NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Suspected sepsis: recognition, assessment and early management

Draft for consultation, June 2025

This update covers rapid antigen testing and PCR tests, indicators of organ hypoperfusion, intravenous fluid therapy, vasopressors, and risk factors for sepsis.

This will update NICE guideline NG51 (last updated January 2024).

Who is it for?

- People with suspected sepsis, their families and carers
- Healthcare professionals working in primary, secondary and tertiary care

What does it include?

- the new and updated recommendations
- some recommendations that have not been updated, provided for context
- recommendations for research
- rationale and impact sections that explain why the committee made the 2025 recommendations and how they might affect practice
- the guideline context.

New and updated recommendations

We have reviewed the evidence on rapid antigen testing and PCR tests, indicators of organ hypoperfusion, intravenous fluid therapy, vasopressors, and risk factors for sepsis. You are invited to comment on the new and updated recommendations. These are marked as **[2025]**.

Recommendations marked **[2016, amended 2025]** and **[2024, amended 2025]** have been amended without an evidence review. The changes are detailed in the

rationale for the recommendations and are shaded in yellow. You are invited to comment on these recommendations.

We have not reviewed the evidence for the recommendations marked **[2016]**, **[2016, amended 2024]** or **[2024]** (shaded in grey), and we cannot accept comments on these recommendations. In some cases, we have made minor wording changes for clarification (shaded in yellow).See update information for a full explanation of what is being updated.

Full details of the evidence and the committee's discussion on the 2025 recommendations are in the evidence reviews. Evidence for the 2024 recommendations is in the evidence reviews for the 2024 update, and evidence for the 2016 recommendations is in the full 2016 guideline.

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Could this be sepsis?

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

Healthcare professionals should follow our general guidelines for people delivering care:

- Patient experience in adult NHS services
- Babies, children and young people's experience of healthcare
- Shared decision making
- Medicines adherence
- Medicines optimisation
- Multimorbidity
- Decision making and mental capacity

1.1 When to suspect sepsis

1.1.4 Assess people with any suspected infection to identify:

- possible source of infection (see the recommendations on finding and controlling the source of infection)
- factors that increase risk of sepsis (see people at higher risk of developing sepsis)
- any indications of clinical concern, such as new-onset abnormalities of behaviour, circulation or respiration. **[2016]**

1.1.5 Assess people who might have sepsis with extra care if there is difficulty in taking their history, for example people with English as a second language or people with communication difficulties (such as autism,

cognitive impairment, learning disabilities, severe mental health conditions or brain injury). **[2016 amended 2025]**

1.1.6 During a remote assessment, when deciding whether to offer a face-to-face-assessment and, if so, on the urgency of it, identify:

- factors that increase risk of sepsis (see people who are at higher risk of developing sepsis) and
- indications of clinical concern such as new-onset abnormalities of behaviour, circulation or respiration. **[2016]**

1.2 People at higher risk of developing sepsis

1.2.1 Take into account that people in the following groups may be at higher risk of developing sepsis:

- people who have impaired immune systems because of illness or drugs, including:
  - people having treatment for cancer with chemotherapy
  - people who have impaired immune function (for example, people with diabetes, people who have had a splenectomy, or people with sickle cell disease)
  - people taking long-term steroids
  - people taking immunosuppressant drugs to treat non-malignant disorders such as rheumatoid arthritis
- the very young (under 1 year) and older people (over 75 years), or people with severe frailty
- people with severe mental health conditions, dementia or learning disabilities
- people living in deprived areas
- people from Black and ethnic minority backgrounds
- people who have had surgery, or other invasive procedures, in the past 6 weeks
- people with a history of repeated antibiotic prescriptions
- people with severe chronic conditions

- people with any breach of skin integrity (for example, cuts, burns, blisters or skin infections)
- people who misuse drugs intravenously
- people who misuse alcohol
- people with indwelling lines or catheters.

See also recommendation 1.1.10 on when to suspect neutropenic sepsis. **[2025]**

For a short explanation of why the committee made the 2025 recommendations and how they might affect practice, see the rationale and impact section on people at higher risk of developing sepsis.

Full details of the evidence and the committee's discussion are in evidence review I: sepsis risk factors

1.2.2 Take into account that people who are pregnant, have given birth or had a termination of pregnancy or miscarriage in the past 6 weeks are in a high risk group for sepsis. In particular, people who:

- have impaired immune systems because of illness or drugs (see recommendation 1.2.1)
- have diabetes, gestational diabetes or other comorbidities
- needed invasive procedures (for example, caesarean section, forceps delivery, removal of retained products of conception)
- had prolonged rupture of membranes
- have or have been in close contact with people with group A streptococcal infection, for example, scarlet fever
- have continued vaginal bleeding or an offensive vaginal discharge. **[2016]**

1.2.3 Take into account the following risk factors for early-onset neonatal infection:

- Red flag risk factor:
  - Suspected or confirmed infection in another baby in the case of a multiple pregnancy.
- Other risk factors:
  - Invasive group B streptococcal infection in a previous baby or maternal group B streptococcal colonisation, bacteriuria or infection in the current pregnancy.
  - Pre-term birth following spontaneous labour before 37 weeks' gestation.
  - Confirmed rupture of membranes for more than 18 hours before a pre-term birth.
  - Confirmed prelabour rupture of membranes at term for more than 24 hours before the onset of labour.
  - Intrapartum fever higher than 38°C if there is suspected or confirmed bacterial infection.
  - Clinical diagnosis of chorioamnionitis.

