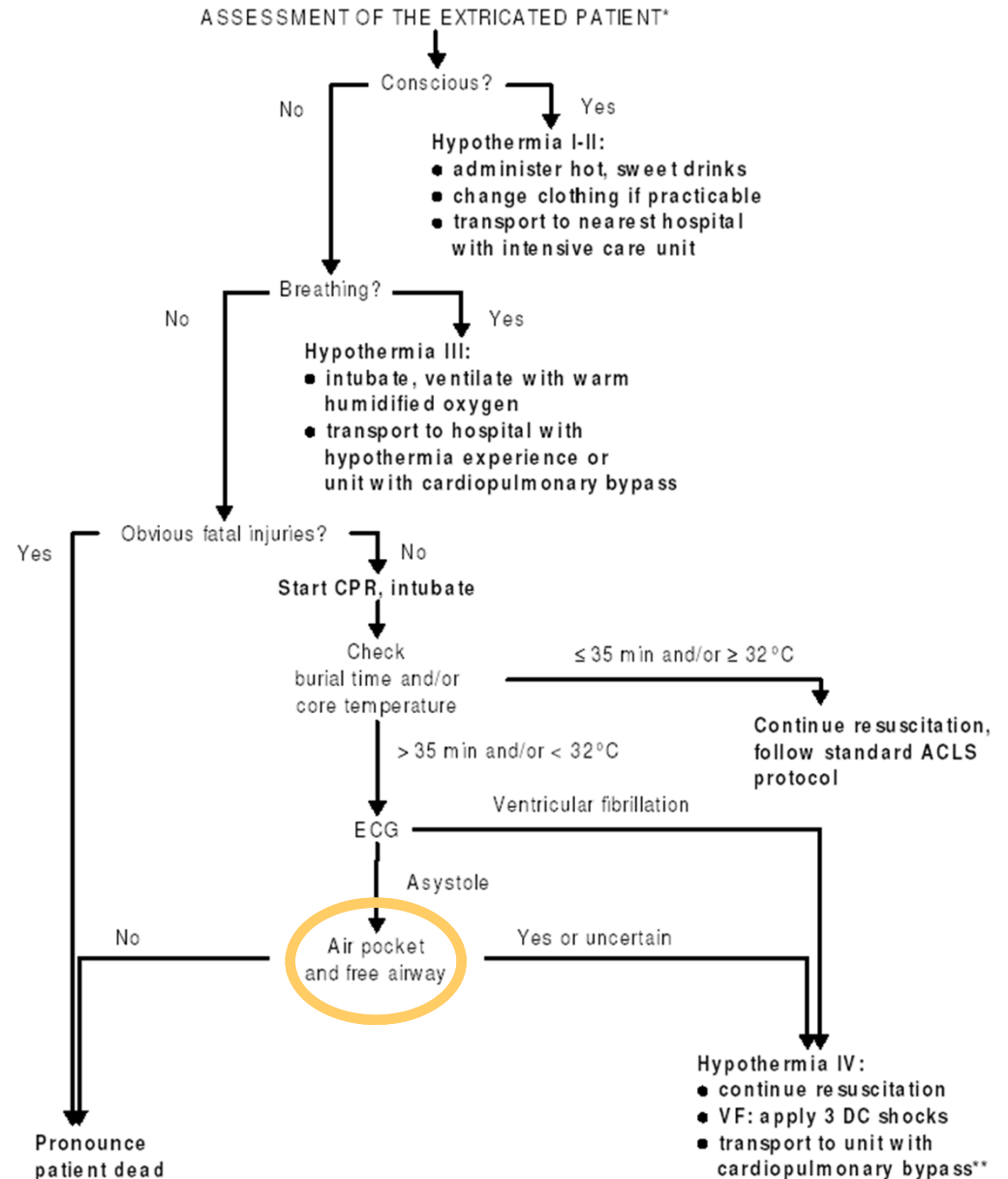
- Difficult to remember in detail, especially in stressful situations

