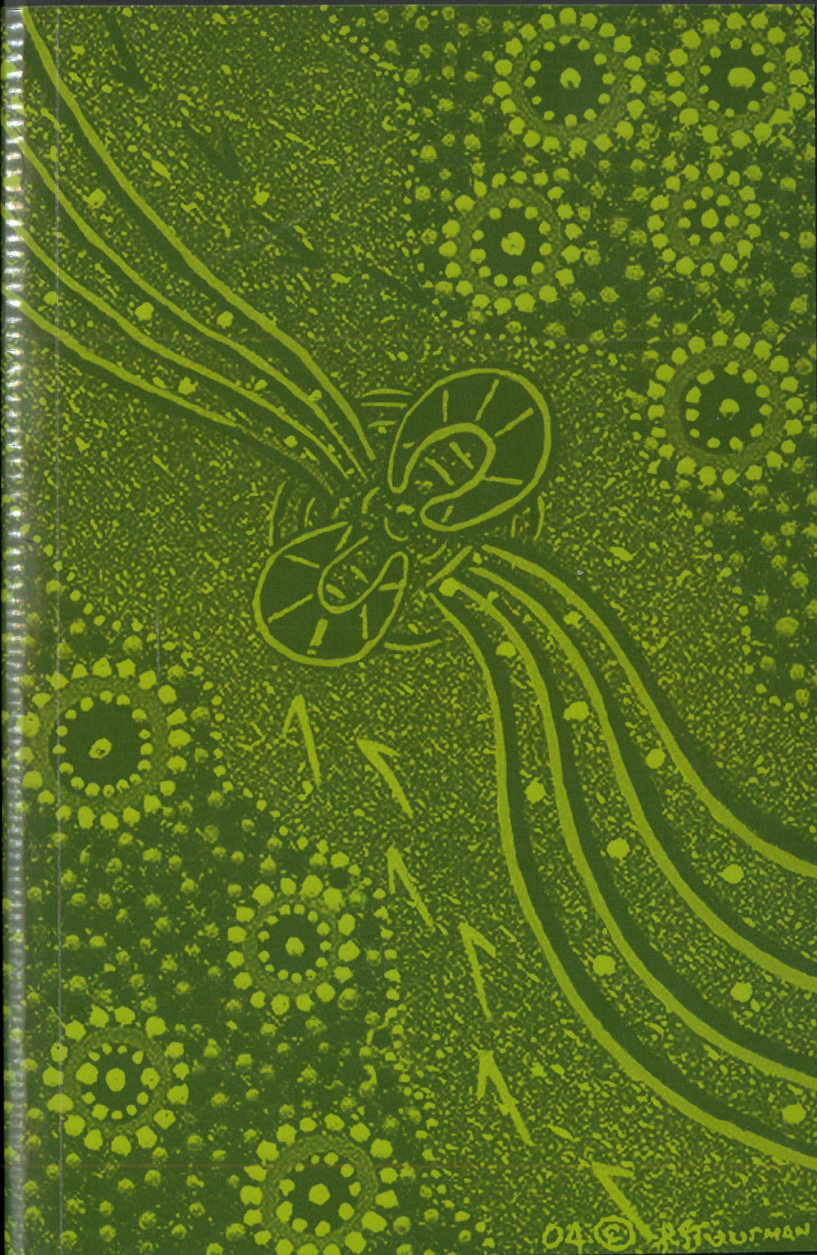


KOZIER AND ERB'S

# Fundamentals of Nursing



VOLUME TWO

**Second Australian Edition**

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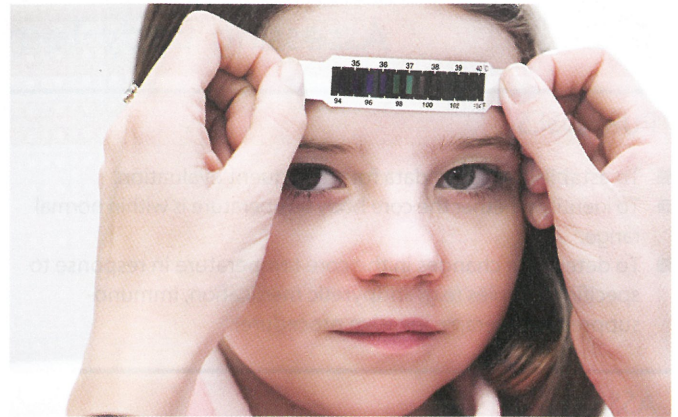
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time specified by the manufacturer (e.g. 15 seconds), a colour appears on the tape. This method is particularly useful at home and for infants whose temperatures are to be monitored.

*Infrared thermometers* sense body heat in the form of infrared energy given off by a heat source which, in the ear canal, is primarily the tympanic membrane (see Figure 30.25). The infrared thermometer makes no contact with the tympanic membrane.

*Temporal artery thermometers* determine temperature using a scanning infrared thermometer that compares arterial temperature in the temporal artery of the forehead with the temperature in the room and calculates the heat balance to approximate the core temperature of the blood in the pulmonary artery. The probe is placed in the middle of the forehead and then drawn laterally to the hairline. If the patient has perspiration on the forehead, the probe is also touched behind the earlobe so the thermometer can compensate for evaporative cooling (see Figure 30.26).

