Sepsis: Risk stratification tools

How to use these tools

- 1. Think 'could this be sepsis?' use the flowchart on the next page to decide if the person has suspected sepsis
- 2. If sepsis is suspected, then use the algorithm appropriate to the person's age group and the setting (either out of hospital or in hospital) to:
 - stratify their risk (low, moderate to high or high)
 - see what care NICE recommends.

Always refer back to the NICE guideline for recommendation details



Could this be sepsis?

For a person of **any age** with a possible infection:

- Think could this be sepsis? if the person presents with signs or symptoms that indicate infection, even if they do not have a high temperature.
- Be aware that people with sepsis may have non-specific, non-localised presentations (for example, feeling very unwell).
- Pay particular attention to concerns expressed by the person and their family or carer.
- Take particular care in the assessment of people who might have sepsis if they, or their parents or carers, are unable to give a good history (for example, people with English as a second language or people with communication problems).



Assessment

Assess people with suspected infection to identify:

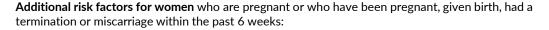
- possible source of infection
- risk factors for sepsis (see right-hand box)
- indicators of clinical of concern such as new onset abnormalities of behaviour, circulation or respiration.

Healthcare professionals performing a remote assessment of a person with suspected infection should seek to identify factors that increase risk of sepsis or indications of clinical concern.

Risk factors for sepsis

- The very young (under 1 year) and older people (over 75 years) or very frail people.
- Recent trauma or surgery or invasive procedure (within the last 6 weeks).
- Impaired immunity due to illness (for example, diabetes) or drugs (for example, people receiving longterm steroids, chemotherapy or immunosuppressants).
- Indwelling lines, catheters, intravenous drug misusers, any breach of skin integrity (for example, any
 cuts, burns, blisters or skin infections).

If at risk of neutropenic sepsis - refer to secondary or tertiary care



- gestational diabetes, diabetes or other comorbidities
- needed invasive procedure such as caesarean section, forceps delivery, removal of retained products of conception
- prolonged rupture of membranes
- close contact with someone with group A streptococcal infection
- · continued vaginal bleeding or an offensive vaginal discharge.



Sepsis not suspected

- no clinical cause for concern
- no risk factors for sepsis.

Use clinical judgement to treat the person, using NICE guidance relevant to their diagnosis when available.



SEPSIS SUSPECTED

If sepsis is suspected, use a structured set of observations to assess people in a face-to-face setting.

Consider using early warning scores in acute hospital settings.

Parental or carer concern is important and should be acknowledged.

Stratify risk of severe illness and death from sepsis using the tool appropriate to age and setting > > >

Sepsis risk stratification tool: people aged 18 and over in hospital

High risk criteria Moderate to high risk criteria Low risk criteria Behaviour: Behaviour: Normal behaviour • history from patient, friend or relative of new onset of objective evidence of new altered mental state No high risk or moderate to altered behaviour or mental state Heart rate: high risk criteria met history of acute deterioration of functional ability • more than 130 beats per minute No non-blanching rash Impaired immune system (illness or drugs, including oral steroids) Respiratory rate: Trauma, surgery or invasive procedures in the last 6 weeks 25 breaths per minute or more OR • new need for 40% oxygen or more to maintain Respiratory rate: 21-24 breaths per minute saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease) □ 91–130 beats per minute Systolic blood pressure: • for pregnant women, 100-130 beats per minute □ 90 mmHg or less **OR** New-onset arrhythmia more than 40 mmHg below normal Systolic blood pressure 91-100 mmHg Not passed urine in previous 18 hours, or for Not passed urine in the past 12-18 hours, or for catheterised catheterised patients passed less than 0.5 ml/kg of patients passed 0.5-1 ml/kg of urine per hour urine per hour Tympanic temperature less than 36°C Mottled or ashen appearance Signs of potential infection: Cyanosis of skin, lips or tongue redness Non-blanching rash of skin swelling or discharge at surgical site breakdown of wound 1 or more high risk Only 1 moderate to high risk Suspected sepsis, no high or high 2 or more moderate to high criteria met criterion met to moderate risk criteria met risk criteria met **OR** systolic blood pressure of 91-100 mmHg Clinical assessment Arrange immediate review by senior clinical decision maker Clinician review and consider Carry out venous blood tests and manage (emergency care ST4 or above or equivalent) blood tests within 1 hour for the following: according to clinical blood gas for glucose judgement Carry out venous blood tests for the following: and lactate blood gas for glucose and lactate blood culture blood culture full blood count full blood count C-reactive protein C-reactive protein urea and electrolytes urea and electrolytes creatinine Can creatinine clotting screen definitive condition be clotting screen YES diagnosed Clinician review and results and treated? Give intravenous antibiotics without delay (within a review within 1 hour maximum of 1 hour) Discuss with consultant NO Lactate 2 mmol/L or Lactate over 2 mmol/L less and no acute Lactate over OR kidney injury* 4 mmol/L OR Lactate less Lactate assessed as having systolic blood than 2-4 mmol/L acute kidney injury* definitive condition pressure less 2 mmol/L escalate to high risk diagnosed? than 90 mmHg Manage definitive Give intravenous fluid (500 ml condition. If Give intravenous Consider If no definitive condition over less than appropriate, fluid (bolus intravenous fluid identified, repeat structured 15 mins) without discharge with injection) (bolus injection) assessment at least hourly delay and within information without delay without delay depending on setting 1 hour and within and within Discuss with 1 hour 1 hour critical care Ensure review by a Carry out observations at least every 30 minutes or senior decision continuous monitoring in emergency department maker within * see NICE's guideline on 3 hours for Acute kidney injury (CG169) Consultant to attend (if not already present) if the person consideration of does not improve antibiotics