  [This recommendation is from NICE's guideline on neonatal infection.] **[2021]**

Over 16s (not pregnant or recently pregnant): evaluating risk and managing suspected sepsis

1.11 Evaluating risk level

In community and custodial settings

1.11.1 For people aged 16 or over in the community and in custodial settings, grade risk of severe illness or death from sepsis using the person's:

- history
- physical examination results and
- criteria based on age (for people aged 16 or over who are not and have not recently been pregnant, see table 3: criteria for stratification of risk

from sepsis in people aged 16 or over who are in the community or in a custodial setting. **[2016, amended 2024]**

1.11.2 Recognise that people aged 16 or over with suspected sepsis in the community and in custodial settings are at:

- high risk of severe illness or death from sepsis if they meet any of the high risk criteria in table 3: criteria for stratification of risk from sepsis in people aged 16 or over who are in the community or in a custodial setting
- moderate to high risk of severe illness or death from sepsis if they meet any of the moderate to high risk criteria in table 3: criteria for stratification of risk from sepsis in people aged 16 or over who are in the community or in a custodial setting. **[2016, amended 2024]**

1.11.3 If people aged 16 or over with suspected sepsis in the community and in custodial settings do not meet any high or moderate to high risk criteria, see them as being at low risk of severe illness or death from sepsis. **[2016, amended 2024]**

In acute hospital settings, acute mental health settings and ambulances

1.11.4 In people aged 16 or over, grade risk of severe illness or death from sepsis using the person's:

- history
- physical examination results (especially symptoms and signs of infection – in line with the recommendations on when to suspect sepsis) and
- NEWS2 score.

Interpret the NEWS2 scores within the context of the persons' underlying physiology and comorbidities. **[2024]**

1.11.5 When evaluating the risk of severe illness or death from sepsis in people aged 16 or over with suspected or confirmed infection, use clinical judgement to interpret the NEWS2 score and recognise that:

- a score of 7 or more suggests high risk of severe illness or death from sepsis
- a score of 5 or 6 suggests a moderate risk of severe illness or death from sepsis
- a score of 1 to 4 suggests a low risk of severe illness or death from sepsis
- a score of 0 suggests a very low risk of severe illness or death from sepsis
- if a single parameter contributes 3 points to their NEWS2 score, request a high-priority review by a clinician with core competencies in the care of acutely ill patients (FY2 or above), for a definite decision on the person's level of risk of severe illness or death from sepsis. **[2024]**

1.11.6 Consider evaluating the person’s risk of severe illness or death from sepsis as being higher than suggested by their NEWS2 score alone if any of the following is present:

- mottled or ashen appearance
- non-blanching petechial or purpuric rash
- cyanosis of skin, lips or tongue. **[2024]**

1.11.7 Consider evaluating the person’s risk of severe illness or death from sepsis as being higher than suggested by their NEWS2 score alone if there is cause for concern because of deterioration or lack of improvement of the person’s condition since:

- any previous NEWS2 score was calculated
- any interventions have taken place.

  This should include taking into account any NEWS2 score calculated or intervention carried out before initial assessment in the emergency department. **[2024]**

When to recalculate a NEWS2 score

1.11.8 Recalculate the NEWS2 score and re-evaluate risk of sepsis periodically, in line with the AoMRC statement on the initial antimicrobial treatment of sepsis (2022):

- every 30 minutes, for those at high risk of severe illness or death from sepsis
- every hour, for those at moderate risk of severe illness or death from sepsis
- every 4 to 6 hours, for those at low risk of severe illness or death from sepsis
- when standard observations are carried out, in line with local protocol, for those at very low risk of severe illness or death from sepsis. **[2024]**

1.11.9 If there is deterioration or an unexpected change in the person's condition, recalculate the NEWS2 score and re-evaluate their risk of sepsis. **[2024]**

1.12 Managing suspected sepsis outside acute hospital settings

When to transfer immediately to an acute hospital setting

In community and custodial settings

1.12.1 If they meet any high risk criteria, refer people aged 16 or over with suspected sepsis in the community and in custodial settings for emergency medical care (see table 3: criteria for stratification of risk from sepsis in people aged 16 or over who are in the community or in a custodial setting).

Use the most appropriate means of transport (usually 999 ambulance).

Emergency care requires facilities for resuscitation to be available and, depending on local services, may be an emergency department or medical admissions unit. **[2016, amended 2024]**

1.12.2 Pre-alert secondary care (through GP or ambulance service) when any high risk criteria are met in a person aged 16 or over with suspected sepsis in the community or in a custodial setting and transfer them immediately. **[2016, amended 2024]**

In acute mental health settings

1.12.3 For people in an acute mental health setting who are aged 16 or over and are at high risk of severe illness or death from sepsis, refer for emergency medical care. **[2024, amended 2025]**

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on mental health settings.

Full details of the evidence and the committee's discussion are in evidence review C: early management of suspected sepsis (except antibiotic therapy) in the NEWS2 population, in acute hospital settings.

Transfer by ambulance for people with consecutive NEWS2 scores of 5 or above

1.12.4 Ambulance crews should consider a time-critical transfer and pre-alerting the hospital for people aged 16 or over with suspected or confirmed infection who **either** have consecutive NEWS2 scores of 5 or above **or** show cause for significant clinical concern. **[2024]**

1.12.5 When deciding whether a time-critical transfer and pre-alerting the hospital is needed for someone aged 16 or over with consecutive NEWS2 scores of 5 or above and suspected or confirmed infection, take into account:

- local guidelines and protocols in relation to clinician scope of practice
- agreements on transfer to hospital
- advance care planning
- end of life care planning. **[2024]**

Managing the condition while awaiting transfer

1.12.6 In ambulances and acute hospital settings, on taking over care for someone whose risk of severe illness or death from sepsis has originally been evaluated in the community or in a custodial setting, evaluate their risk of severe illness or death from sepsis using NEWS2**. [2024]**

1.12.7 In remote and rural locations where transfer time to emergency department is routinely more than 1 hour, ensure GPs have mechanisms in place to give antibiotics to people with high risk criteria in pre-hospital settings. For high risk criteria, see table 3: criteria for stratification of risk from sepsis in people aged 16 or over who are in the community or in a custodial setting. **[2016, amended 2024]**

1.12.8 In remote and rural locations where combined transfer and handover times to emergency department are greater than 1 hour:

- ambulance services should consider whether they need to put mechanisms in place to be able to give antibiotics to people at high risk of severe illness or death from sepsis if antibiotics have not been given before by a GP (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis).
- paramedics who are thinking about giving antibiotics should follow local guidelines. **[2016, amended 2024]**

See also the recommendations on choice of antibiotic therapy.