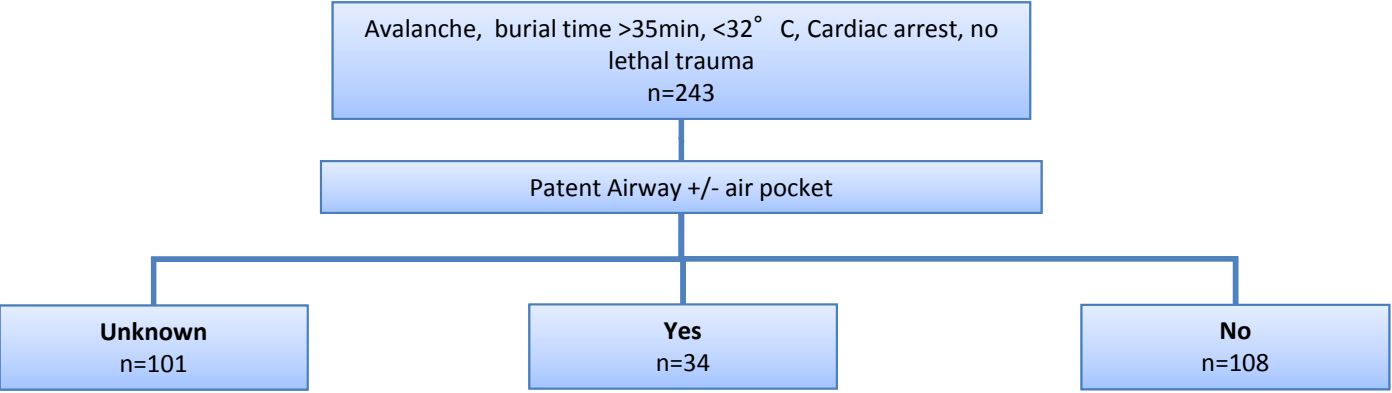
Fig. 2. Management of the buried avalanche victim. In all cases gentle extrication and spinal precautions. Where appropriate core temperature and ECG monitoring, oxygen, insulation, heat packs on trunk; 0.9% NaCl and/or 5% glucose only if an intravenous or intraosseous line can be established within a few minutes; specific trauma care as indicated.^o Clinicians may consider withholding resuscitation at the scene if it increases risk to the rescue team or if the victim is lethally injured or completely frozen.¹ If duration of burial is unknown core temperature may substitute.² Initiate standard ALS including ventilations and chest compressions as indicated. Resuscitation may be terminated in normothermic patients if ALS is not successful >20min. Transport victims with concern of respiratory (e.g. pulmonary oedema) or other-system injury to the most appropriate medical centre.³ Hospital capable of advanced external or core rewarming. Patients who present with cardiac instability (ventricular arrhythmias, systolic blood pressure <90mmHg) or core-temperature <28° C should be transported towards ECC rewarming. Defibrillations beyond three attempts may be delayed until core-temperature >30° C.* If direct transport to ECC rewarming is practical, the nearest ED can be bypassed.If K⁺ at hospital admission exceeds 12mmol L⁻¹, consider stopping resuscitation (after excluding crush injuries and consideration of the use of depolarizing paralytics); in an adult, levels 8–12mmol L⁻¹ may, in combination with other factors consistent with non-survival, assist in the decision to terminate resuscitation.ALS denotes Advanced Life Support; ED Emergency Department; ICU Intensive Care Unit; ECC extracorporeal circulation.

