

Chapter 25

Measurements

Lesson 25.1

- Define the key terms and key abbreviations in this chapter.
- Explain why vital signs are measured.
- List the factors affecting vital signs.
- Identify the normal ranges for each temperature site.
- Explain when to use each temperature site.
- Explain how to use thermometers.

Vital Signs

- Vital signs reflect three body processes:
 - Regulation of body temperature
 - Breathing
 - Heart function
- A person's vital signs:
 - Vary within certain limits
 - Are affected by many factors
 - Show even minor changes in the person's condition
 - Tell about responses to treatment
 - Often signal life-threatening events

Accuracy

- Accuracy is essential when you measure, record, and report vital signs.
 - If unsure of your measurements, promptly ask the nurse to take them again.
- Unless otherwise ordered, take vital signs with the person at rest lying or sitting.
- Report the following at once:
 - Any vital sign that is changed from a prior measurement.
 - Vital signs above or below the normal range.

Body Temperature

- Body temperature is the amount of heat in the body.
 - It is a balance between the amount of heat produced and the amount lost by the body.
 - Thermometers are used to measure temperature.
 - Fahrenheit (F) and centigrade or Celsius (C) scales are used.
 - Temperature sites are the:
 - Mouth
 - Rectum
 - Axilla (underarm)
 - Tympanic membrane (ear)
 - Temporal artery (forehead)
 - Each temperature site has a normal range.

Thermometers

- These types of thermometers are used:
 - Glass thermometers
 - Used for oral, rectal, and axillary temperatures
 - Electronic thermometers
 - Some have oral and rectal probes with disposable covers.
 - Tympanic membrane thermometers measure temperature at the tympanic membrane in the ear.
 - Temporal artery thermometers measure temperature at the temporal artery in the forehead.

Lesson 25.2

- Identify the pulse sites.
- Describe a normal pulse and normal respirations.
- Describe the practices for measuring blood pressure.
- Know the normal vital signs.
- Describe the 4 types of pain.

Lesson 25.2 (Cont.)

- Explain why pain is personal.
- List the signs and symptoms of pain.
- Explain how to prepare the person for weight and height measurements.
- Perform the procedures described in this chapter.
- Explain how to promote PRIDE in the person, the family, and yourself.

Pulse

- The pulse is the beat of the heart felt at an artery as a wave of blood passes through the artery.
 - A pulse is felt every time the heartbeats.
 - Pulse sites
 - The temporal, carotid, brachial, radial, femoral, popliteal, posterior tibial, and dorsalis pedis (pedal) pulses are on each side of the body.
 - The radial pulse is used most often.
 - The apical pulse is felt over the heart.
 - The apical pulse is taken with a stethoscope.
 - A stethoscope is an instrument used to listen to the sounds produced by the heart, lungs, and other body organs.

Using a Stethoscope

- To use a stethoscope:
 - Wipe the ear-pieces and diaphragm with antiseptic wipes before and after use.
 - Place the ear-piece tips in your ears.
 - The bend of the tips points forward.
 - Ear-pieces should fit snugly.
 - Tap the diaphragm gently.
 - If you do not hear the tapping, turn the chest piece at the tubing. Gently tap the diaphragm again.
 - Check with the nurse if you still do not hear the tapping.
 - Place the diaphragm over the artery. Hold it in place.
 - Prevent noise. Do not let anything touch the tubing.

Pulse Rate

- The pulse rate is the number of heartbeats or pulses felt in 1 minute.
 - The adult pulse rate is between 60 and 100 beats per minute.
 - Report a rate of less than 60 or more than 100 to the nurse at once.
- The rhythm of the pulse should be regular.
 - Pulses are felt in a pattern.
 - The same time interval occurs between beats.
- Force relates to pulse strength.
 - A forceful pulse is described as strong, full, or bounding.
 - Hard-to-feel pulses are described as weak, thready, or feeble.

Pulse Sites

- The radial pulse is used for routine vital signs.
 - Place the first 2 or 3 fingertips of one hand against the radial artery.
 - Count the pulse for 30 seconds and multiply the number by 2.
 - If the pulse is irregular, count it for 1 minute.
- The apical pulse is on the left side of the chest slightly below the nipple.
 - It is taken with a stethoscope.
 - Count the apical pulse for 1 minute.
 - Count each *lub-dub* as one beat.

Respirations

- Respiration means breathing air into (inhalation) and out of (exhalation) the lungs.
 - Each respiration involves 1 inhalation and 1 exhalation.
 - Respirations are normally quiet, effortless, and regular. Both sides of the chest rise and fall equally.
 - The healthy adult has 12 to 20 respirations per minute.
 - The person should not know that you are counting respirations.
 - Count respirations right after taking a pulse.
 - Count them for 30 seconds and multiply the number by 2.
 - If an abnormal pattern is noted, count respirations for 1 minute.

Blood Pressure

- Blood pressure is the amount of force exerted against the walls of an artery by the blood.
 - Systole is the period of heart muscle contraction.
 - Diastole is the period of heart muscle relaxation.
 - The systolic pressure is the pressure in the arteries when the heart contracts.
 - The diastolic pressure is the pressure in the arteries when the heart is at rest.
 - Blood pressure is measured in millimeters (mm) of mercury (Hg).
 - The systolic pressure is recorded over the diastolic pressure.

BP Normal Ranges

- Blood pressure has normal ranges:
 - Systolic pressure—Less than 120 mm Hg
 - Diastolic pressure—Less than 80 mm Hg
- Treatment is indicated for:
 - Hypertension (blood pressure measurements that remain above the normal range)
 - Hypotension (when the systolic pressure and the diastolic pressure are below the normal range)
- A stethoscope and a sphygmomanometer are used to measure blood pressure.
- Blood pressure is normally measured in the brachial artery.

Pain

- Pain means to ache, hurt, or be sore.
- Pain is a warning from the body.
- Pain is personal.
 - If a person complains of pain or discomfort, the person has pain or discomfort.
- There are different types of pain.
 - Acute pain is felt suddenly from injury, disease, trauma, or surgery.
 - Chronic pain lasts for a long time.
 - Radiating pain is felt at the site of tissue damage and in nearby areas.
 - Phantom pain is felt in a body part that is no longer there.

Signs and Symptoms

- Promptly report any information you collect about pain.
- The nurse needs this information:
 - Location
 - Onset and duration
 - Intensity
 - Description
 - Factors causing pain (precipitating factors)
 - Factors affecting pain
 - Vital signs
 - Other signs and symptoms

Weight and Height

- Weight and height are measured:
 - On admission to the agency
 - Daily, weekly, or monthly
- Standing, chair, bed, and lift scales are used.

Weight and Height Guidelines

- When measuring weight and height, follow these guidelines:
 - The person only wears a gown or pajamas.
 - No footwear is worn.
 - The person voids before being weighed.
 - Weigh the person at the same time of day.
 - Before breakfast is the best time.
 - Use the same scale for daily, weekly, and monthly weights.
 - Balance the scale at zero (0) before weighing the person.