If immediate transfer is not required

In community or custodial settings

1.12.9 In the community and in custodial settings, assess people aged 16 or over with suspected sepsis who meet any moderate to high risk criteria (as per table 3: criteria for stratification of risk from sepsis in people aged 16 or over who are in the community or in a custodial setting) to:

- make a definitive diagnosis of their condition

- decide whether their condition can be treated safely outside hospital.

If a definitive diagnosis is not reached or the person's condition cannot be treated safely outside an acute hospital setting, refer them urgently for emergency care. **[2016, amended 2024]**

1.12.10 In the community and in custodial settings, provide information about the following to people aged 16 or over with suspected sepsis who do not meet any high risk or moderate to high risk criteria:

- symptoms to monitor and
- how to access medical care if they are concerned.

Also see information at discharge for people assessed for suspected sepsis, but not diagnosed with sepsis. **[2016, amended 2024]**

In acute mental health settings

1.12.11 For people in acute mental health settings who are aged 16 or over and are at moderate risk of severe illness and death from sepsis (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis):

- get medical advice and
- decide whether their condition can be treated without transfer. **[2016 amended 2025]**

1.12.12 If the person's condition cannot be treated in an acute mental health setting, refer for emergency medical care. **[2016, amended 2025]**

1.12.13 In acute mental health settings, provide information about the following to people aged 16 or over who are at low or very low risk of sepsis:

- symptoms to monitor and
- how to access medical care if they are concerned.

Also see information at discharge for people assessed for suspected sepsis, but not diagnosed with sepsis. **[2016, amended 2024]**

For a short explanation of why the committee made the 2025 recommendation and how it might affect practice, see the rationale and impact section on mental health settings.

Full details of the evidence and the committee's discussion are in evidence review C: early management of suspected sepsis (except antibiotic therapy) in the NEWS2 population, in acute hospital settings.

1.13 Managing suspected sepsis in acute hospital settings

Initial investigations to find the source of infection

1.13.1 For people in hospital who have suspected infections:

- start looking for the source of infection (see the section on finding and controlling the source of infection)
- take microbiological and blood samples before giving an antimicrobial.

See the UK standards for microbiology investigations. **[2016, amended 2024]**

High risk of severe illness or death from sepsis

A person is at high risk of severe illness or death from sepsis if they have suspected or confirmed infection and a NEWS2 score of 7 or above.

A person is also at high risk of severe illness or death from sepsis if they have suspected or confirmed infection, a NEWS2 score below 7, and:

- a single parameter contributes 3 points to their NEWS2 score and a medical review has confirmed that they are at high risk (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis) or
- there are any other clinical reasons for concern (see recommendations 1.11.6 and 1.11.7 on taking causes for clinical concern into account when evaluating risk of severe illness or death from sepsis).

1.13.2 For people aged 16 or over who are at high risk of severe illness or death from sepsis:

- arrange for a clinician with core competencies in the care of acutely ill patients (FY2 level or above) to urgently assess the person's condition and think about alternative diagnoses to sepsis
- carry out a venous blood test, including for:
  - blood gas, including glucose and lactate measurement
  - blood culture
  - full blood count
  - C-reactive protein
  - urea and electrolytes
  - creatinine
  - liver function tests
  - a clotting screen
- give antibiotics in line with recommendation 1.13.3 and the recommendations on choice of antibiotic therapy
- refer to the senior clinical decision maker as soon as possible
- use clinical judgement to decide whether to discuss with a consultant. **[2024]**

Antibiotics

1.13.3 Give people aged 16 or over who are at high risk of severe illness or death from sepsis broad-spectrum intravenous antibiotic treatment, within 1 hour of calculating the person's NEWS2 score on initial assessment in the emergency department or on ward deterioration. Only give antibiotics if they have not been given before for this episode of sepsis (see recommendations 1.12.7 and 1.12.8 on managing the condition while awaiting transfer).

Also see the recommendations on finding and controlling the source of infection and choice of antibiotic therapy. **[2024]**

Intravenous fluids

1.13.4 Give an intravenous fluid bolus without delay (within 1 hour of identifying that they are at high risk) to people aged 16 or over with a high risk of severe illness or death from sepsis, unless contraindicated. **[2025]**

Type of fluid

1.13.5 If people aged 16 or over need intravenous fluid resuscitation, use an isotonic electrolyte crystalloid solution (a balanced solution such as Hartmann's, or 0.9% saline if a balanced solution is not available). **[2025]**

Volume of fluid

1.13.6 Give an initial bolus of 250 ml. Ideally, give this over 10 to 15 minutes. **[2025]**

1.13.7 Give further 250 ml boluses if needed, up to 1000 ml total (including any fluids previously given). **[2025]**

1.13.8 Reassess after each fluid bolus. **[2025]**

1.13.9 If the person has not improved enough after 1000 ml has been given, get advice from a senior clinical decision maker. **[2025]**

1.13.10 If using a pump or flow controller to deliver intravenous fluids for resuscitation to people over 16 years with suspected sepsis who need fluids in bolus form ensure device is capable of delivering fluid at required rate for example at least 2000 ml/hour in adults. **[2016]**

For a short explanation of why the committee made the 2025 recommendations and how it might affect practice, see the rationale and impact section on fluids.

