Temperature Monitoring Standards in Paediatrics

Helen Edwards RN MN, Maureen Maloney RN MA

Introduction

Temperature monitoring is a basic vital sign performed frequently on children to determine their acuity of illness and whether there is the requirement for a new treatment or change in regime. At The Hospital for Sick Children, a comprehensive project was undertaken to develop temperature monitoring standards/practices/policies and recommend technology for purchase that would reflect and support the new practices. A Temperature Monitoring Task Force, with wide representation from Physicians, Nurses, Medical Engineering, as well as extensive consultation with Infection Control, Infectious Diseases, Surgery, Medicine, Emergency and Neonatology, was established to guide the project and meet the objectives.

Evidence-Based Standards

The most significant change in practice is the shift from axilla temperature measurements to more appropriate route choices:

- **Rectal Route**
  - Neonate to whenever able to safely have an oral temperature taken
  - Oral Route
    - whenever able to safely have an oral temperature taken
    - approximately 3 to 5 years old until adulthood

- **Axilla Route**
  - only when the other routes are contraindicated

**Important Considerations related to the new standards:**
- consistent route for accurate trending
- decreasing temperature frequency for stable patients / clustering care
- educating parents, who frequently use non-invasive methods of temperature measurement at home

**Axilla Temperature Measurements:**
- are not reliable in detecting fevers
- are not an accurate reflection of core temperatures
- can be influenced by changes in environmental temperature

**Rectal Temperature Measurements:**
- are most comparable to core measurements
- pose minimal risk for rectal perforation in neonates with newer and faster technologies and proper technique, compared to old mercury thermometers

**Tympanic Temperature Measurements:**
- are technique dependent
- are not reliable, especially in a paediatric population

**Benchmarking** with numerous comparable paediatric institutions revealed:
- There was a great variation in types of thermometry as well as guidelines
- Many hospitals were experiencing similar challenges in the development of guidelines and choice of thermometers
- We were able to validate a number of the contraindications to rectal, oral and axilla temperature measurements

**Implementation/Education**

The practice changes and new thermometers were rolled out to the clinical areas on an area-by-area basis, over a period of four weeks. Education was focused on the changes in practice and the new technology.

**Practice Changes**
- Nurse Educators received a Power Point presentation that could be adapted to suit the given clinical area
- SuperUser classes were offered to identified nursing staff in clinical leadership positions in the hospital to ensure some “local” experts
- An online tutorial provided highlights of the new standards and a link to the policy document.

**New Thermometers**
- Vendor provided in service/support over the length of the implementation
- Online tutorial on the new thermometers

**Evidence-Based Standards**

**Focuses on determining if practice was shifting to**
- temperature measurement routes that best reflected the child’s core temperature

**Compared to the practice review done at the beginning of this project, the number of "axilla only" temperature measurements decreased from 53% to 27%. However, there is still a tendency for nurses to utilize axilla temperature routes even when there are no clear contraindications to the rectal or oral route. In addition, nurses are not always using a consistent route.

To address these practice issues, we plan to reinforce the new standards in collaboration with the Nurse Educators and will follow up with further evaluation in a few months.

**Evaluation**

**Key Success Factors**

- Executive Support - financial commitment
- Dedicated personnel
- Wide consultation efforts to ensure broad representation in development of new standards
- Use of existing approval processes to ensure organizational acceptance
- Collaboration with many other departments in the hospital to ensure a coordinated effort to implement – Medical Engineering, Plant Operations, Housekeeping
- Committed partnership with the thermometer vendor to ensure a comprehensive training program and go-live support