Nursing Procedure: Measuring and Monitoring Temperature in the Highly Dependent or Critically Ill Infant or Child - Rectal Temperature

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<td>Replaces previous version:</td>
<td>July 2013</td>
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1. Introduction

Temperature measurement is a commonly used assessment parameter when caring for acutely and critically ill children. In the critically ill child an abnormal temperature may reflect changes in their physiological status. Therefore, temperature measurement and temperature trends must be accurate and consistent, as decisions about therapeutic intervention may be based upon it.

Pulmonary artery temperature measurement was considered to be the ‘gold standard’ for measuring core body temperature. However, in practice this is too invasive and not a practical method of thermometry. Instead, body temperature is usually measured from a site, or ‘shell’ sites that are thought to reflect the core temperature. The site and measuring device chosen is based upon a number of factors including age, clinical condition, degree of accuracy required, safety and ease of use. It is responsibility of the nurse to determine the best method for monitoring patient temperature and to use the temperature monitoring device correctly. Whichever site/equipment chosen, the nurse must be aware of the benefits and limitations of each.

This nursing procedural guideline is intended as a resource for nursing staff involved in caring for children in the Paediatric Critical care unit that require monitoring and measurement of body temperature. The guideline has been constructed after literature search and review of sourced textbooks, National and International professional guidelines and recommendations, Medline and CINHAL, and external nurse expert peer review and opinion. See also recommendations and further information at end of this guideline.

2. Scope

This nursing procedural guideline is intended to be followed by nurses involved in caring for the highly dependent or critically ill infant or child requiring body temperature monitoring within the Paediatric Critical Care unit at the Royal Hospital for Children, Glasgow.

3. Roles and responsibilities

All nursing staff involved in the measuring and monitoring of temperature in the Paediatric Critical Care unit should be familiar with this nursing procedural guideline.
4. BODY OF NURSING PROCEDURE

Equipment:

Disposable indwelling latex free temperature probe  
E.g. Henleys - REF4491H or GE Disposable probe 400 series (compatible with Paediatric Critical Care Phillips monitoring system)  
Sachet of Optilube™ or similar water-based lubricant  
Disposable apron  
Adhesive tape/dressing – to secure probe in position  
Disposable gloves

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<th>PROCEDURE:</th>
<th>RATIONALE</th>
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<tr>
<td>Provide age appropriate explanation to child (where applicable) and/or parents</td>
<td>To ensure the child (and parent) understand need for and consent to indwelling rectal probe use.</td>
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<td>Before inserting probe wash hands thoroughly with appropriate antibacterial skin cleanser and don disposable apron and gloves</td>
<td>To minimise the risk of cross infection.</td>
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<tr>
<td>Check disposable temperature measurement probe packaging is sealed and does not appear 'used' or opened.</td>
<td>To ensure that the probe is sterile, unused, not broken, suitable for use and to minimise the risk of cross infection.</td>
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<tr>
<td>Check expiry date on probe packaging prior to use.</td>
<td>Temperature probe may no longer be sterile if out of date.</td>
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<tr>
<td>The disposable single-patient use probe (lubricated) should be placed 2-3cm past the sphincter into the rectum (depending upon child or infant’s age or size).</td>
<td>To ensure the probe is the best position to obtain a more accurate rectal temperature.</td>
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<td>Once in correct position the probe should be secured to the infant or child’s leg with non-irritant tape.</td>
<td>There may be an increased risk of rectal ulceration and perforation in infants if the probe is in too far.</td>
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<td>The rectal temperature will be displayed continuously via the monitor and will automatically be recorded on the hour.</td>
<td>Securing the probe will help ensure it does not slip further in or out of the rectum thus affecting the temperature measurement and trend.</td>
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<td>The Clinical Information System will record whatever temperature is being monitored. It will not take account of other factors which may lead to an</td>
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Rectal Temperature  | Version: 3.0  | Page 3 of 7  |
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Each hour the nurse should check and validate (if accurate) the child's temperature inaccurate recording. For example, if the probe has slipped out. It is vital that the nurse checks the temperature ‘recorded’ and adds comments or events where applicable.

RECOMMENDATIONS & PRECAUTIONS:
The rectal site for temperature measurement has been routinely used in clinical practice for temperature assessment in infants and very young children where it has not been possible to use a pulmonary artery catheter. It can be a favourable estimate of core temperature when body temperature does not fluctuate greatly and is a commonly used site in scientific research. Rectal thermometry (with a disposable indwelling probe) is widely used in paediatric and neonatal intensive care units despite its limitations, as it provides a continuous temperature reading or trend without being influenced greatly by changes in ambient temperature. The use of a disposable probe rather than mercury or digital thermometer also helps reduce the risk of cross infection. However, the nurse must be aware of the limitations of rectal thermometry if choosing this method of temperature monitoring.

There are documented risks when using rectal thermometry and these include discomfort, rectal perforation in neonates (rarely) and dissemination of rectal pathogens. With this in mind the nurse should consider whether rectal thermometry is appropriate for specific critically ill infants/children. For example, those children who are immunocompromised, coagulopathic or have had rectal trauma/surgery.

Rectal temperature also varies depending upon the site in the rectum where the measurement is taken and the accuracy can be affected by the presence of faeces in the rectum. Rectal thermometry readings can be unreliable where there are extremes of temperature. In shock states where there is poor perfusion to the rectum or in the presence of fever, a 'lag' in rectal temperature reading compared to other temperature sites, including pulmonary artery, has been reported.

If the nurse finds any abnormal temperature measurements using a rectal temperature monitoring probe, then this must be redone as a check and also consider another method & site of thermometry.

5.
This nursing procedural guideline should be reviewed every two years from date of approval.
6. References


A Communication and Implementation Plan

R.H.C. Nursing Policy Group
PICU Clinical Guidelines group
PICU Band 7 nursing staff, Band 6 nursing staff and nursing teams

B Monitoring

Monitoring the implementation of this nursing procedural guideline should be by Lead nurse, Band 7, Band 6 and Band 5 experienced PICU clinical nursing staff. Monitoring of any adverse events related to rectal thermometry should be documented via critical incident reporting.

C Impact Assessment

EQIA not relevant to this nursing procedural guideline as there are no discriminatory practices identified in implementing this guideline.