


Chapter 12

Vital Signs



Lesson 12.1
(Slide 1 of 2)

1. Discuss the importance of accurate assessment of vital signs.
2. Identify the guidelines for vital signs measurement.
3. Accurately assess oral, rectal, axillary, and tympanic temperatures.
4. List the various sites for pulse measurement.

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Lesson 12.1
(Slide 2 of 2)

5. Accurately assess an apical pulse, a radial pulse, and a pulse deficit.
6. Describe the procedure for determining the respiratory rate.
7. Accurately assess the blood pressure.
8. State the normal limits of each vital sign.

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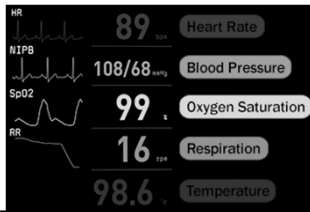
Vital Signs

- Includes temperature, pulse, respirations, and blood pressure
- Ability to obtain accurate measurements is critical
- Often provide the basis for problem-solving
- Many facilities are using fifth vital sign—pain level or comfort level



Guidelines for Obtaining Vital Signs

- The nurse must be able to do the following
 - Measure vital signs correctly
 - Understand and interpret the values
 - Communicate the findings appropriately



Temperature

(Slide 1 of 2)

- The body's regulation of temperature
 - A relative measure of sensible heat or cold
 - The body strives to maintain a temperature of 98.8° F (37° C), which is normal
 - Two types of body temperature
 - Core temperature
 - Surface temperature



Temperature

(Slide 2 of 2)

- Temperature measurements are obtained by several methods
 - Heat-sensitive patches
 - Electronic thermometers
 - Tympanic thermometer
 - Temporal artery method



7

Sites for Pulse Measurement

- The body's regulation of pulse
 - The pulse is the regular, recurrent expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the last ventricle of the heart as it contracts
- Major pulses include temporal, facial, carotid, brachial, radial, femoral, popliteal, posterior tibial, and dorsalis pedis; the pulses provide both general and specific information
- Auscultating the apical rate (apex of the heart) is essential on all cardiac patients

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8

Pulse

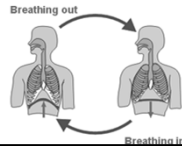
- Apical pulse is the actual beating of the heart
 - When auscultating the apical rate, the "lub-dub" that is heard represents one cardiac cycle, or heartbeat
- Radial pulse is measured in groove along radial side of forearm, lateral to flexor tendon of wrist
- Pulse deficit—difference between the radial and apical rates



9

Respiration

- Assessment of respiration
 - When assessing respirations, note the rate, depth, quality, and rhythm
 - Assessment of respirations is done by observing the movement of the diaphragm and the intercostal muscles
 - Dyspnea—breathing with difficulty



10

Blood Pressure

- Pressure exerted by the circulating volume of blood on the arterial walls, the veins, and the chambers of the heart
- Measured in millimeters of mercury (mm Hg)
- Systolic pressure/diastolic pressure
 - Pulse pressure
 - Cardiac output
 - Hypertension—blood pressure elevated
 - Hypotension—blood pressure below normal

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11

Normal Limits

- Temperature: 97° to 98.8° F (36.1° to 37.5° C)
- Pulse rate (adult): 60 to 100 beats per minute
- Respiratory rate (adult): 12 to 20 respirations per minute
- Blood pressure (adult): 120/80 mm Hg



12

Lesson 12.2

(Slide 1 of 2)

- 9. List the factors that affect vital signs readings.
- 10. Accurately assess the height and weight measurements.
- 11. Discuss optimal frequency of vital signs measurement.
- 12. Discuss methods by which the nurse can ensure accurate measurement of vital signs.

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13

Lesson 12.2

(Slide 2 of 2)

- 13. Identify the rationale for each step of the vital signs procedures.
- 14. Describe the benefits of and the precautions to follow for self-measurement of blood pressure.
- 15. Accurately record and report vital signs measurements.

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14

Factors that Affect Vital Signs

- Factors include (among others):
 - Environment
 - Age
 - Stress
 - Smoking
 - Time of day
 - Patient's state of health
 - Activity levels
 - Stage of monthly menstrual cycle



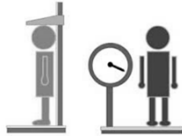
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15

Height and Weight

(Slide 1 of 2)

- Helps assess normal growth and development
- Aids in proper drug dosage calculation
- May be used to assess the effectiveness of drug therapy, such as diuretics
- Significant loss of weight may be a sign of an underlying disease



Height and Weight

(Slide 2 of 2)

- Obtaining weight measurements
 - Patients should be weighed the same time of day, on the same scale, and in the same type or amount of clothing
 - 1 liter of fluid = 1 kilogram (kg) = 2.2 pounds [lb]
 - A significant loss or gain of weight can point to an underlying disease
- Obtaining height measurements
 - Patient should remove shoes and stand erect
 - A measuring stick or tape may be attached vertically to the weight scales or wall
 - Standing scales may have a metal rod, which is attached to the back of the scale and swings out over the top of the patient's head

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17

When Vital Signs Are Assessed

- Temperature, pulse, respirations, and blood pressure are usually assessed at the same time at set intervals
- A set of vital signs is taken when the patient is admitted to the facility, and then as prescribed by the health care provider or as policy dictates
- Example: every 4 hours, once a shift, weekly
- The more ill the patient, the more frequently vital signs are taken

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18

Accuracy

- Be sure equipment used to measure vital signs (e.g., thermometer, stethoscope, sphygmomanometer) is in proper working condition to ensure accuracy of findings



19

Rationales for Each Step of the Process

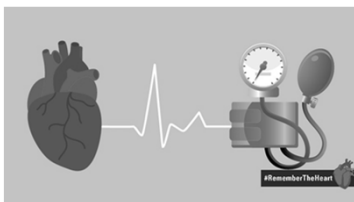
- Should be explained to patient before or during procedure
- See Skills 12.1 through 12.6.

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20

Self-Measurement of Blood Pressure

- Portable home devices
- Stationary automated machines
- Patient education



21

Recording Vital Signs

- Graphic flow sheet
 - Used for charting vital signs
 - "R" indicates a rectal temperature
 - "Ax" indicates an axillary temperature
 - Blood pressures are always written with the systolic first and the diastolic beneath
 - Example: 120/80
 - Apical pulse is indicated with an "ap" next to the number
 - Example: 78 ap



22
