

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

# Recognition and Diagnosis of Sepsis in Adults: Evidence-Based Guidelines

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## Research Question

What are the evidence-based guidelines regarding the use of tests or procedures for the recognition and diagnosis of sepsis in adults with suspected sepsis?

## Key Findings

One evidence based guideline was identified regarding the use of tests or procedures for the recognition and diagnosis of sepsis in adults with suspected sepsis.

## Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between December 8, 2016 and January 18, 2018. Internet links were provided, where available.

## Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

**Table 1: Selection Criteria**

<b>Population</b>	Adults with suspected sepsis
<b>Interventions</b>	Diagnostic tests or processes for the recognition and detection of sepsis (e.g., blood culture, urine culture, CBC, inflammatory markers, imaging technology)
<b>Comparator</b>	No comparator
<b>Outcomes</b>	Evidence-based guidelines
<b>Study Designs</b>	Health technology assessments, systematic reviews, meta-analyses, evidence-based guidelines

## Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Normally, health technology assessment reports, systematic reviews, and meta-analyses are presented first; however, the aforementioned evidence types are presented in the appendix in reports where guidelines are primarily sought.

One evidence based guideline was identified regarding the use of tests or procedures for the recognition and diagnosis of sepsis in adults with suspected sepsis.

Additional references of potential interest are provided in the appendix.

## Overall Summary of Findings

One evidence-based guideline, an update of 2012 guidelines published by the Surviving Sepsis Campaign (SSC), was identified regarding the use of tests or procedures for the recognition and diagnosis of sepsis in adults with suspected sepsis.<sup>1</sup> Resuscitation and treatment of sepsis should begin immediately. For the diagnosis of sepsis, the SSC recommends that if clinical examination does not lead to diagnosis, further hemodynamic assessment (such as assessing cardiac function) should be performed to determine the type of shock.<sup>1</sup> Routine microbiologic cultures (with two sets of blood culture [aerobic and anaerobic]) should be performed for the diagnosis of sepsis prior to anti-microbial therapy if this does not delay the start of microbial therapy.<sup>1</sup> The SSC also recommends that a specific anatomic diagnosis requiring emergent source control be made as soon as possible.<sup>1</sup>

## References Summarized

### Guidelines and Recommendations

1. Rhodes A, Evans LE, Alhazzani W, Levy MM, Antonelli M, Ferrer R, et al. Surviving Sepsis Campaign: international guidelines for management of sepsis and septic shock: 2016. *Crit Care Med.* 2017 Mar;45(3):486-552.  
[PubMed: PM28098591](#)

## Appendix — Further Information

### Previous CADTH Reports

2. A rapid test for microbial identification in patients with suspected sepsis [Internet]. Ottawa: CADTH; 2017. [cited 2018 Jan. 23]. (CADTH Issues in emerging health technologies; no. 164). Available from [https://www.cadth.ca/sites/default/files/pdf/EH0062\\_film\\_array\\_env\\_scan\\_e.pdf](https://www.cadth.ca/sites/default/files/pdf/EH0062_film_array_env_scan_e.pdf)
3. Recognition and diagnosis of sepsis in adults: a review of evidence-based guidelines [Internet]. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health; 2017 Jan 13 [cited 2018 Jan 23]. (CADTH Rapid response report). Available from: <https://www.cadth.ca/recognition-and-diagnosis-sepsis-adults-review-evidence-based-guidelines>

### Systematic Reviews and Meta-analyses

4. Alberto L, Marshall AP, Walker R, Aitken LM. Screening for sepsis in general hospitalized patients: a systematic review. *J Hosp Infect.* 2017 Aug;96(4):305-15. [PubMed: PM28506711](#)
5. Serafim R, Gomes JA, Salluh J, Pova P. A comparison of the Quick-SOFA and systemic inflammatory response syndrome criteria for the diagnosis of sepsis and prediction of mortality: a systematic review and meta-analysis. *Chest.* 2017 Dec 28. [PubMed: PM29289687](#)
6. Tan TL, Goh YY. The role of group IIA secretory phospholipase A2 (sPLA2-IIA) as a biomarker for the diagnosis of sepsis and bacterial infection in adults -A systematic review. *PLoS One* [Internet]. 2017 [cited 2018 Jan 23];12(7):e0180554. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5495423> [PubMed: PM28671974](#)
7. Wu CC, Lan HM, Han ST, Chaou CH, Yeh CF, Liu SH, et al. Comparison of diagnostic accuracy in sepsis between presepsin, procalcitonin, and C-reactive protein: a systematic review and meta-analysis. *Ann Intensive Care* [Internet]. 2017 Sep 6 [cited 2018 Jan 23];7(1):91. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5585118> [PubMed: PM28875483](#)
8. Cabral L, Afreixo V, Almeida L, Paiva JA. The use of procalcitonin (PCT) for diagnosis of sepsis in burn patients: a meta-analysis. *PLoS One* [Internet]. 2016 [cited 2018 Jan 23];11(12):e0168475. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5179235> [PubMed: PM28005932](#)
9. Liu Y, Hou JH, Li Q, Chen KJ, Wang SN, Wang JM. Biomarkers for diagnosis of sepsis in patients with systemic inflammatory response syndrome: a systematic review and meta-analysis. *Springerplus* [Internet]. 2016 [cited 2018 Jan 23];5(1):2091. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5153391> [PubMed: PM28028489](#)

## Clinical Practice Guidelines – Uncertain Methodology

10. Emergency Department sepsis guidelines [Internet]. Vancouver: BC Patient Safety & Quality Council; 2017 Available from: <https://bcpsqc.ca/clinical-improvement/sepsis/emergency-department-sepsis/guidelines/>

## Quality Standards

11. Sepsis [Internet]. London: National Institute for Health and Care Excellence; 2017 Sep 13 [cited 2018 Jan 23]. (NICE quality standard; no. 161). Available from: <https://www.nice.org.uk/guidance/qs161/resources/sepsis-pdf-75545595402181>

## Review Articles

12. De Backer D, Dorman T. Surviving sepsis guidelines: a continuous move toward better care of patients with sepsis. JAMA. 2017 Feb 28;317(8):807-8.  
[PubMed: PM28114630](#)
13. Langley RJ, Wong HR. Early diagnosis of sepsis: is an integrated omics approach the way forward? Mol Diagn Ther. 2017 Oct;21(5):525-37.  
[PubMed: PM28624903](#)
14. Plevin R, Callcut R. Update in sepsis guidelines: what is really new? Trauma Surgery & Acute Care Open [Internet]. 2017 [cited 2018 Jan 23];2:e000088. Available from: <http://tsaco.bmj.com/content/2/1/e000088>
15. Tavare A, O'Flynn N. Recognition, diagnosis, and early management of sepsis: NICE guideline. Br J Gen Pract. 2017 Apr;67(657):185-6.  
[PubMed: PM28360070](#)

## Additional References

16. RCGP Sepsis Summit consensus report 2017 [Internet]. London: Royal College of General Practitioners; 2017 [cited 2018 Jan 23]. Available from: <http://www.rcgp.org.uk/>
17. Dellinger RP, Schorr CA, Levy MM. A users' guide to the 2016 surviving sepsis guidelines. Crit Care Med. 2017 Mar;45(3):381-5.  
[PubMed: PM28099222](#)