

CONSIDERATIONS:

1. Abnormalities in pulse rate, amplitude or rhythm may be indications of impaired circulation and heart efficiency.
2. Ordinarily vital signs are taken “at rest”. If patient has been active, wait 5 to 10 minutes before assessing pulse.
3. Radial pulse:
 - a. Felt over the radial artery (thumb side of wrist)
 - b. Note amplitude (volume/strength):
 - i. “Bounding” pulse: Particularly strong, increased volume
 - ii. “Weak” or “thready”: Particularly difficult to palpate
 - c. If pulse is irregular, take an apical pulse to measure the heartbeat more directly
4. Apical pulse:
 - a. Taken with a stethoscope at the apex of the heart. The Apex is:
 - i. Found at the 5th intercostal space (ICS) at midclavicular line (MCL)
 - ii. Shifts downward to 6th intercostal space and/or left of midclavicular line in advanced heart disease
 - iii. Point of Maximal Impact (PMI)
 - b. Auscultation at the heart’s apex can detect heartbeats that cannot be detected at peripheral sites:
 - i. Listen for S1 and S2 heart sounds, which together are one beat
 - ii. S1 and S2 heart sounds are high-pitched, usually best heard with stethoscope’s diaphragm
 - iii. Placing a cold stethoscope against the skin may startle the patient and increase the heart rate
 - c. Apical pulse should always be compared with the radial pulse to determine if there is a pulse deficit
5. Pulse deficit:
 - a. Compares the rate of the apical and radial pulses
 - b. If the radial pulse is less than the apical pulse, a pulse deficit exists
 - c. A pulse deficit signals a decreased left ventricular output and can occur with conditions, such as atrial fibrillation, premature beats and congestive heart failure
6. Pulse definitions:
 - a. Normal: 60 to 100 beats per minute
 - b. Tachycardia: More than 100 beats per minute
 - c. Bradycardia: Less than 60 beats per minute
 - d. Irregular: Uneven time intervals between beats

EQUIPMENT:

Stethoscope
Clock/timer with second hand

PROCEDURE:

1. Adhere to Standard Precautions and explain the procedure to the patient.
2. Place patient in a sitting or supine condition.

Radial Pulse

1. Assure patient’s arm is “resting” at side or across chest his/her arm at his/her side or across his/her chest.
2. Using forefinger and middle finger pads of dominant hand, apply light pressure to inner aspect of patient's wrist to locate pulse beat.
3. Count the beats for 30 seconds and multiple by 2 for beats/minute.
4. Assess pulse rhythm and strength (volume) by noting the pattern and strength of the beats.
5. If an irregular beat pattern detected:
 - a. Take radial pulse for full minute
 - b. Determine if the irregularity occurs in a pattern or randomly
 - c. Take an apical pulse

Apical Pulse

1. Locate the anatomical landmarks for the apical pulse (left side, 5th ICS at MCL).
2. Warm the diaphragm of the stethoscope in your hand.
3. Place the diaphragm or bell of the stethoscope over the apex of the heart.
4. If heart sounds are faint or undetectable:
 - a. If sitting, ask patient to lean forward
 - b. If supine, turn patient towards left side
5. Using the stethoscope, listen and count the apical pulse for 30 seconds and multiply by 2.
6. If the rhythm is irregular:
 - a. Take pulse for a full minute
 - b. Immediately take a radial pulse
7. If there is a difference between radial and apical pulses:
 - a. Subtract the radial pulse from the apical pulse
 - b. The difference is the pulse deficit

AFTER CARE:

1. Compare abnormal findings with previous findings to determine if findings are significant, such as:
 - a. Tachycardia or bradycardia
 - b. New irregular beat
 - c. New bounding/weak pulse
2. Report significant findings to physician. Determine if new parameters or orders needed.

HHVNA Circulatory System – PULSES: APICAL & RADIAL

3. Document findings in patient's record:
 - a. Site, pulse rate
 - b. Rhythm: regular, irregular, or irregular with pattern (every third beat skipped)
 - c. Volume of radial pulse if significant:
full/bounding or weak/thready
 - d. Any associated signs/symptoms (e.g., dizziness, palpitations)
 - e. Any instructions given to patient/caregiver
 - f. Any communication with physician

REFERENCE:

Perry, A.G., Potter, P.A., & Elkin, M.K. (2012). Nursing Interventions and Clinical Skills. (5th Ed.) Elsevier, Mosby.

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