qSOFA VERSUS SIRS: WHICH IS MORE DIAGNOSTICALLY ACCURATE IN PREDICTING EARLY SIGNS OF SEPTIC SHOCK OUTSIDE INTENSIVE CARE?

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Background

- Sepsis was redefined to prompt clinicians to focus on life threatening organ dysfunction rather than systemic inflammation
- The 2016 Sepsis-3 guidelines recommend that sepsis be identified by a change in baseline SOFA or qSOFA score ≥ 2 instead of having 2 or more clinical signs of SIRS
- Many institutions continue to use SIRS to identify septic shock because they question the ability of qSOFA to identify early signs of organ dysfunction, inflammation, & mortality
- Clinicians also question the diagnostic accuracy of both tools and the effect of assessment timing on score accuracy

Purpose

- To compare the accuracy of the Quick Sequential Organ (Sepsis Related) Failure Assessment (qSOFA) to the Systemic Inflammatory Response Score (SIRS) in identifying early signs of septic shock outside intensive care.

Search Method

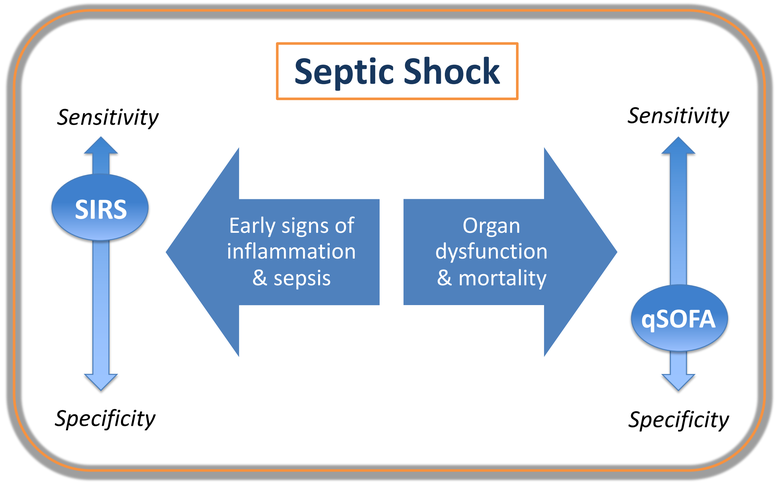
- Databases: PubMed, EMBASE
- Search Terms: signs of shock tool; signs of septic shock tool, identify AND early AND shock AND tool; identify shock; identify AND sepsis, AND tool
- Inclusion Criteria: Systematic Review, RCT, observational studies, English language, Published in last 5 years

Results

Author/Year	Study Type	Primary Outcome	Study Setting	Methods	Results
Luo, et al. (2019)	Prospective Cohort CEBM 2	Identify Sepsis	Single center, non-ICU wards, medical and surgical	Daily qSOFA and SIRS assessments up to 28 days	SIRS & qSOFA
Serafim, et al. (2018)	Systematic Review & Meta-analysis CEBM 1	Diagnose sepsis Predict mortality	Multicenter Pre-hospital, ED, general ward, ICU	Data extraction & analysis	SIRS > qSOFA
Jiang, et al. (2018)	Systematic Review & Meta-analysis CEBM 1	Predict mortality	Multicenter ED	Data extraction & analysis	SIRS > qSOFA
Seymour, et al. (2016)	Retrospective Cohort CEBM 2	Predict Mortality	Multicenter ED, general ward, ICU	Predictive validity comparison	qSOFA > SIRS
Song, et al. (2018)	Systematic Review & Meta-analysis CEBM 1	In-hospital Mortality Organ dysfunction	Outside hospital, ED, general ward	Pooled data extraction & analysis of qSOFA diagnostic accuracy	SIRS & qSOFA
Rodriguez, et al. (2018)	Retrospective Cohort CEBM 3	Identify critical illness	Multicenter ED	Chart review: First 6 hrs of ED admission	qSOFA > SIRS
Akinosoglou, et al. (2018)	Prospective Observational CEBM 3	Identify inflammation	Single center, medicine ward	Compared qSOFA scores to levels of inflammatory markers	SIRS >qSOFA

Key: Quick Sequential Organ Failure Assessment (qSOFA), Systemic Inflammatory Response Score (SIRS), Emergency Department (ED), Intensive Care Unit (ICU).
All findings within 95% Confidence Interval, $p \leq 0.05$

- 21 articles found, 7 articles included
- Three studies support the use of SIRS, two support qSOFA, two studies support the use of both.
- qSOFA has higher specificity while SIRS has higher sensitivity to shock.
- SIRS identifies signs of shock earlier than qSOFA, but qSOFA is a better predictor of organ dysfunction & mortality.



Conclusions

- Neither score has enough diagnostic accuracy to predict early signs of septic shock outside intensive care alone, nor are they able to differentiate those who will experience organ dysfunction from those who will not.
- Limitations: All studies used different primary outcomes to predict early signs of septic shock. No consensus on which variables are most important to detect in early stages.
- Understanding the strengths and limitations of each diagnostic tool will aid providers in determining which is most appropriate to use
- Recommend further research to identify markers of early signs of septic shock and the development of a new tool that combines the predictive abilities of both tools

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What is qSOFA?

ALTERED MENTAL STATUS

FAST RESPIRATORY RATE

LOW BLOOD PRESSURE

The qSOFA score (also known as quickSOFA) is a bedside prompt that may identify patients with suspected infection who are at greater risk for a poor outcome outside the intensive care unit (ICU). It uses three criteria, assigning one point for low blood pressure (SBP≤100 mmHg), high respiratory rate (≥22 breaths per min), or altered mentation (Glasgow coma scale<15).

quick SEPSIS RELATED ORGAN FAILURE ASSESSMENT (N.D.) Retrieved from https://qsofa.org/index.php#whatis

Figure 1. The Systemic Inflammatory Response Syndrome (SIRS).[8]

Two or more of the following:

- Temperature >38° C or <36° C
- Heart rate >90 beats/min
- Respiratory rate >20 breaths/min or $PaCO_2$<32 torr
- WBC >12,000 cell/mm^3, <4,000 cells/mm^3, or >10% immature (band) forms

Figure 1. the Systemic Inflammatory Response Syndrome. Retrieved from https://westjem.com/original-research/shock-index-and-early-recognition-of-sepsis-in-the-emergency-department-pilot-study.html