Full details of the evidence and the committee's discussion are in evidence review F: Indicators of organ hypoperfusion in people with suspected sepsis and evidence review: G intravenous fluids for resuscitation

Vasopressors

1.13.11 Discuss with the senior clinical decision maker:

- whether vasopressors should be given, and if so
- whether they should be started peripherally, if central access is not available. **[2025]**

1.13.12 If starting vasopressors peripherally: :

- use local policies on choice of vasopressor, dose, concentration, and monitoring
- ensure the peripheral line is visible and monitor it for any signs of adverse events (in particular extravasation). **[2025]**

Note: not all treatments are licensed for this indication, so use would be off-label. See NICE's information on prescribing medicines.

See also the recommendation on making shared decisions on care escalation.

For a short explanation of why the committee made the 2025 recommendations and how they might affect practice, see the rationale and impact section on vasopressors.

Full details of the evidence and the committee's discussion are in evidence review G: intravenous fluids for resuscitation and evidence review H safety of peripheral administration of vasopressors

Monitoring and escalation

1.13.13 Recalculate the NEWS2 score periodically, in line with the recommendations on when to recalculate a NEWS2 score. **[2024]**

1.13.14 If a person aged 16 years or over who is at high risk of severe illness or death from sepsis does not respond within 1 hour of any intervention:

- ensure the senior clinical decision maker attends in person and
- refer to or discuss with a critical care specialist or team and
- inform the responsible consultant. **[2024]**

1.13.15 Before starting critical care, make a shared decision with the person and if appropriate their family and carers (and if possible their specialist or

critical care team) about whether escalation is appropriate. Take into account:

- their overall condition
- any advance care or treatment escalation plans (also see the NICE guidelines on end of life care services and care of dying adults in the last days of life).
- how urgently they need critical care – some of these discussions may not be possible in the time available. **[2025]**

For a short explanation of why the committee made the 2025 recommendation and how it might affect practice, see the rationale and impact section on escalating care.

Full details of the evidence and the committee's discussion are in evidence review H: intravenous fluids for resuscitation.

Moderate risk of severe illness or death from sepsis

A person is at moderate risk of severe illness or death from sepsis if they have suspected or confirmed infection and a NEWS2 score of 5 or 6.

A person is also at moderate risk of severe illness or death from sepsis if they have suspected or confirmed infection, a NEWS2 score below 5, and:

- a single parameter contributes 3 points to their NEWS2 score, and a medical review has confirmed that they are at moderate risk (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis) or
- there are any other clinical reasons for concern (see recommendations 1.11.6 and 1.11.7 on taking causes for clinical concern into account when evaluating risk of severe illness or death from sepsis).

1.13.16 For people aged 16 or over with a moderate risk of severe illness or death from sepsis:

- carry out a venous blood test, including for:

- blood gas, including glucose and lactate measurement
- blood culture
- full blood count
- C-reactive protein
- urea and electrolytes
- creatinine
- liver function tests
- a clotting screen

- arrange for a clinician with core competencies in the care of acutely ill patients (FY2 level or above) to review the person's condition and venous lactate results within 1 hour of the person being assessed as at moderate risk. **[2024]**

1.13.17 For people at moderate risk of severe illness or death from sepsis, a clinician with core competencies in the care of acutely ill patients (FY2 level or above) should consider:

- deferring administration of a broad-spectrum antibiotic treatment for up to 3 hours after calculating the person's first NEWS2 score on initial assessment in the emergency department or on ward deterioration and
- using this time to gather information for a more specific diagnosis (see recommendations on finding and controlling the source of infection and choice of antibiotic therapy)
- discussing with a senior clinical decision maker.

Once a decision is made to give antibiotics, do not delay administration any further. **[2024]**

1.13.18 For someone with a NEWS2 score of 5 or 6 and a single parameter contributing 3 points to their total NEWS2 score, use clinical judgement to determine the likely cause of the 3 points in one parameter. If the likely cause is:

- the current infection, manage as high risk and give broad-spectrum antibiotic treatment in line with recommendation 1.13.3
- something else (such as a pre-existing condition), manage as moderate risk and follow recommendation 1.13.16. **[2024]**

1.13.19 For people aged 16 or over at moderate risk of severe illness or death from sepsis:

- recalculate the NEWS2 score periodically, in line with the recommendations on when to recalculate a NEWS2 score
- if there is further cause for concern (such as deterioration or no improvement), escalate care to a clinician with core competencies in the care of acutely ill patients (FY2 level or above). **[2024]**

1.13.20 For people aged 16 or over with a moderate risk of severe illness or death from sepsis and evidence of hypoperfusion (for example, lactate over 2 mmol/litre or evidence of acute kidney injury), treat their condition as if they were at high risk of severe illness or death from sepsis. **[2025]**

1.13.21 Consider giving intravenous fluids, after clinical assessment, to people aged 16 or over with a moderate risk of severe illness or death from sepsis and no evidence of hypoperfusion. See the recommendations on type of fluid, volume of fluid and mode of delivery. **[2025]**

For a short explanation of why the committee made the 2025 recommendations and how they might affect practice, see the rationale and impact section on fluids.

Full details of the evidence and the committee's discussion are in evidence review F: Indicators of organ hypoperfusion in people with suspected sepsis

Low risk of severe illness or death from sepsis

A person is at low risk of severe illness or death from sepsis if they have suspected or confirmed infection and a NEWS2 score of 1 to 4 (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis) **or** a NEWS2 score of 0 and cause for clinical concern (see recommendations 1.11.6 and 1.11.7 on taking causes

for clinical concern into account when evaluating risk of severe illness or death from sepsis).