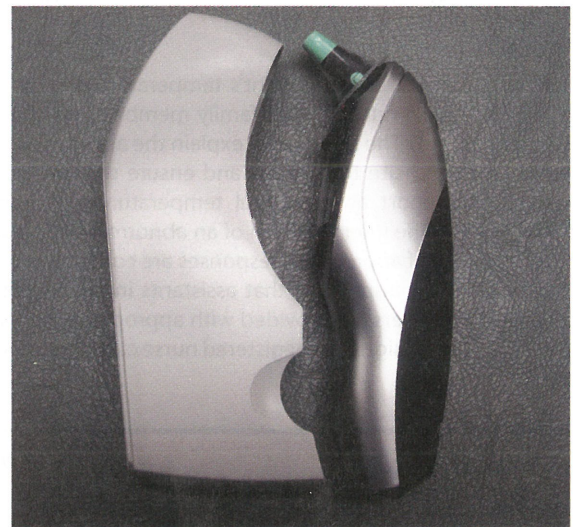
Skill 30.7 explains how to assess body temperature.



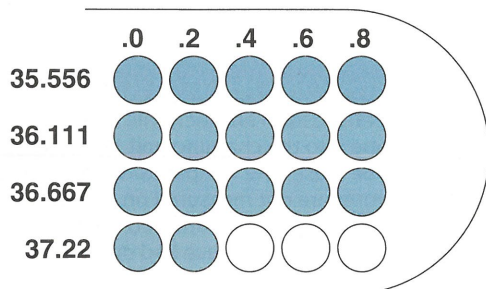
**Figure 30.24** ■ A temperature-sensitive skin tape.  
Source: © Image Source/Corbis.



**Figure 30.22** ■ Oral thermometer.  
Source: Welch Allyn



**Figure 30.25** ■ An infrared (tympanic) thermometer used to measure the tympanic membrane temperature.



**Figure 30.23** ■ A chemical thermometer showing a reading of 37.22°C.



**Figure 30.26** ■ A temporal artery thermometer.  
Source: Exergen Corporation. All rights reserved.

**Axillary**

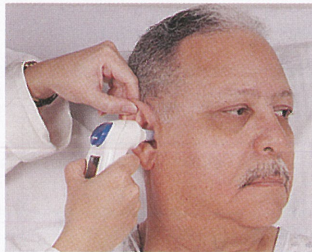
Pat the axilla dry if very moist.  
The bulb is placed in the centre of the axilla. ③



③ Placing the thermometer in the centre of the axilla  
Source: Patrick Watson.

**Tympanic**

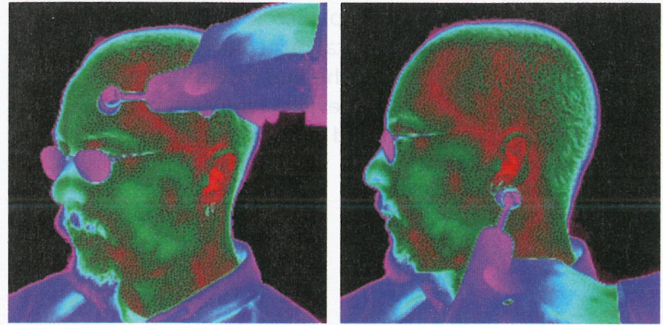
Pull the pinna slightly upward and backward. ④  
Point the probe slightly anteriorly, towards the eardrum.  
Insert the probe slowly using a circular motion until snug.



④ Inserting the tympanic thermometer

**Temporal artery**

Brush hair aside if covering the area. With the probe flush on the centre of the forehead, depress the red button; keep depressed. Slowly slide the probe midline across the forehead to the hair line, not down the side of the face. ⑤ Lift the probe from the forehead and touch on the neck just behind the earlobe. ⑥ Release the button.



⑤ ⑥ Positioning a temporal artery thermometer

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## Alterations in Body Temperature

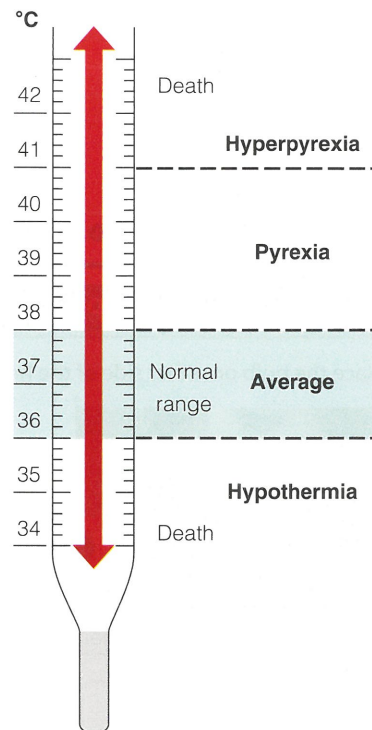
There are two primary alterations in body temperature: pyrexia and hypothermia.

### Pyrexia

A body temperature above the usual range is called **pyrexia** or (in lay terms) **fever**. A very high temperature, such as 41°C, is called **hyperpyrexia** (see Figure 30.27). A person who has pyrexia is said to be **febrile** while a person who has a normal temperature is described as **afebrile**.

There are four common types of fevers:

1. **Intermittent fever** occurs when the body temperature alternates at regular intervals between periods of fever and periods of normal or subnormal temperatures. An example of when intermittent fever occurs is with the disease malaria.
2. **Remittent fever** occurs typically in conditions such as a cold or influenza, whereby there is a wide range of above-normal temperature fluctuations (i.e. more than 2°C) over a 24-hour period.
3. **Relapsing fever** occurs when there are short febrile periods of a few days interspersed with periods of 1 or 2 days of normal temperature.
4. **Constant fever** occurs when the body temperature fluctuates minimally but always remains above normal. This can occur with typhoid fever.



**Figure 30.27** ■ Terms used to describe alterations in body temperature (oral measurements) and ranges in Celsius scale.