

# **Sepsis guidance implementation advice for adults**



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## Sepsis guidance implementation advice for adults

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This information can be made available in alternative formats, such as easy read or large print, and may be available in alternative languages, upon request. Please contact Helen Wilkinson on [helen.wilkinson22@nhs.net](mailto:helen.wilkinson22@nhs.net)

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## 1 Policy statement

Sepsis is difficult to diagnose and front-line clinicians asked NHS England to produce guidance on an operational definition to facilitate the prompt identification of patients at high risk of having sepsis.

NHS England has worked with NICE using their guidance and with a group of sepsis experts and the UK Sepsis Trust to produce an operational definition that fits with use of the National Early Warning Score in assessing patients who are acutely unwell.

This is supported by Health Education England who will ensure that their educational materials on sepsis reflect this guidance.

We believe that implementation of this operational definition will increase compliance with NICE guidance on sepsis among front-line clinicians managing patients with potential sepsis

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## 2 Introduction

1. NICE guidance on sepsis was published in 2016 and provides an evidence-based approach to recognising and initiating treatment for suspected sepsis. However some front line staff have found it difficult to translate this guidance into practice. For example, a survey by the National Patient Safety Collaborative Sepsis Cluster states '75% of organisations do not plan to use the NICE guidelines exactly as published. Most plan to modify the guidelines to either remove moderate risk criteria, amalgamate moderate and high risk criteria or measure lactate earlier', and 'Some responders stated that they felt that the NICE guidance were complex, needing simplification and questioned why there was not better adherence to use of aggregate scores rather than single parameters'.
2. In light of this clinicians with expert knowledge of sepsis and representing the Royal College of Physicians, the Royal College of GPs, NICE, Health Education England, the UK Sepsis Trust, Patient Safety Collaboratives and front line clinicians have worked with NHS England to provide this implementation advice as a unified framework to help improve adult sepsis identification and care in hospital settings. The cross-system Sepsis Board confirmed this guidance.
3. NICE supports this implementation advice as a pragmatic approach because:
  - The application of the recommendations in the NICE guideline NG51 is not mandatory and the use of clinical judgement is a critical component.
  - NICE did not find published evidence of any specific laboratory test that would quickly and reliably confirm or exclude a diagnosis of sepsis in the timeframe before treatment should be started in patients with suspected sepsis. Neither did it find published evidence in order to recommend the use of NEWS score including evidence for specific cut offs. The NICE Guidelines high risk criteria for stratifying risk of severe illness or death from sepsis are equivalent to corresponding NEWS parameter scores of 3
  - The guideline recognised the use of scores in acute hospital setting and supports consideration of the use of an early warning score to assess people with suspected sepsis in acute hospital settings
  - The guideline recommends that research is carried out to find out whether early warning scores, for example NEWS (national early warning scores for adults) and PEWS (paediatric early warning score), can be used to improve the detection of sepsis and facilitate prompt and appropriate clinical response in pre-hospital settings and in emergency departments (research recommendation 4).

## 3 Identifying people at risk of sepsis

4. Sepsis is not always easy to diagnose. When it is at an advanced stage with multiple abnormal physiological parameters it is relatively straightforward. However by this stage it is associated with a very high mortality, so wherever possible healthcare professionals should aim to suspect sepsis at an early stage and initiate treatment promptly.

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5. Diagnosis of possible sepsis relies on clinical judgment. Healthcare professionals assessing people with clinical deterioration due to likely infection, or in those who are acutely unwell with no clear cause should consider the possibility of sepsis. They should:
  - a. take into account the patient's history and risk factors alongside clinical assessment
  - b. Make a clinical assessment that includes measurement of physiological variables (temperature, heart rate, respiratory rate, level of consciousness, oxygen saturation) that can be used to stratify the severity of illness.
6. Risk factors include the very young or old, immunosuppressed people from any cause, gestational diabetes, invasive procedures or surgery etc. Important elements of clinical history include non-specific symptoms and concern expressed by relatives or carers such as acute changes in behaviour.
7. NEWS (the [National Early Warning Score](#)) provides an appropriate framework for risk stratification in adults in acute care. The National Quality Board strongly endorses the use of NEWS in adult patients as the standardised system for assessment of the severity of acute illness and communication of this between healthcare practitioners. NEWS is recommended for use in hospitals including mental health hospitals and in ambulance services and in prison healthcare. NEWS has not yet received NICE support for use in primary care, pending further evidence of its value in this setting. The National Quality Board and NICE have recommended further evaluation of the use of NEWS in primary care and recognises the value of a "common language" across the NHS in England to communicate the severity of a patient's acute illness.