1.13.22 For people aged 16 or over at low risk of severe illness or death from sepsis:

- arrange for registered health practitioner review within 1 hour of the person being assessed as at low risk
- perform blood tests if indicated. **[2024]**

1.13.23 For people at low risk of severe illness or death from sepsis, request assessment by a clinician with core competencies in the care of acutely ill patients (FY2 level or above) for them to consider:

- deferring administration of a broad-spectrum antibiotic treatment for up to 6 hours after calculating the person's first NEWS2 score on initial assessment in the emergency department or on ward deterioration and
- using this time to gather information for a more specific diagnosis (see recommendations on finding and controlling the source of infection and choice of antibiotic therapy).

  Once a decision is made to give antibiotics, do not delay administration any further. **[2024]**

1.13.24 For someone with a NEWS2 score of 3 or 4 and a single parameter contributing 3 points to their total NEWS2 score, use clinical judgement to determine the likely cause of the 3 points in one parameter. If the likely cause is:

- the current infection, manage as moderate or high risk and:
  - for moderate risk, give broad-spectrum antibiotic treatment in line with recommendation 1.13.16
  - for high risk, give broad-spectrum antibiotic treatment in line with recommendation 1.13.3
- something else (such as a pre-existing condition), manage as low risk and follow recommendation 1.13.22. **[2024]**

1.13.25 For people aged 16 or over at low risk of severe illness or death from sepsis:

- recalculate the NEWS2 score periodically, in line with the recommendations on when to recalculate a NEWS2 score
- if there is deterioration or no improvement, escalate care to a clinician with core competencies in the care of acutely ill patients (FY2 level or above). **[2024]**

Very low risk of severe illness or death from sepsis

A person is at very low risk of severe illness or death from sepsis if they have suspected or confirmed infection and a NEWS2 score of 0 (see recommendation 1.11.4 on evaluating risk of severe illness or death from sepsis).

1.13.26 For people who are at very low risk of severe illness or death from sepsis:

- arrange for review by a registered health practitioner
- use clinical judgement to manage their condition and escalate if appropriate
- recalculate the NEWS2 score periodically, in line with the recommendations on when to recalculate a NEWS2 score. **[2024]**

Discharge

1.13.27 Before discharging people who have been assessed for suspected sepsis, provide information on:

- the management of their definitive condition (if identified) and
- warning signs for sepsis (see information at discharge for people assessed for suspected sepsis). **[2024]**

Terms used in this guideline

Critical care specialist or team

An intensivist or intensive care outreach team, or a specialist in intensive care or paediatric intensive care.

Not responding to intravenous fluid resuscitation

Signs that the person is not responding to resuscitation include lack of improvement or worsening:

- tachycardia
- level of consciousness
- blood pressure
- respiratory rate
- blood lactate
- urine output
- peripheral perfusion
- blood gases.

Recently pregnant

Someone is considered to have recently been pregnant:

- in the 24 hours following a termination of pregnancy or miscarriage
- for 4 weeks after giving birth.

Clinical judgement is needed after miscarriage (particularly in the second trimester) or termination (particularly in the second or third trimester), because it is not clear how quickly people return to pre-pregnancy levels in these situations.

Sepsis

Sepsis is a life-threatening organ dysfunction due to a dysregulated host response to infection.

Suspected sepsis

Suspected sepsis is used to indicate people who might have sepsis and require face-to-face assessment and consideration of urgent intervention.

Senior clinical decision maker

A ‘senior clinical decision maker’ for people under 18 is a paediatric or emergency care qualified doctor of grade ST4 or above or equivalent.

A ‘senior clinical decision maker’ for people aged 18 years or over is a clinician of grade ST3 or above or equivalent.

Recommendations for research

1 Epidemiological study on presentation and management of sepsis in England

What is the incidence, presentation and management of sepsis in the United Kingdom? **[2016]**

Why this is important

The lack of robust UK based epidemiological studies on the incidence and outcomes from sepsis have been clear throughout the guideline development process. A large epidemiological study to collect information about where sepsis is being treated, patient interventions and patient outcomes would provide population based statistics on epidemiology of sepsis which are necessary to support evaluation of interventions, planning of services and service redesign. The mortality and morbidity and service complexity associated with severe infection and sepsis, and the need to use broad-spectrum antimicrobials to treat sepsis, justifies the cost required to set up such a study.

2 Association between NEWS2 bands (0, 1 to 4, 5 to 6, 7 or above) and risk of severe illness or death

In adults and young people (16 and over) with suspected sepsis in acute hospital settings, ambulance trusts and acute mental health facilities, what is the association between NEWS2 bands (0, 1 to 4, 5 to 6, 7 or above) and risk of severe illness or death? In adults and young people (16 and over) with suspected sepsis in acute hospital settings, ambulance trusts and acute mental health facilities, what is the association between the NEWS2 score of 3 in a single parameter and risk of severe illness or death? **[2024]**

Why this is important

The NEWS2 has been introduced in 2017 and is widely used across the NHS pre-hospital and acute care settings. However, evidence on the NEWS2 was not found.

It is important to investigate, over a 5- to 10-year period, the success, safety and possible implications on people with suspected sepsis and clinical staff of using the NEWS2 to stratify the risk of severe illness or death from sepsis.

Lack of data to stratify risk of severe illness or death from sepsis and estimate possible risk of deterioration in people with a single parameter contributing 3 points to their NEWS2 score is also of great concern. Data relating to this is scarce and its interpretation contradictory.

3 Derivation of clinical decision rules in suspected sepsis

Is it possible to derive and validate a set of clinical decision rules or a predictive tool to rule out sepsis which can be applied to patients presenting to hospital with suspected sepsis? **[2016]**

Why this is important

In primary care and emergency departments people with suspected sepsis are often seen by relatively inexperienced doctors. Many of these people will be in low and medium risk groups but evidence is lacking as to who can be sent home safely and who needs intravenous or oral antibiotics. The consequences of getting the decision making wrong can be catastrophic and therefore many patients are potentially over-investigated and admitted inappropriately. Current guidance is dependent on use of individual variables informed by low quality evidence.