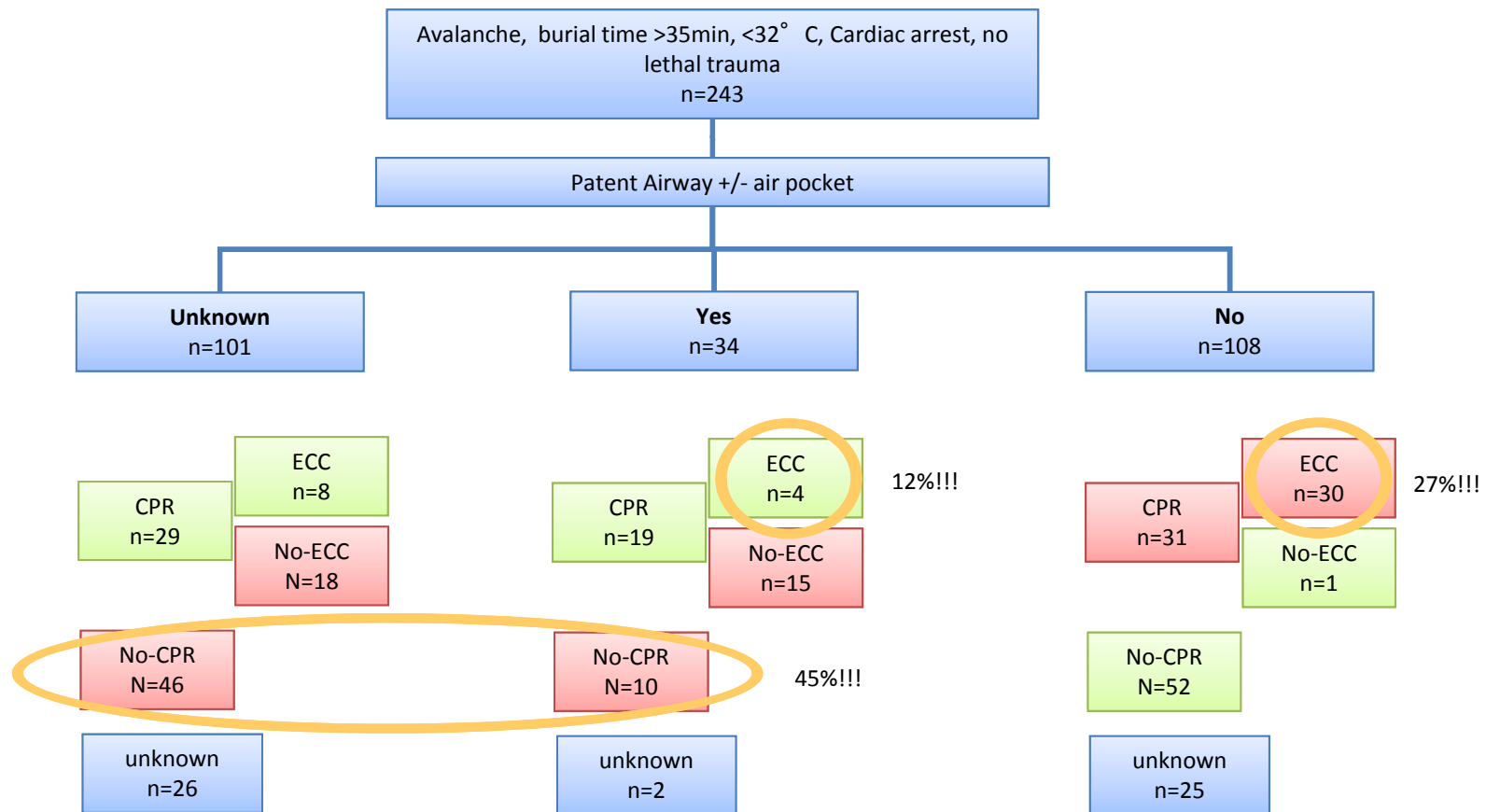
But...

Which patient has the biggest chance to survive an avalanche burial?

Remember ...







Adapted from Plankensteiner J. avalanche victims with OHCA in Tyrol 1987-2009

45 % of “possible surviving” people where declared dead while CPR would have been indicated

27 % of “already dead” people, benefited of high-tech resuscitation technology

Avalanche = Emergency situation



Objectives

To obtain a higher compliance with the algorithm.



