Body temperature is useful in monitoring health and illness as it reflects the ability to manage heat loss and gain. Its measurement is an essential part of assessment and monitoring in many clinical environments.

**CONTROL OF TEMPERATURE**

Humans are described as homio-thermic, or having a core temperature that remains constant within a specific range, in spite of environmental changes (Dougherty and Lister, 2004).

The maintenance of body temperature is essential and is achieved through negative feedback, in that any variation in temperature produces a physiological response to bring it back to a set point (around 37°C). The centre for controlling this is in the hypothalamus of the brain (Tortora and Grabowski, 1996).

Fluctuations in temperature occur naturally as a result of:
- Circadian rhythms;
- Age, particularly in babies as their ability to thermo-regulate is immature;
- Exertion/exercise;
- Hormonal balance, for example ovulation.

Hypothermia (a temperature below 35°C) occurs where the mechanisms to create heat production are ineffective. Causes include:
- Exposure;
- Metabolic derangement;
- Medication or alcohol;
- Deteriorating physiological function, for example in shock/systemic inflammatory response syndrome.

Temperatures below 35°C, or a trend of decrease towards this level should prompt appropriate reporting, in line with any early warning scoring systems.

Hyperthermia (a temperature above 37.5°C) occurs as a result of a resetting of the temperature set point caused by the release of pyrogens from certain cells, usually as a result of cellular ingestion of bacteria. The most predominant cause of hyperthermia is infection. Other causes may include:
- Medication;
- Central nervous system insult;
- Systemic inflammatory response syndrome.

Temperatures above 37.4°C, or a trend of temperature increase towards and above this level should prompt appropriate reporting, in line with any early warning scoring systems.

**TEMPERATURE MONITORING SITES**

There has been much debate over the accuracy of different sites compared with the gold standard of temperature measurement, the pulmonary artery catheter, which is only used in a small group of critically ill patients.
Ultimately there will be a difference between sites but this is not necessarily consistent or predictable (Pursell, 2007). Nurses should be aware of any influences on accuracy of the method recommended by their organisation and should ensure both method and site are consistent and documented to accurately record fluctuations.

**ORAL TEMPERATURE MEASUREMENT**

The thermometer is placed in the posterior sublingual pouch on either side of the mouth. The dwell time is directed by the specific manufacturer’s recommendations. Recent ingestion of food, high respiratory rates and smoking may all affect oral temperature. The role of oxygen flow in producing cold gas currents has also been investigated as a factor in causing erroneous data and should be considered if spurious results, or results that are incongruent with the patient’s other clinical assessment data occur. As with all clinical assessment data, measured values should be viewed as part of a trend, or fluctuation from baseline values.

Oral thermometers may be:
- Single-use plastic strips (Fig 1) with heat-sensitive pads that react (change colour) to heat at certain temperatures. They are cheap, easy to use and unlikely to transmit infection;
- Digital probes (Fig 2), which may be more responsive to fluctuations in temperature within lower ranges. Used with disposable covers they are also unlikely to transmit infection but they must be cleaned according to manufacturers’ recommendations. These devices are relatively inexpensive.

**THE PROCEDURE**

- Ensure you have all the equipment required – disposable gloves and apron, thermometer and patient documentation.
- Obtain informed consent for the procedure.
- Check product expiry dates.
- Wash hands.
- Don plastic apron and disposable gloves.

**For single-use thermometers**

- Place the sensor downwards (dot side) into the posterior sublingual pouch.
- Leave for the recommended time.
- Remove and read temperature immediately as per the manufacturer’s instructions (Fig 3).
- Dispose of thermometer.

**For digital thermometers**

- Apply disposable slip to thermometer.
- Place sensor under the patient’s tongue into the posterior sublingual pouch (Fig 4).
- Leave for the recommended time.
- Remove and read temperature immediately as per the manufacturer’s instructions (Fig 5).
- Dispose of thermometer cover, clean thermometer as instructed.

**After the procedure**

- Wash hands.
- Document result, and any data that may have influenced readings (Fig 6).
- Report as necessary.

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**REFERENCES**