Other recommendations for research

4 Rapid microbiological testing

How can rapid microbiological testing guide management in people with suspected sepsis? This should include:

- consideration of good antimicrobial stewardship
- the clinical and cost effectiveness of the tests
- the time taken to do the test and get a result. **[2025]**

Why this is important

Diagnosing and treating an underlying infection could prevent serious illness or death in a person who has or is at risk of developing sepsis. However, starting treatment too early could lead to people without an infection being given antibiotics, or people being given inappropriate antibiotics for their infection.

Early use of rapid microbiological tests could help diagnose infection faster, leading to quicker, more targeted treatment and better patient outcomes. These tests are currently used in the NHS, but more research is needed to measure their utility in people with suspected sepsis.

5 Vasopressors

In people assessed as being at moderate or high risk of severe illness or death from suspected sepsis, how safe is the peripheral administration of different infusion durations, doses and concentrations of vasopressors? **[2025]**

Why this is important

Vasopressors are part of the treatment for hypotension and hypotensive shock in people with sepsis. Research is needed into the safety of administering these peripherally, this includes details on the safety of different durations, doses and concentrations would give clinicians more information to make decisions on whether to start vasopressors peripherally when these are needed.

Rationale and impact

These sections briefly explain why the committee made the updated recommendations and how they might affect practice.

People at higher risk of developing sepsis

Why the committee made the recommendation

Recommendations 1.1.4 and 1.2.1

Quality of the evidence

The evidence on risk factors for sepsis was of very low quality. There was a high risk of bias, inconsistency, and indirectness. Some studies included other populations in addition to the one covered in this guideline.

Groups that are at higher risk

There was evidence that certain groups are associated with developing sepsis. The committee added several groups to the existing recommendation, based on this evidence and on their own expertise:

- people with severe mental health conditions, dementia or learning disabilities
- people living in deprived areas
- people from Black and ethnic minority backgrounds.
- people who are currently taking antibiotics or who have a history of repeated antibiotic prescriptions
- people with severe chronic conditions
- people who misuse alcohol

The committee flagged that people with conditions such as learning disabilities, dementia and severe mental health conditions can have difficulty communicating their history or symptoms. This may lead to a delay in the diagnosis of sepsis.

How the recommendations might affect practice

The recommendations will raise awareness among healthcare professionals about groups that are at higher risk of developing sepsis. It is anticipated this increased awareness will lead to improved outcomes and a better use of healthcare resources as a result of timely care which will reduce more costly severe consequences. The recommendations are not expected to increase costs or resource use.

Return to recommendation

Mental health settings

Recommendation 1.12.3 and recommendations 1.12.11 to 1.12.12

Why the committee made the recommendations

When to transfer immediately: people in mental health settings

There was no evidence identified for acute mental health settings, so the committee made a recommendation based on their own experience. People at high risk of severe illness or death from sepsis cannot be treated in an acute mental health unit and need emergency transfer to hospital. **[2024]**

If immediate transfer is not required: people in mental health settings

No evidence was identified for acute mental health settings, so the committee made recommendations based on their expertise and experience.

There is variation in the medical expertise available to mental health services. In some cases, services will be able to care for people at moderate risk of severe illness or death from sepsis without transfer.

The 2016 recommendation mentioned establishing a definitive diagnosis. This was removed in 2025 because the committee agreed that acute mental health settings will rarely be able to establish a definitive diagnosis of a physical health problem.

How the recommendations might affect practice

The recommendation will provide guidance for healthcare professionals in mental health settings. The recommendation is not a change to practice and is providing clarity based on the risk level of the patient, given that most mental health settings would not have the facilities to diagnose or care for people with a high risk of sepsis. The recommendation is not expected to increase costs or resource use.

Return to recommendations

Rapid antigen and rapid PCR testing

Why the committee did not make recommendations

The evidence for rapid urinary antigen testing was very low quality. The studies did not include people with suspected sepsis, and the evidence only included tests for streptococcus pneumoniae, so the evidence was not generalisable to other

infections. The sensitivity of the tests was also too low to support any clinical decision making.

The evidence for multiplex polymerase chain reaction (PCR) testing was low quality, as there was only 1 small study on the topic. While the committee thought that there is potential in the use of multiplex PCR, they agreed there was insufficient evidence to make a recommendation. They also noted that the availability of multiplex PCR varies across the country. There was no evidence on how the use of these tests could impact on prognostic outcomes for people with suspected sepsis.

Given the limitations of the evidence, the committee agreed they could not make any recommendations for practice, the committee made a recommendation for further research in this area.

Vasopressors

Why the committee made the recommendations

Recommendations 1.13.11 to 1.13.12

There was limited evidence on the safety of peripheral administration of vasopressors. The committee discussed the evidence and further used their own expertise to develop the recommendations. For some people at high risk of severe illness or death from sepsis, peripheral administration of vasopressors can provide benefits in managing hypotension and septic shock if initial management via fluid administration does not appear to be working. The committee noted that whilst vasopressors are not licensed for peripheral administration these are used in practice. Given the potential risks of vasopressors, the committee agreed that they should only be given after discussion with a senior clinical decision maker.

The committee discussed the risk of extravasation, and how various factors might affect this (such as how long the catheter has been in place, and vasopressor dosage and concentration). However, adverse events were inconsistently reported in the studies, and overall event numbers were usually small, so it was not possible to make more specific recommendations. Based on their experience, the committee recommended that if a peripheral line is used, it should be visible and regularly monitored.

