Temperature Measurement for Critically Ill Adults

**ASSESSMENT & CLINICAL PRACTICE**

1. Critically ill unstable patients (see table 1) require continuous invasive temperature (using brain, intra-vascular or urinary bladder) monitoring that is recorded at least hourly. **Grade B**

2. Complex patients (see table 1) require invasive temperature (using brain, intra-vascular or urinary bladder) measurement that is recorded at least second hourly. **Grade B**

3. For routine monitoring of stable patients (see table 1) measurement of temperature using either oral or axillary methods are required at least four-hourly. **Grade C**

4. Tympatic or temporal artery temperature measurement methods should not be used as these methods do not accurately reflect core body temperature. **Grade B**

**INFECTION PREVENTION**

5. Clinicians should undertake a risk assessment to identify the risk of contamination and mucosal or conjunctival splash injuries when taking a patient's temperature; and PPE (including goggles, face shield, gloves and gown/apron) as per NSW 2007 infection prevention control policy should be worn accordingly. **National and NSW Policy**

6. The 5 moments of hand hygiene must be adhered to. **Hand hygiene Policy**

7. To reduce the risk of microbial transmission ICUs should consider having either an electronic thermometer at each bed area OR disposable single use thermometers. **Consensus**

8. To reduce the risk of microbial transmission where patients are considered stable but are isolated ICUs might consider the use of disposable single use thermometers. **Consensus**

9. Electronic thermometers must be cleaned between patients. This includes where equipment is shared between bed areas and when a patient is discharged. **Consensus**

10. Clinicians should refer to state or local IDUC management guidelines to minimise CAUTI. **Consensus**

**GOVERNANCE**

11. To facilitate rapid detection and treatment of abnormal temperatures ICUs should consider developing standard definitions and interventions for hyperthermia and hypothermia. **Consensus**

12. Fever control including administration of anti-pyretics should not be commenced without consultation with senior medical officers. **Consensus**

13. Staff should receive education on correct use and calibration of equipment. **Consensus**

14. Education related to temperature measurement should be included in patient assessment practices. **Consensus**

15. Evaluation of adherence to this guideline should be incorporated into the audit of clinical practices related to patient assessment. **Consensus**

**SUMMARY TABLE**

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Measurement method</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critically ill unstable patients</td>
<td>Continuous invasive temperature using brain, intra-vascular, or urinary bladder</td>
<td>Temperature recorded at least hourly</td>
</tr>
<tr>
<td>Complex patients</td>
<td>Continuous invasive temperature using brain, intra-vascular, or urinary bladder</td>
<td>Temperature recorded at least second-hourly</td>
</tr>
<tr>
<td>Routine monitoring of stable patients</td>
<td>Continuous urinary bladder (if IDUC instill), oral or axillary</td>
<td>Temperature recorded at least fourth-hourly</td>
</tr>
</tbody>
</table>

**Grading of Recommendations**

- **A** Body of evidence can be trusted to guide practice
- **B** Body of evidence can be trusted to guide practice in most situations
- **C** Body of evidence provides some support for recommendations but care should be taken in the application
- **D** Body of evidence is weak and recommendation must be applied with caution

**CONSENSUS** Expert opinion where consensus was set as a median of ≥ 7 (Likert 1-9)

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**CLINICAL CONSIDERATIONS WHEN CHOOSING A METHOD**

<table>
<thead>
<tr>
<th>Method</th>
<th>Clinical considerations</th>
<th>Potential problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>Probe should be in non-injured tissue</td>
<td>Highly invasive, reading may be influenced by injury/ischaeemia</td>
</tr>
<tr>
<td>Direct blood PA, PICCO</td>
<td>Requires aseptic insertion and should be removed when there is no longer an indication</td>
<td>Blood stream infection</td>
</tr>
<tr>
<td>Urinary catheter</td>
<td>Requires aseptic insertion and should be removed when there is no longer an indication for urine measurement</td>
<td>May be effected by urine output (the effects of oliguria on accuracy are unknown</td>
</tr>
<tr>
<td>Oesophageal</td>
<td>Probe needs to be located within distal third of oesophagus (confirmed by CXray to be within cardiac shadow)</td>
<td>Can take significant time to insert</td>
</tr>
<tr>
<td>Rectal</td>
<td>Tip should be 4cm inside rectum (23)</td>
<td>Presence of hard faeces impairing placement, inflammation around rectum &amp; heat producing</td>
</tr>
<tr>
<td>Oral</td>
<td>Must be placed in posterior sublingual pocket (perfused by branch of external carotid)</td>
<td>Oral or mouth breathing, administration of oxygen or warmed gases via an ETT do not effect accuracy</td>
</tr>
</tbody>
</table>

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