Measuring and Recording Temperature

Measurement of balance between heat lost and produced by the body.
Lost through:

- Perspiration
- Respiration
- Excretion

Produced by:
- Metabolism of food
- Muscle and gland activity

Homeostasis = balance
If the body temperature is too high or too low, homeostasis is affected.

F = Fahrenheit
C = Celsius or Centigrade

Temperature is usually higher in the evening.
Parts of the Body Where Temperature Can Be Taken

**Oral**  In the mouth  
Glass or electronic  
Most common  
Normal 98.6º F  
(97.6 – 99.6º F or 37º C)

**Rectal**  Most accurate  
Normal 99.6º F

**Axillary**  Armpit or groin  
Normal 97.6º F

**Aural**  In the ear or external auditor canal  
Uses different modes  
Usually in less than 2 seconds  
Normal 98.6º F
Factors that ↑ body temperature
- Illness
- Infection
- Exercise
- Excitement
- High temperatures in the environment

Factors that ↓ body temperature
- Starvation or fasting
- Sleep
- Decreased muscle activity
- Exposure to cold in the environment
- Certain diseases

**Hypothermia** ↘ Below 95º F
- Caused by prolonged exposure to cold
- Death when temp below 93º F

**Fever** ↗ Elevated temperature, above 101º F

**Hyperthermia** ↘ Elevated temperature, above 104º F
- Caused by prolonged exposure to hot temperatures, brain damage, or serious infection
- Temperatures above 106º F can lead to convulsions and death
Measuring and Recording Temperatures

Clinical (glass) thermometer contains mercury
Comes in oral, security, and rectal

Electronic can be used for oral, rectal, axillary or groin
Most have disposable probe cover

Tympanic placed in auditory canal
Taker pushes the scan button

Paper or plastic are used in some hospitals
Contain special chemicals or dots that change colors

To record temperature:
• 98° is an oral reading
• 99° (R) is a rectal reading
• 97° (Ax) is an axillary reading
• 98° (T) is an aural reading

Eating, drinking hot or cold liquids, or smoking can alter oral temperature. Be sure it has been 15 minutes since the patient did any of those things before taking the temperature.
Measuring and Recording Pulse
The pressure of blood pushing against the wall of an artery as the heart beats and rests.
Apical Pulse

- Taken with a stethoscope at the apex of the heart
- Actual heartbeat heard and counted
- Tips of earpieces and diaphragm of stethoscope should be cleaned with alcohol before use
- Heart sounds heard resemble “lubb-dupp”
Pulse Terminology

Bradycardia – Under 60 beats per minute

Tachycardia – Over 100 beats per minute

Rhythm – Regularity of the pulse (regular or irregular)

Volume – Strength or intensity (strong, weak, thready, or bounding)

Pulse can be increased by:
- Exercise
- Stimulant drugs
- Excitement
- Fever
- Shock
- Nervous tension

Pulse can be decreased by:
- Sleep
- Depressant drugs
- Heart disease
- Coma
Measuring and Recording Respiration

Process of taking in Oxygen ($O_2$) and expelling Carbon Dioxide ($CO_2$)

1 inspiration + 1 expiration = 1 respiration

Normal rate = 14 – 18 per minute

Character – depth and quality of respirations
- Deep
- Shallow
- Labored
- Difficult
- Sterterous
- Moist

Dyspnea – difficult or labored breathing
Apnea – absence of respirations
Cheyne-Stokes – periods of dyspnea followed by periods of apnea; noted in the dying patient
Rales – bubbling or noisy sounds caused by fluids or mucus in the air passages

🌟 Leave your hand on the pulse while counting respirations and be sure the patient doesn’t know you are counting the respirations.
Measuring and Recording Blood Pressure

- Measure of the pressure blood exerts on the walls of arteries
- Blood pressure read in millimeters (mm) of mercury (Hg) on an instrument known as a sphygmomanometer

**Systolic:** Pressure on the walls of arteries when the heart is contracting.
Normal range – 100 to 140 mm Hg

**Diastolic:** Constant pressure when heart is at rest
Normal range – 60 to 90 mm Hg

Factors that ↑ blood pressure
- Excitement, anxiety, nervous tension
- Stimulant drugs
- Exercise and eating

Factors that ↓ body temperature
- Rest or sleep
- Depressant drugs
- Shock
- Excessive loss of blood

Blood pressure is recorded as a fraction.
Sphygmomanometers: Usually aneroid or mercury, although many hospitals are using electronic.
Measuring/Recording Height and Weight

- Used to determine if a patient is underweight or overweight
- Height/weight chart used as averages
- + or - 20% considered normal

When are height-weight measurements routinely done in a health care setting?

Daily Weights

Usually ordered for patients with edema due to heart, kidney, or other diseases.

Be sure to:
- Use the same scale every day
- Make sure the scale is balanced before weighing the patient
- Weigh the patient at the same time each day
- Make sure the patient is wearing the same amount of clothing each day
- OBSERVE SAFETY PRECAUTIONS! Prevent injury from falls and the protruding height lever.
Some people are weight conscious. Make only positive comments when weighing a patient.

Types of Scales

- Clinical scales contain a balance beam and measuring rod.
- Some institutions have bed scales or chair scales.
- Infant scales come in balanced, aneroid, or digital.

When weighing an infant…keep one hand slightly over but not touching the infant

A tape measure is used to measure infant height. One way to accomplish this is to:

1. Make a mark on the exam table paper at the top of the head.
2. Stretch out the infant's leg and make a mark the paper at the heel.
3. Use a tape measure to measure from mark to mark.
Positioning a Patient

- Medical exam table
- Surgical table
- Bed

Be sure you know how to operate the table!

- Paper covers are usually used on exam tables
- After use, tables are often cleaned with disinfectant
- During any procedure, reassure the patient
- Observe safety factors to prevent falls and injury
- Use correct body mechanics
- Observe the patient for signs of distress
- Protect the patient's privacy
Learn the purpose and procedure for the following positions:

- Horizontal recumbent (Supine)
- Prone
- Sims' (Left lateral)
- Knee-chest*
- Fowler's
  - Low-Fowler's
  - Semi-Fowler's
  - High-Fowler's
- Lithotomy
- Dorsal recumbent*
- Trendelenburg
- Jackknife*
Patient Assessment Techniques

- **Observation** (Inspection) Physician observes skin color, rash, growths, swelling, scars, deformities, body movements and general appearance.

- **Palpation** Use of hands and fingers to feel various parts of the body – to determine whether a part of the body is enlarged, hard, out of place, or painful to the touch.

- **Percussion** Physician taps and listens for sounds coming from various body organs. The sounds emitted allow a trained individual to determine the size, density, and position of underlying organs.

- **Auscultation** Physician listens to sounds coming from within the body, usually with a stethoscope.