1) To increase the rate of resuscitation in patients who may survive

2) To avoid “over resuscitation” of non-survivors

Background from multivictim avalanches



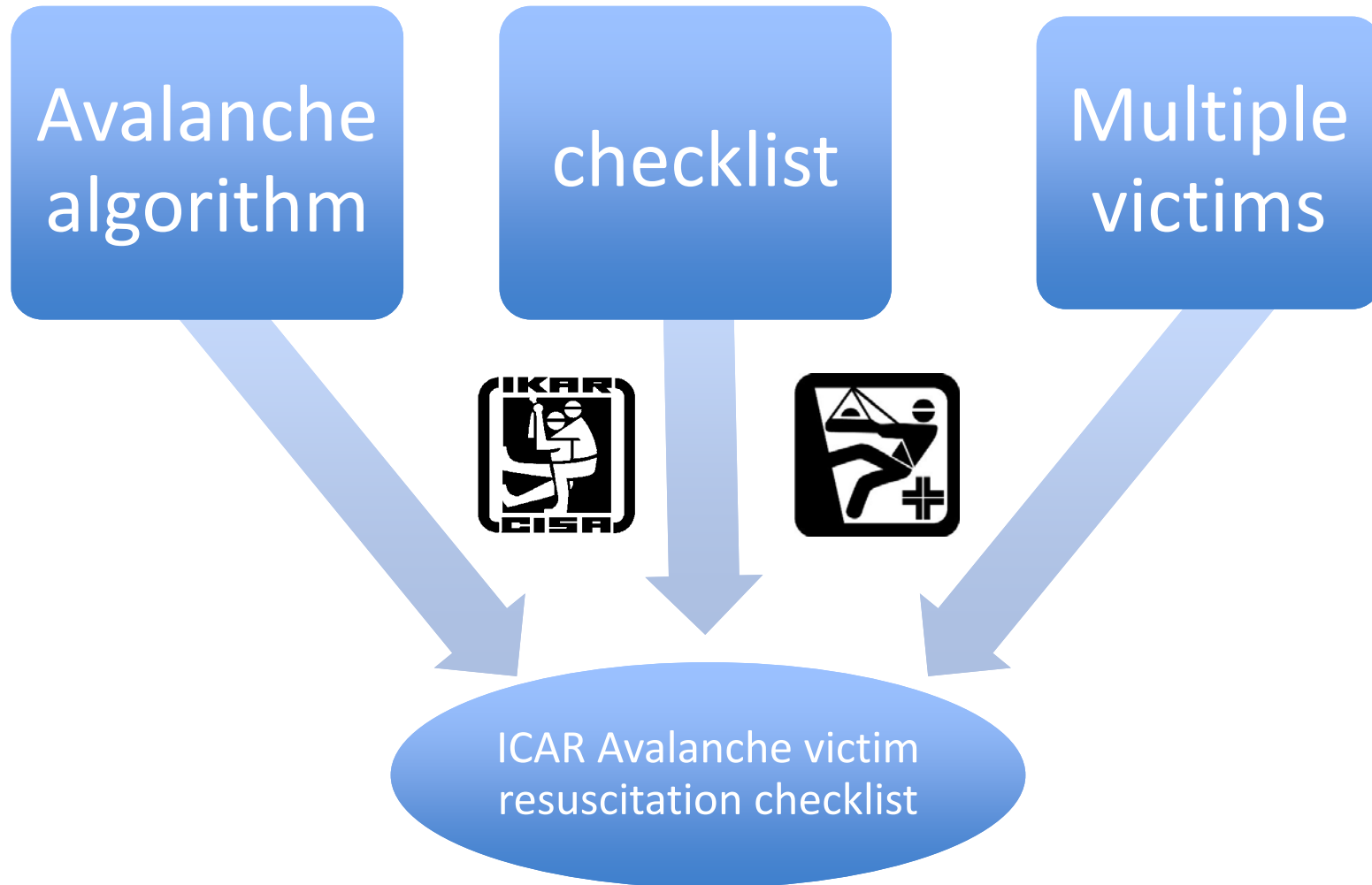
- Though not possible to have a doctor present at the moment of extrication of every patient, especially in a mass casualty setting.



- First steps of treatment and information collection can be done by a BLS trained mountain rescuer.



Brainstorming





Patient ID

AVALANCHE VICTIM RESUSCITATION CHECKLIST

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Time of avalanche ____ : ____

Face exposure ____ : ____

BLS Provider

ALS Provider

Burial Time min*

≤35 min (≥32°C) >35 min (<32°C)

(If unknown use core temp**)

Air Pocket .../...

