

Assessing Heart Rate

Overview

- Provides valuable data regarding the integrity of the cardiovascular system.
- The most common sites of heart rate measurement are the apical and radial pulses.
- Other sites include temporal, carotid, brachial, femoral, popliteal, posterior tibial, and pedal pulses.
- The pulse is assessed for rate, rhythm, strength, and equality

Preparation

- Patient should be resting for measurement.
- Factors such as exercise, anxiety, pain, and postural change should be controlled to obtain an accurate measurement of heart rate.
- Heart rate is affected by certain medications and disease processes.

Special Considerations

Pediatric Patients

- The most accurate site for pulse assessment in infants and small children is the apical site.
- Resting heart range for newborns ranges from 80 to 180 beats per minute.
- Children 1 to 3 years of age have a resting heart rate that ranges from 80 to 140 beats per minute. Children 6 to 8 year olds have a resting heart rate that ranges from 75 to 120 beats per minute.
- By 10 years of age, children have a resting heart rate that ranges from 50 to 90 beats per minute.

Elderly Patients

- The resting heart rate should range between 60 and 100 beats per minute in the healthy older adult.
- The healthy older adult has a normal cardiac rate and rhythm.
- Older adults with cardiovascular, pulmonary, or other chronic illnesses are at risk for rapid, slow, or irregular heart rate and rhythms, and their heart rates should be assessed with an apical pulse.

Equipment

- Wristwatch with second hand or digital display
- Stethoscope (for apical heart rate)
- Pen, pencil, and flow sheet or record form

Procedure

Radial Pulse Assessment

- Wash hands. *Reduces transmission of microorganisms.*
- Explain purpose and method of assessment to the patient. If the patient was recently active, wait 5 to 10 minutes. *This relieves patient anxiety and promotes cooperation. Activity and anxiety may increase patient's heart rate.*
- Have the patient get into a sitting or supine position. If in a supine position, place the patient's arm across lower chest with the wrist extended and palm down. If sitting, bend patient's elbow 90 degrees and support the lower arm on a chair or your arm. Extend the patient's wrist with the palm down. *Proper positioning of the arm fully exposes the radial artery for palpation.*
- Place the tips of the first two or three fingers of your hand over the groove along the radial or thumb side of the patient's inner wrist. *The fingertips are the most sensitive parts of the hand to palpate arterial pulsations. Avoid use of the thumb because it has pulsation and may interfere with accuracy.*
- Lightly compress your fingers against the radius, initially obliterate pulse, and then relax the pressure so that the pulse becomes easily palpable. *The pulse is assessed more accurately with moderate pressure. Too much pressure occludes the pulse and impairs the blood flow.*

- When the pulse can be felt regularly, use a watch's second hand or seconds elapsed display and begin to count the rate, starting with 0, then 1, etc. *The rate is accurately determined only after the assessor is certain that a pulse can be palpated. Timing should begin with 0 and the count of 1 is the first beat that is felt after the timing begins.*
- If the pulse is regular, count for 30 seconds and multiply by 2. *A 30-second pulse check is the most accurate for rapid pulse rates.*
- If the pulse is irregular, count for 1 full minute. *Counting for a full minute ensures an accurate count.*
- Assess regularity and frequency of any dysrhythmia. *Inefficient contraction of the heart fails to transmit a pulse wave and can interfere with cardiac output.*
- Determine the strength of the pulse. Note whether the thrust of the pulse against the fingertips is bounding, strong, weak, or thready. *The strength of the pulse reflects the volume of the blood that is ejected against the arterial wall with each contraction of the heart.*
- Assist patient to return to a comfortable position. *Promotes comfort.*
- Record characteristics of the pulse in the medical record or the flow sheet. Report any abnormalities to the physician. *This provides data for monitoring of changes in the patient's condition. Detection of abnormalities may determine the need for medical intervention.*

Apical Pulse Assessment

- Clean the earpieces and the diaphragm of the stethoscope with an alcohol swab. *This controls the transmission of microorganisms when nurses share a stethoscope.*
- Wash hands. *This reduces the spread of microorganisms.*
- Explain procedure to patient. If patient was recently active, wait 10 to 15 minutes before obtaining measurement. *This relieves anxiety and promotes patient cooperation. Activity and anxiety may increase the patient's heart rate.*
- Close the room door and/or draw curtains around the patient's bed. *This maintains patient privacy.*
- With the patient in a supine or sitting position, remove patient's upper garments to expose the sternum and left side of the chest. *This exposes the portion of the chest for selection of the auscultatory site.*
- Palpate the point of maximal impulse (PMI), located at the fifth intercostals space to the left of the sternum at the midclavicular line. *The use of anatomic landmarks allows the correct placement of the stethoscope over the apex of the heart. This position enhances the ability to hear heart sounds clearly. The PMI is located over the apex of the heart.*
- Place the diaphragm of the stethoscope in the palm of your hand for 5 to 10 seconds. *This warms the diaphragm and reduces the risk for startling the patient.*
- Place the diaphragm of the stethoscope over the PMI, and auscultate for normal S1 and S2 (lub, dub) heart sounds. *Heart sounds are the result of blood moving through the valves of the heart.*
- When S1 and S2 sounds are heard with regularity, observe the watch's second hand and count one sound (lub) for 30 seconds, then multiply the number by 2. *An accurate rate is determined only after the nurse is able to clearly auscultate the sounds.*
- If the heart rate is irregular or the patient is on cardiovascular medications, count for 1 full minute. *The rate is determined more accurately when heard over a longer period.*
- Replace patient's garments. *Provides comfort and privacy to the patient.*

□ Record characteristics of the pulse on the flow sheet. Report any abnormalities to the physician. *This provides data to monitor changes in the patient's condition. Abnormalities may require medical intervention.*

Apical-Radial Pulse Assessment (Two-nurse Technique)

- Explain the procedure to the patient. *This decreases the patient's anxiety.*
- Assist the patient into a supine position, and expose the chest area. *This exposes the portion of the chest wall for the site of the apical pulse.*
- Place a watch where it will be seen by both nurses. *This facilitates accuracy in the beginning and the ending.*
- Position one nurse to take the radial pulse. *Locates the radial pulse.*
- The second nurse places the stethoscope on the patient's chest at the fifth intercostal space to the left of the sternum at the midclavicular line. *Locates the apical pulse.*
- The nurse taking the radial pulse states "Start" when ready to begin and "Stop" when completed. *This ensures that both counts are done simultaneously.*
- Both nurses count the pulse for 1 full minute at the same time. *Counting for 1 full minute is necessary for an accurate assessment of any discrepancies that may exist between the two sites.*
- Compare the rates obtained. If a difference is noted between the rates, subtract the radial rate from the apical rate. *This determines if a pulse deficit exists. A pulse deficit represents the number of ineffective or nonperfused heartbeats.*
- Replace the patient's clothing, and place patient in position of comfort. *This restores patient's privacy.*
- Notify the physician if a pulse deficit was noted. *Provides prompt medical intervention.*

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