



Clinical Practice Guidelines: Medical/Sepsis

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Purpose	To ensure consistent management of patients with sepsis.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
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Sepsis is defined as ‘life-threatening organ dysfunction caused by a dysregulated host response to infection.’^[1] It is the primary cause of death from infection and a major cause of death worldwide.^[2] All sepsis cases require urgent attention. The annual incidence of adult sepsis treated in Australian Intensive Care Units has been estimated at 0.77/1000, corresponding to more than 15 700 new cases each year,^[2] with an estimated cost of \$39 300 per episode.

Using a standardised screening and treatment pathway has been shown to significantly decrease the time it takes to recognise sepsis and deliver appropriate treatment.

‘Severe sepsis’ and ‘Systemic Inflammatory Response Syndrome’ (SIRS) criteria are no longer considered when defining sepsis. New definitions were released in 2016^[1] which offer greater consistency and improved processes for the early recognition and management of patients with, or at risk of developing sepsis.

The Third International Consensus Definition for Sepsis and Septic Shock (Sepsis-3)^[1] provides the following updated terms and definitions:

Sepsis (organ dysfunction + infection): Life-threatening organ dysfunction caused by a dysregulated host response to infection (mortality 10–12%).

Septic shock (shock + infection): A subset of sepsis with profound circulatory, cellular and metabolic abnormalities (mortality 20–23%).

There is no one clinical feature or pathology test that reliably identifies sepsis, but rather the diagnosis is made based on a combination of various vital sign abnormalities and clinical features.

Clinical features



ADULT^[3]

High risk (for sepsis **OR** septic shock):

- Respiratory rate greater than 25 breaths/min
- Systolic BP less than 90 mmHg (or a drop of greater than 40 mmHg from normal)
- Heart rate is equal to or greater than 130 beats/min
- Needs oxygen to maintain SpO₂ greater than 92%
- Non-blanching rash/mottled/ashen/cyanotic
- Deterioration in mental status (from normal)
- Recent chemotherapy
- Anuria in last 18 hours **OR** significantly reduced urine output

Moderate risk (for sepsis):

- Respiratory rate 21–24 breaths/min
- Systolic BP 90–99 mmHg
- Heart rate 90–129 beats/min **OR** new dysrhythmia
- Temperature less than 35.5°C or greater than 38.4°C
- Anuria in last 12–18 hours **OR** significantly reduced urine output
- Acute deterioration in functional ability

Clinical features (cont.)



PAEDIATRIC^[4]

High risk (for sepsis **OR** septic shock):

- Severe tachycardia or bradycardia
- Severe respiratory distress/tachypnoea/apnea
- Needs oxygen to maintain SpO₂ greater than 92%
- Hypothermia
- Non-blanching rash/mottled ashen/cyanotic
- Altered GCS/AVPU

Moderate risk (for sepsis):

- Moderate tachycardia
- Moderate respiratory distress/tachypnoea
- Capillary refill greater or equal to 3 seconds
- Hypoglycaemia
- Unexplained pain or restlessness
- Pale or flushed/mottled/cold extremities
- Reduced urine output.

Risk Assessment



Red flags: (for sepsis **OR** septic shock):

- Re-presentation to a health care professional within 48 hours
- Age less than 3 months **OR** greater than 65 years
- Recent trauma or surgery/invasive procedure/wound within last 6 weeks
- Indwelling medical devices (e.g. IDC)
- Immunocompromised/asplenia/neutropenia/unimmunised
- Parental/family/health care professional concern for the patient
- Aboriginal or Torres Strait Islander/Pacific Islander/Maori cultural backgrounds

Risk Assessment (cont.)



- Early hospital pre-notification **MUST** occur with any patient presenting with 2 or more altered vital signs, based on the following criteria:

Vital Sign	< 1 yr	1–4 yrs	5–11 yrs	12–15 yrs	≥ 16 yrs
Temperature	≤ 35.0° C or ≥ 38.5° C	≤ 35.0° C or ≥ 38.5° C	≤ 35.0° C or ≥ 38.5° C	≤ 35.0° C or ≥ 38.5° C	≤ 35.0° C or ≥ 38.5° C
Respiration Rate	< 20 or > 50	< 15 or > 40	> 40	> 30	> 25
Heart Rate	< 90 or > 170	< 80 or > 160	< 70 or > 150	< 45 or > 130	< 40 or > 110
Systolic BP	≤ 65	< 70	< 75	< 85	≤ 90
AVPU	Pain	Pain	New Confusion	New Confusion	New Confusion



Additional information

- Sepsis should be considered for any deteriorating patient.
- **Note:** Recognition of sepsis may be impeded by **Cognitive Bias**, that is, the possibility of sepsis is often not considered in young, fit and otherwise healthy individuals.

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