YES **Vital Signs** NO

FIRST AID

CPR ***

YES **Vital Signs** NO

FIRST AID

Airway Patent

YES or unknown

CPR ****

YES Obvious lethal trauma or body totally frozen NO

STOP

<32°C or unknown **Core Temp** °C ≥32°C

NO or unknown **ECG Asystole** YES

APPROPRIATE MEDICAL FACILITY

YES or unknown **Airway Patent** NO

STOP

≥32°C **Core Temp** °C <32°C or unknown

Circulation Stable and Core Temp ****

YES ≥28°C NO

NO Long transport or multiple casualties YES

APPROPRIATE MEDICAL FACILITY

ALS Provider Name:

ECLS

≤12mmolL⁻¹ Serum K⁺ mmolL⁻¹ >12 mmolL⁻¹

STOP



Patient ID

Time of avalanche ____ : ____

Face exposure ____ : ____

BLS Provider

≤35 min

(≥32°C)



Burial Time

min*

(If unknown use core temp**)

>35 min

(<32°C)



Air Pocket .../...

YES



Vital Signs

NO



FIRST AID

CPR

YES



Vital Signs

NO



FIRST AID

Airway Patent or unknown

YES



CPR

NO



PRRROOF



Patient ID

AVALANCHE VICTIM RESUSCITATION CHECKLIST

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Time of avalanche ____ : ____

Face exposure ____ : ____

BLS Provider

ALS Provider

Burial Time min*

≤35 min (≥32°C)

>35 min (<32°C)

(If unknown use core temp**)

Air Pocket .../...

Vital Signs

YES NO

FIRST AID

CPR ***

Vital Signs

YES NO

FIRST AID

Airway Patent

YES or unknown NO

CPR ****

Obvious lethal trauma or body totally frozen

YES NO

STOP

Core Temp

<32°C or unknown ≥32°C

° C

ECG Asystole

NO or unknown YES

APPROPRIATE MEDICAL FACILITY

Airway Patent

YES or unknown NO

STOP

Core Temp

≥32°C <32°C or unknown

° C

Circulation Stable and Core Temp ****

YES NO

≥28° C

Long transport or multiple casualties

NO YES

APPROPRIATE MEDICAL FACILITY

ALS Provider Name:

