Vital Signs
What they are and how to collect

Vital Signs Overview

Vital signs (vitals) are key indicators of the body's internal functions. By collecting and tracking these measurements over time, healthcare providers can assess the performance of critical organs such as the heart and lungs. Monitoring vital signs can help identify medical issues, and these readings are taken throughout a patient's life.

Step-by-Step Collection Instructions

Certified nursing assistants (CNAs), medical assistants (MAs), nurses, and other healthcare providers use standardized techniques to ensure consistent and accurate readings.

Heart Rate (Pulse)

Heart rate, or pulse, refers to how many times the heart beats in one minute (bpm). Normal resting heart rates typically range from 60 to 100 beats per minute, but can vary based on fitness level, health conditions, emotional state, and even environmental factors.

To manually measure heart rate:

1. Wash your hands.
2. Ensure the individual is resting.
3. The easiest pulse point to locate is the radial artery on the wrist near the thumb. Other locations include the brachial artery (inside the elbow), popliteal artery (behind the knee), or carotid artery (neck).
4. Using your first and second fingertips (not your thumb), apply gentle pressure until you detect the pulse.
5. Start counting when the second hand is at 12 on an analog clock or watch.
6. Count the pulse beats for a full minute or count for 15 seconds and multiply by 4 to find the bpm.
7. Focus on the beats rather than continuously checking the clock.
8. Record the result in the EHR under the Pulse section, noting the rate and rhythm. **For electronic collection, refer to the Oxygen Saturation section.**

Respiration Rate

Respiration rate, or breathing rate, indicates how many breaths a person takes per minute. This measurement should always be taken while the individual is at rest, with one respiration defined as one complete inhalation and exhalation. The normal range for adults is between 12 and 28 breaths per minute.

To measure respiration rate:

1. Wash your hands.
2. Place your fingers on the individual's wrist.
3. Count the number of breaths (inhalation + exhalation = 1 respiration) for one minute.
4. Document the results in the EHR under the Respiration section, including the rate and pattern.

Various factors such as fever, anxiety, illness, age, and sleep can influence breathing and respiratory rate. Changes in this rate can serve as early warning signs.

Body Temperature

Thermometers are used to measure body temperature, with digital (oral and tympanic) options being the most common.

Normal body temperature is around 98.6°F (37°C), but a range of 97.6°F (36.4°C) to 99.6°F (37.5°C) is acceptable. A temperature above 100.4°F (38°C) indicates a fever, while hypothermia is defined as a temperature below 95°F (35°C).

To measure body temperature with a digital thermometer:

1. Wash your hands.
2. Place a clean plastic shield over the thermometer tip.
3. Turn on the thermometer.
4. For oral measurement, place the thermometer under the tongue and ask the individual to close their mouth. For tympanic measurement, gently pull the outer ear up and back to open the canal, then insert the thermometer.
5. Wait for the beep indicating the reading is complete.
6. Record the result in the EHR under the Temperature section, noting the method used and selecting the electronically acquired option.
7. Clean the thermometer after use.

Blood Pressure

Blood pressure reflects how effectively blood flows through the circulatory system and is expressed as two numbers: systolic pressure (the force of blood during heartbeats) over diastolic pressure (the pressure in the arteries when the heart rests). Blood pressure is measured in mm Hg (millimeters of mercury).

Blood pressure is measured using a stethoscope, a sphygmomanometer (cuff), and either a digital or aneroid monitor.

For adults, systolic pressure should be under 130, and diastolic pressure under 85, recorded as 130/85. Low blood pressure is referred to as hypotension, while high blood pressure is called hypertension.

To measure blood pressure using a stethoscope and aneroid monitor:

1. Wash your hands.
2. Disinfect the stethoscope earpieces and diaphragm.
3. Ensure the blood pressure monitor is functioning properly.
4. Have the patient sit upright with both feet flat on the floor. Instruct them to stay still and not talk.
5. Locate the brachial pulse by feeling under the elbow.
6. Wrap the deflated cuff snugly around the upper arm, at least an inch above the pulse, allowing space for two fingers.
7. Insert the stethoscope earpieces and position the diaphragm over the brachial pulse.
8. Close the valve on the air pump by turning it clockwise.
9. Inflate the cuff until the dial reads 170.
10. Slowly open the valve to deflate the cuff while monitoring the dial.
11. Note the reading where the first thump is heard (systolic pressure) and where the last thump is heard (diastolic pressure).
12. Remove the cuff and document the readings in the EHR under the Blood Pressure section.

Electronic collection of vital signs

Blood pressure, heart rate, temperature, and oxygen saturation can also be collected electronically using a vital tower or individual units, following similar collection techniques:

1. Turn on the device and wait for it to start.
2. Ensure the patient is seated comfortably with both feet flat on the ground and instruct them to remain still and quiet.
3. Place the cuff around the upper arm with the tubing aligned.
4. Secure the cuff, ensuring you can fit two fingers between it and the arm.
5. Connect the machine's tubing to the cuff.
6. Attach the oxygen sensor to a finger on the opposite hand.
7. Place the thermometer under the patient's tongue and cover it.
8. Press the start button to begin the automatic collection of vitals.
9. Results will display on the screen.
10. Document the readings in the relevant sections of the EHR.

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