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DRAFT ICAR RECOMMENDATION – RESCUER SUMMARY

Clinical staging of accidental hypothermia is used to guide out-of-hospital treatment and transport decisions. Most clinical systems utilise core temperature, by measurement or estimation, to stage hypothermia, despite the challenge of obtaining accurate field measurements. Studies have demonstrated that field estimation of core temperature is imprecise. We propose a revision of the original Swiss Staging system. The revised system uses the risk of cardiac arrest, instead of core temperature, to determine the staging level. Our revised system, presented below, simplifies assessment by using the level of responsiveness, based on the AVPU scale, and by removing shivering as a stage-defining sign. The revised system has been accepted by ICAR MedCom. and is available at: http://www.icar-med.com/..

Clinical staging of accidental hypothermia: the Revised Swiss System

	Stage 1	Stage 2	Stage 3	Stage 4
Clinical findings[a]	"Alert" from AVPU	"Verbal" from AVPU	"Painful" or "Unconscious" from AVPU AND Vital signs present	"Unconscious" from AVPU AND No detectable vital signs[b]
Risk of cardiac arrest[c]	Low	Moderate	High	Hypothermic cardiac arrest

[a] In the Revised Swiss System, "Alert" corresponds to a GCS score of 15; "Verbal" corresponds to a GCS score of 9-14, including confused patients. "Painful" and "Unconscious" correspond to a GCS score <9. While shivering is not used as a stage-defining sign in the Revised Swiss System, its presence usually means that the temperature is >30°C, a temperature at which hypothermic CA is unlikely to occur.

[b] No respiration, no palpable carotid or femoral pulse, no measurable blood pressure. Check for signs of life (pulse and, especially, respiration) for up to 1 min.

[c] The transition of colours between stages represents the overlap of patients within groups. The estimated risk of cardiac arrest is based on accidental hypothermia being the only cause of the clinical findings. If other conditions impair consciousness, such as asphyxia, intoxication, high altitude cerebral oedema or trauma, the revised Swiss System may falsely predict a higher risk of cardiac arrest due to hypothermia. Caution should be taken if a patient remains "alert" or "verbal" showing signs of haemodynamic or respiratory instability such as bradycardia, bradypnoea, or hypotension because this may suggest transition to a stage with higher risk of cardiac arrest.

Recommendations

Nr.		Grade
1	Suspected accidental hypothermia should be confirmed by an accurate measurement of core temperature, if possible.	1C
2	If core temperature cannot be measured, the Revised Swiss System should be used to estimate the risk of hypothermic cardiac arrest in order to guide treatment, choice of destination hospital, and the need for ECLS rewarming.	1C

Literature

Musi ME, Sheets A, Zafren K, Brugger H, Paal P, Hölzl N, Pasquier M. Clinical staging of accidental hypothermia: The Revised Swiss System: Recommendation of the International Commission for Mountain Emergency Medicine (ICAR MedCom). Resuscitation. 2021 Mar 3;162:182-187.

The American College of Chest Physicians Classification scheme for grading evidence and recommendations in clinical guidelines has been applied. Details are appended at the end of this document

Grade	Description	Benefits vs risks and burdens	Methodological quality of supporting evidence
1A	Strong recommendation, high-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	RCTs without important limitations or overwhelming evidence from observational studies
1B	Strong recommendation, moderate-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	RCTs with important limitations or exceptionally strong evidence from observational studies
1C	Strong recommendation, low-quality or very low-quality evidence	Benefits clearly outweigh risks and burdens or vice versa	Observational studies or case series
2A	Weak recommendation, high-quality evidence	Benefits closely balanced with risks and burdens	RCTs without important limitations or overwhelming evidence from observational studies
2B	Weak recommendation, moderate-quality evidence	Benefits closely balanced with risks and burdens	RCTs with important limitations or exceptionally strong evidence from observational studies
2C	Weak recommendation, low-quality or very low-quality evidence	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk, and burden may be closely balanced	Observational studies or case series

Guyatt et al. Chest 2006;129:174-81.