## 4 Recognising sepsis in hospital

8. An aggregate NEWS of 5 or more identifies adult hospital patients who are severely ill with likely organ dysfunction and who require urgent assessment by a senior clinical decision-maker (defined by NICE as ST3+ or trained nurse with prescribing rights in acute care). Where aggregate NEWS 5+ is accompanied by suspicion of sepsis this should prompt the senior clinical decision-maker, using clinical judgment, to start appropriate treatment, as indicated, within an hour of the risk being recognised. This should include iv antibiotics where there is evidence of a bacterial infection (following local policy and using a "[start smart then focus](#)" approach) and supplemental oxygen, and in addition an iv fluid bolus if there is any sign of circulatory insufficiency.
9. Patients with a NEWS score of less than 5 might also have or develop sepsis. Clinicians assessing patients with a NEWS score of less than 5 should still be aware of the risk of sepsis and should specifically look for: a single NEWS parameter of 3; non-blanching rash/mottled/ashen/cyanotic skin; responds only to voice or pain, or unresponsive; not passed urine in last 18 hours/urine output<0.5 ml/kg/hr; lactate 2+ as any of these indicators suggest the possibility of underlying infection and sepsis.



10. Samples such as blood, urine, drain fluid and wound swabs should be taken where relevant for laboratory testing to identify likely causative organisms and their sensitivity before starting antibiotic treatment. However treatment must be started promptly and before these results are available if the patient is acutely ill. The recent NICE guidance did not find published evidence of any specific laboratory test that would quickly and reliably confirm or exclude a diagnosis of sepsis in the timeframe within which treatment should be started for sick patients.
11. Where a clinician has considered and discounted a diagnosis of sepsis for a hospital in-patient that patient should be closely monitored for signs of later deterioration, with a clear plan for review and action if deterioration should occur.
12. Patients who are treated with iv antibiotics +/- fluid bolus for sepsis and those that do not respond to treatment within an hour should be seen by or discussed with a consultant urgently (ref NICE Quality Standard).
13. Those acting as senior decision-makers in the management of sepsis should be aware of the necessity for prompt source control in addition to antibiotic treatment for certain sepsis presentations (e.g. deep abscess or infected obstructed ureter).
14. Decisions about starting, continuing or escalating active life-prolonging treatment for patients who are extremely unwell with sepsis should be taken at consultant level in conjunction with the patient and/or their next of kin and wherever possible should align with the patient's expressed wishes.

## 5 Recognising sepsis in primary care

15. Many patients are seen and managed for infections in primary care and only a very small fraction of these will have sepsis. The skills and judgment of primary care clinicians are crucial and must be supported. When primary care clinicians measure and record physiological observations and any alteration in mental state in patients in whom they suspect sepsis their diagnostic accuracy is improved.
16. NICE recommends that people with suspected sepsis are assessed for risk factors and then clinically using a structured set of observations (temperature, heart rate, respiratory rate, level of consciousness, oxygen saturation) to stratify risk of severe illness or death. The National Quality Board has encouraged further evaluation of NEWS in primary care.
17. In remote (non-face to face) assessments if a clinician suspects sepsis and has no access to physiological measurements they should arrange for the patient to attend a facility where these measurements can be recorded without delay.
18. Where a primary care clinician suspects sepsis and the results of physiological observations suggest a risk of severe illness or death then the clinician should arrange urgent referral and transfer of the patient to an acute hospital for further assessment and treatment with minimal delay at the scene. Ambulance services are increasingly using NEWS as a way of translating physiological observations into a risk score and using this to pre-alert emergency departments when they are bringing acutely ill patients to hospitals.

19. Where a primary care clinician has considered and discounted a diagnosis of sepsis they should provide appropriate safety-netting information to the patient/carer in case of later deterioration.

## 6 Future work:

20. A standardised, pragmatic and evidence-based operational working definition of paediatric sepsis should be agreed with stakeholders and then taken to the National Quality Board for endorsement

21. The National Quality Board and NICE have recommended further evaluation of the use of NEWS in primary care and recognises the value of a "common language" across the NHS in England to communicate the severity of a patient's acute illness.

22. The NICE sepsis guideline recommends that research is carried out to find out whether early warning scores, for example NEWS (national early warning scores for adults) and PEWS (paediatric early warning score), can be used to improve the detection of sepsis and facilitate prompt and appropriate clinical response in pre-hospital settings and in emergency departments (research recommendation 4).

23. Research and audit are needed in all clinical areas to improve the real-world evidence base around the diagnosis of sepsis, appropriate antimicrobial usage and clinical outcomes (e.g. clinical deterioration, ICU admission, mortality, morbidity and long-term dependency).

## 7 Appendix

Members of the sepsis implementation guidance working group included:

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