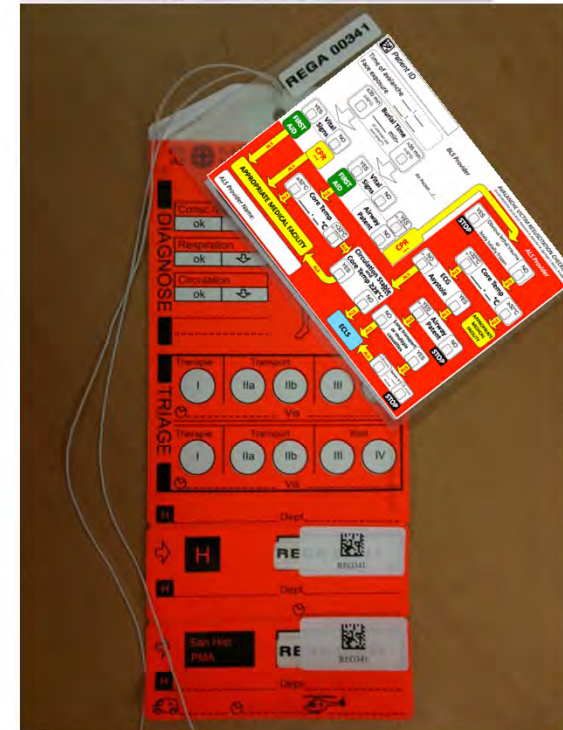
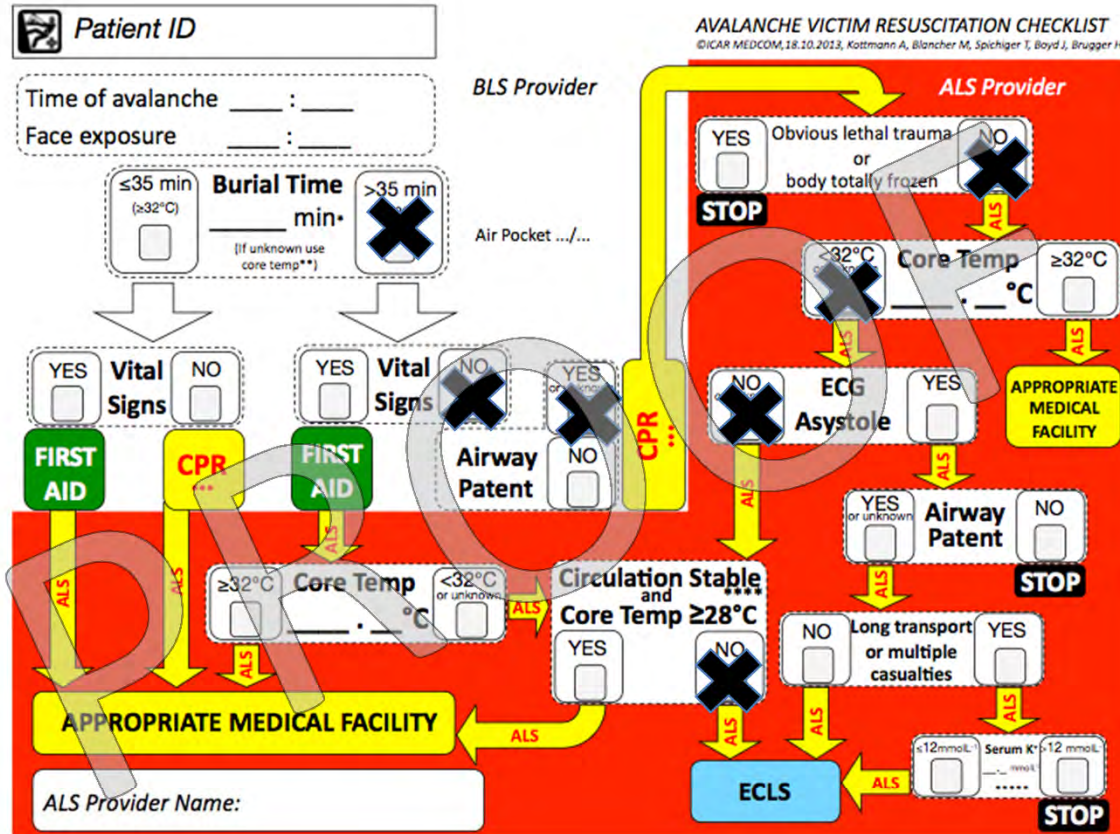
ECLS

Serum K⁺

≤12mmolL⁻¹ >12 mmolL⁻¹

STOP

The concept : 1 patient = 1 checklist

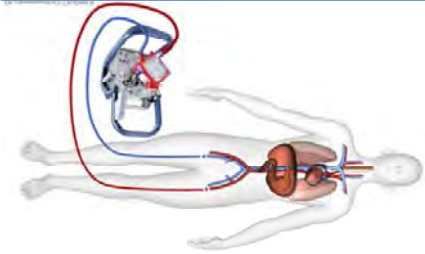


Usable for one casualty or in a multivictim situation

Information flow

To carry the Information from the burial place to the hospital emergency physician is a challenge!

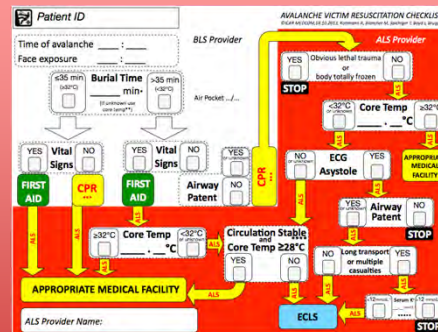
ECLS: YES or NO ?



Conclusion

1 patient = 1 card

Usable by BLS
and ALS provider



Algorithm as
a checklist

Usable on every
avalanche

A red and white Rega rescue helicopter is parked on a snowy mountain peak. The helicopter is the main focus, with its rotor blades extending across the frame. The background shows a clear blue sky and a snow-covered mountain range. The Rega logo, featuring a red cross on a white background, is visible on the side of the helicopter.

Future:

- Pilot phase, feedback & data collections
- Translating & production
- Distribution & instruction
- Utilisation
- Data collection & further studies



Have a safe winter!

Feedback & Questions:
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