The committee agreed that local policies should be followed on the type, dose and concentration of vasopressor used. To address the limited evidence on this area, the committee also made a research recommendation on vasopressors.

How the recommendations might affect practice

For some clinicians the use of peripheral administration for vasopressors will be a change in practice. Clinicians may also need to consider which level of care is needed or available for people receiving vasopressors peripherally.

Return to recommendations

Escalating care

Recommendation 1.13.15

Why the committee made the recommendation

Shared decision making is important when discussing referral to a critical care specialist or team. People who are approaching the end of their life may not want more invasive interventions, and they may also have pre-existing advance care or treatment escalation plans that need to be taken into account.

How the recommendation might affect practice

The 2025 recommendation on shared decision making for care escalation is not expected to have a major resource impact.

Return to recommendations

Fluids

Recommendations 1.13.5 to 1.13.9; 1.13.20 to 1.13.21

Why the committee made the recommendations

When to give fluids

The committee reviewed evidence on indicators of hypoperfusion, to see if these could be used to guide intravenous fluid administration. The evidence was all low or very-low quality. There was a high risk of bias, and the evidence did not cover all of the indicators of hypoperfusion specified in the review protocol.

Evidence was available for lactate, mottled skin and capillary refill time, but the committee agreed that these could not be used to guide treatment decisions in isolation. Lactate could be high for numerous reasons. Assessments of mottled skin can be quite subjective and needs to be interpreted with caution in people with brown or black skin. The committee agreed to amend the 2024 recommendations to use the person's risk categorisation using their NEWS2 score.

- People assessed as being at high risk should be given intravenous fluids, unless giving fluids is contraindicated (for example in people with cardiac or renal failure). Using indicators such as lactate to make decisions may unnecessarily delay treatment. Systolic blood pressure is assessed as part of NEWS2.
- For people at moderate risk, the committee agreed that indicators of organ hypoperfusion such as a high lactate or acute kidney injury could be used as additional markers to help decision making. However, the committee also agreed that dependent on the assessment of the individual a moderate risk score without other indicators of hypoperfusion was sufficient evidence of illness for clinicians to consider giving fluids.

Type of fluid

The overall quality of the evidence on fluid type was very low, as:

- there was a high risk of bias
- some of the evidence was indirect: many of the studies looked at people in intensive care units, and this group is not covered by the guideline
- some of the populations in the studies were small.

The committee noted that:

- one systematic review could not differentiate between balanced crystalloids and normal saline
- a post-hoc analysis in the same systematic review favoured balanced crystalloids
- one feasibility randomised controlled trial comparing 5% human albumin solution with balanced crystalloids was unable to differentiate between them.

Based on the evidence and their experience, the committee agreed that isotonic electrolyte crystalloid solutions should be used as the initial fluid.

Fluid resuscitation can start before people arrive at hospital. Ambulance services usually only have 0.9% saline available, so the committee included this in the recommendation to ensure that ambulance services would continue to give fluids when needed. The recommendations are about initial management, but fluid management may be adapted later in the patients care pathway as more clinical information becomes available.

The 2016 recommendation specified that crystalloids should contain 130 to 154 mmol/litre sodium, but this was removed because the committee agreed that all isotonic solutions used for initial resuscitation in the UK already contain sodium in this range.

The committee removed two recommendations that were made in the 2016 guideline:

- The recommendation on using human albumin solution was based on limited evidence from studies of people with septic shock in intensive care units (not the population covered by this guideline). Human albumin solution is rarely stocked and infrequently used in practice.
- The recommendation not to use starch-based solutions or hydroxyethyl starches for fluid resuscitation: the committee agreed that these fluids should not be used, but they are no longer available within the UK, so this recommendation is not needed.

Fluid volume

The evidence reviewed was unable to differentiate between lower or higher fluid volumes. The studies used different fluid protocols and measured total fluid volumes at different times. In most of the studies, people had been given initial fluids before randomisation.

The committee agreed that the overall volumes needed would differ for each person, and that people need to be reassessed after each bolus and that where there is not improvement senior clinical advice will be needed. The committee agreed that a stepped approach to receiving fluid in boluses of 250ml. The committee agreed if a person has received 1000ml of fluid and there had been no or limited change to

indicators of hypoperfusion that advice should be sought due to the risk of fluid overload.

How the recommendations might affect practice

The 2025 recommendations will not have a substantial impact. People at high risk of severe illness or death from sepsis will be being given fluids in practice. Using NEWS2 rather than lactate to make decisions on fluids and escalation may support decision making and improve consistency.

For people at moderate risk, the recommendation on considering fluids when there are no indicators of hypoperfusion may lead to people getting fluids faster, before possible deterioration.

Crystalloids were already recommended; this is not a change in practice. Services that have access to balanced solutions may use these more often, which may be a small cost increase compared with using 0.9% saline.

Human albumin solution is not routinely used for initial resuscitation, so removing this recommendation should have little impact.

The initial fluid bolus volume has been reduced from the 2016 recommendation (from 500 ml to 250 ml). However, the maximum volume of fluid has not changed, so there should be no extra cost impact. Assessing people after each bolus will ensure they receive the appropriate amount of fluid for their needs.

Return to recommendations

Context

Sepsis is a clinical syndrome caused by the body’s immune and coagulation systems being switched on by an infection. Sepsis with shock is a life-threatening condition that is characterised by low blood pressure despite adequate fluid replacement, and organ dysfunction or failure. Sepsis is an important cause of death in people of all ages. Both a UK Parliamentary and Health Service Ombudsman enquiry (2013) and a UK National Confidential Enquiry into Patient Outcome and Death (NCEPOD, 2015) highlighted sepsis as being a leading cause of avoidable death that kills more people than breast, bowel and prostate cancer combined.

