

Appendix 1 (as submitted by the authors): Update to previous systematic review and description of scores

Part A1-1: Update to previously published Systematic Review.(1)

We re-ran our comprehensive literature search of the MEDLINE, EMBASE, CINAHL and Cochrane Central Register of Controlled Trials databases for all available years from October 2015 until July 2019 to identify additional studies describing approaches to prehospital sepsis identification. We combined the following search terms with appropriate synonyms and wildcards: (1) sepsis (“septic”, “infection”) and (2) Emergency Medical Services (“paramedic”, “out-of-hospital”, or “prehospital”). One author (DL) independently reviewed the titles and abstracts of all studies published since the prior review to identify all relevant English original research studies, then extracted relevant study characteristics. A total of 32 studies pertaining to prehospital sepsis identification using a standardized approach were identified including 3 active studies (2 observational and 1 clinical trial). One additional study was unable to be included due to incomplete information in the study and missing descriptors in our study population.(2) The components of each unique approach and recommended thresholds are reported below.

MEDLINE search strategy for review update

Search Strategy

- 1 exp Sepsis/
- 2 Septicemia*.tw.
- 3 sepsis.tw.
- 4 septic.tw.
- 5 exp Systemic Inflammatory Response Syndrome/
- 6 SIRS.tw.
- 7 1 or 2 or 3 or 4 or 5 or 6
- 8 emergency medical services/ or emergency medical service communication systems/ or poison control centers/ or "transportation of patients"/ or triage/
- 9 exp Ambulances/
- 10 exp Air Ambulances/
- 11 paramedic*.tw.
- 12 emergency service*.tw.
- 13 allied health personnel/ or emergency medical technicians/
- 14 out of hospital.tw.
- 15 emergency medical service*.tw.
- 16 EMS.tw.
- 17 prehospital.tw.
- 18 emergency treatment/ or first aid/ or resuscitation/ or "transportation of patients"/
- 19 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18
- 20 7 and 19

Table A1-1: Description of each score

Screening Strategy	Temp	HR	SBP	RR	SPO2	GCS	Other Criteria
SIRS Suffoletto	<36, >38	>90		>20			
	>36.5*		<100				Suspicion of infection
SEPSIS‡	37.5-39.5, >39.5	101-140, 141-160	60-99, >160	21-40, 41-60	<94	≤12	Age, skin jaundice, pallor or mottling
Sepsis Alert	<36, >38	>90	<90	>20			MAP<65, Lactate†
Robson	<36, >38.3	>90		>20		<15*	BGL>6.6
BAS 90-30-90			<90	>30	<90		
Borrelli‡	<36, >38.3	>90	<90	>20	<90	<15	
PRESEP PRESS	<36, >38	>90	<90	>22	<92		
	>37.2*		<100, <90, <80, <70, <60		<90, <80, <70, <60		Age, Dispatch Card, Nursing Home†
PSP	>38			≥22			Shock Index ≥0.7
SIRS + EtCO2‡	<36, >38	>90		>20			ETCO2≤25
qSOFA‡			≤100	≥22		<15	
qSOFA + EtCO2‡			≤100	≥22		<15	ETCO2≤25
PreSAT‡	<36, >38	>90	<90	>20			
MBIS‡	≤35, ≥37.8	≥120	<100			<15	Suspicion of Infection
CIP‡		≥120	≤90	<12, ≥24, ≥36	<88	≤14, <8	Age≥45
MEWS‡	<35, ≥38.5	<40, ≤50, <100, >110, ≥130	<70, ≤80, ≤100, ≥101, ≥111, ≥130	<9, ≥15, ≥21, ≥30		≤14, ≤9, ≤6	GCS substituted for AVPU score as per 50%

HEWS [‡]	<35, ≤36, ≥38, ≥39.1	≤40, ≤50, ≥101, ≥111, >130	<71, ≤90, ≥171, >200	<8, ≤13, ≥21, >30	<85, ≤92	≤14, ≤9, ≤6	range in (3) GCS substitut ed for AVPU score as per 50% range in (3)
NEWS [‡]	≤35, ≤36, ≥38.1, ≥39.1	≤40, ≤50, ≥91, ≥111, ≥131	≤90, ≤100, ≤110, ≥220	≤8, ≤11, ≥21, ≥25	≤91, ≤93, ≤95	<15	GCS substitut ed for AVPU score as per 50% range in (3)
PITSTOP [‡]	>38		<100				
PHANTASi [‡]	<36, >38	>90		>20			

* Measure not explicitly defined in original study or available in present study – threshold or alternative measure utilized in present study reported

† Measure not available and excluded from present study

‡ Screening strategies identified in search update (i.e. not identified in original systematic review)

Temp = temperature (°Celsius), HR = heart rate (beats per minute), SBP = systolic blood pressure (mmHg), RR = respiratory rate (breaths per minute), SPO2 = oxygen saturation, GCS = Glasgow Coma Scale, SIRS = Systemic Inflammatory Response Syndrome, BAS = Blood Pressure "Andningsfrekvens" (respiratory rate in Swedish) Saturation, PRESEP = Prehospital Early Sepsis Detection, PRESS = Prehospital Severe Sepsis, PSP = Prehospital Sepsis Project, EtCO2 = end-tidal carbon dioxide, qSOFA = Quick Sepsis-related Organ Failure, PreSAT = Prehospital Sepsis Assessment Tool, MBIS = Mecklenburg Bacterial Infection Scale, CIP = Critical Illness Prediction, MEWS = Modified Early Warning Score, HEWS = Hamilton Early Warning Score, NEWS = National Early Warning Score, PITSTOP = Paramedic Initiated Treatment of Sepsis Targeting Out-of-hospital Patients clinical trial, PHANTASi = Prehospital ANTibiotics Against Sepsis

References

1. Lane D, Ichelson RI, Drennan IR, Scales DC. Prehospital management and identification of sepsis by emergency medical services: a systematic review. *Emerg Med J. BMJ Publishing Group Ltd and the British Association for Accident & Emergency Medicine*; 2016 Jun 1;33(6):408–13.
2. Green RS, Travers AH, Cain E, Campbell SG, Jensen JL, Petrie DA, et al. Paramedic Recognition of Sepsis in the Prehospital Setting: A Prospective Observational Study. *Emergency Medicine International. Hindawi Publishing Corporation*; 2016;2016(2):6717261–5.
3. McNarry AF, Goldhill DR. Simple bedside assessment of level of consciousness: comparison of two simple assessment scales with the Glasgow Coma scale. *Anaesthesia*. 2004 Jan;59(1):34–7.