Sepsis is difficult to diagnose with certainty. Although people with sepsis may have a history of infection, fever is not present in all cases. The signs and symptoms of sepsis can be very non-specific and can be missed if clinicians do not think ‘could this be sepsis?’. In the same way that healthcare professionals consider 'could this pain be cardiac in origin?' when presented with someone of any age with chest pain this guideline aims to make 'could this be sepsis?' the first consideration for anyone presenting with a possible infection.

Detailed guidelines exist for the management of sepsis in adult and paediatric intensive care units, and by intensive care clinicians called to other settings. To reduce avoidable deaths, people with sepsis need to be recognised early and treatment initiated. This guideline aims to ensure healthcare systems in all clinical settings consider sepsis as an immediate life-threatening condition that should be recognised and treated as an emergency. The guideline outlines the immediate actions needed for those with suspicion of sepsis and who are at highest risk of morbidity and mortality from sepsis. It provides a framework for risk assessment, treatment and follow-up or ‘safety netting’ of people not needing immediate resuscitation. The intention of this guideline is to ensure that all people with sepsis due to any cause are recognised and initial treatment initiated before definitive treatment on other specific pathways is instituted.

Previous terminology included terms SIRS (systematic inflammatory response syndrome), severe sepsis and septic shock but more recent terminology suggests using terms sepsis and septic shock only. Sepsis is defined as a life-threatening organ dysfunction due to a dysregulated host response to infection and septic shock in adults as persisting hypotension requiring vasopressors to maintain a mean arterial pressure (MAP) of 65 mmHg or more and having a serum lactate level of greater than 2 mmol/l despite adequate volume resuscitation. Neither of these definitions are useful in early identification of people at risk and the guideline recommends actions according to clinical parameters that stratify risk of severe illness or death from sepsis.

There is significant overlap between this guideline and other NICE guidance, in particular the care of acutely ill patients in hospital, the assessment and initial management of fever in under 5s, bacterial meningitis and meningococcal disease,

neutropenic sepsis, antibiotics for prevention and treatment of neonatal infection, and pneumonia in adults.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic pages on sepsis and antimicrobial stewardship.

To find out about all the updates to the sepsis guideline, see the our suspected sepsis summary page.

Update information

August 2025

We have reviewed the evidence on rapid antigen testing and PCR tests, indicators of organ hypoperfusion, intravenous fluid therapy, vasopressors, and risk factors for sepsis.

Recommendations are marked **[2025]** if the evidence has been reviewed.

Recommendations that have been deleted, or changed without an evidence review

We propose to delete some recommendations from the 2024 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

See also the previous NICE guideline and supporting documents.

Table 1 Recommendations that have been deleted

Recommendation in 2024 guideline	Comment
1.13.4 For people aged 16 or over with a high risk of severe illness or death from sepsis and **either** lactate over 2 mmol/litre **or** systolic blood pressure less than 90 mmHg, give intravenous fluid bolus without delay (within 1 hour of identifying that they are at high risk) in line with recommendations on	Replaced by: 1.13.4 Give an intravenous fluid bolus without delay (within 1 hour of identifying that they are at high risk) to people aged 16 or over with a high risk of severe illness or death from sepsis, unless contraindicated.

intravenous fluids for people with suspected sepsis. **[2024]**	
1.13.5 For people aged 16 or over with a high risk of severe illness or death from sepsis and lactate of 2 mmol/litre or lower, consider giving an intravenous fluid bolus (in line with recommendations on intravenous fluids for people with suspected sepsis). **[2024]**	Replaced by: 1.13.4 Give an intravenous fluid bolus without delay (within 1 hour of identifying that they are at high risk) to people aged 16 or over with a high risk of severe illness or death from sepsis, unless contraindicated.
1.15.3 If people over 16 years need intravenous fluid resuscitation, use crystalloids that contain sodium in the range 130 to 154 mmol/litre with a bolus of 500 ml over less than 15 minutes. [This recommendation is from NICE's guideline on intravenous fluid therapy in adults in hospital.] **[2017]**	Replaced by: 1.13.5 If people aged 16 or over need intravenous fluid resuscitation, use an isotonic electrolyte crystalloid solution (a balanced solution such as Hartmann's, or 0.9% saline if a balanced solution is not available). 1.13.6 Give an initial bolus of 250 ml. Ideally, give this over 10 to 15 minutes. 1.13.7 Give further 250 ml boluses if needed, up to 1000 ml total (including any fluids previously given). 1.13.8 Reassess after each fluid bolus.
1.13.12 For people aged 16 or over with a moderate risk of severe illness or death from sepsis and **either** lactate over 2 mmol/litre **or** evidence of acute kidney injury, treat their condition as if they were at high risk of severe illness or death from sepsis. For definition of acute kidney injury, see NICE's guideline on acute kidney injury. **[2024]**	Replaced by: 1.13.20 For people aged 16 or over with a moderate risk of severe illness or death from sepsis and evidence of hypoperfusion (for example, lactate over 2 mmol/litre or evidence of acute kidney injury), treat their condition as if they were at high risk of severe illness or death from sepsis. 1.13.21 Consider giving intravenous fluids, after clinical assessment, to people aged 16 or over with a moderate risk of severe illness or death from sepsis and no evidence of hypoperfusion. See the recommendations on type of fluid, volume of fluid and mode of delivery.
1.15.4 Consider human albumin solution 4 to 5% for fluid resuscitation only in patients with sepsis and shock. **[2016]**	This recommendation has been deleted because: • it was based on limited evidence from studies of people with septic shock in intensive care units (not the population covered by this guideline) • human albumin solution is rarely stocked and infrequently used in practice.
1.15.5 Do not use starch-based solutions or hydroxyethyl starches for fluid	This recommendation has been deleted because these fluids are no longer

resuscitation for people with sepsis. **[2016]**	available within the UK, so this recommendation is not needed.