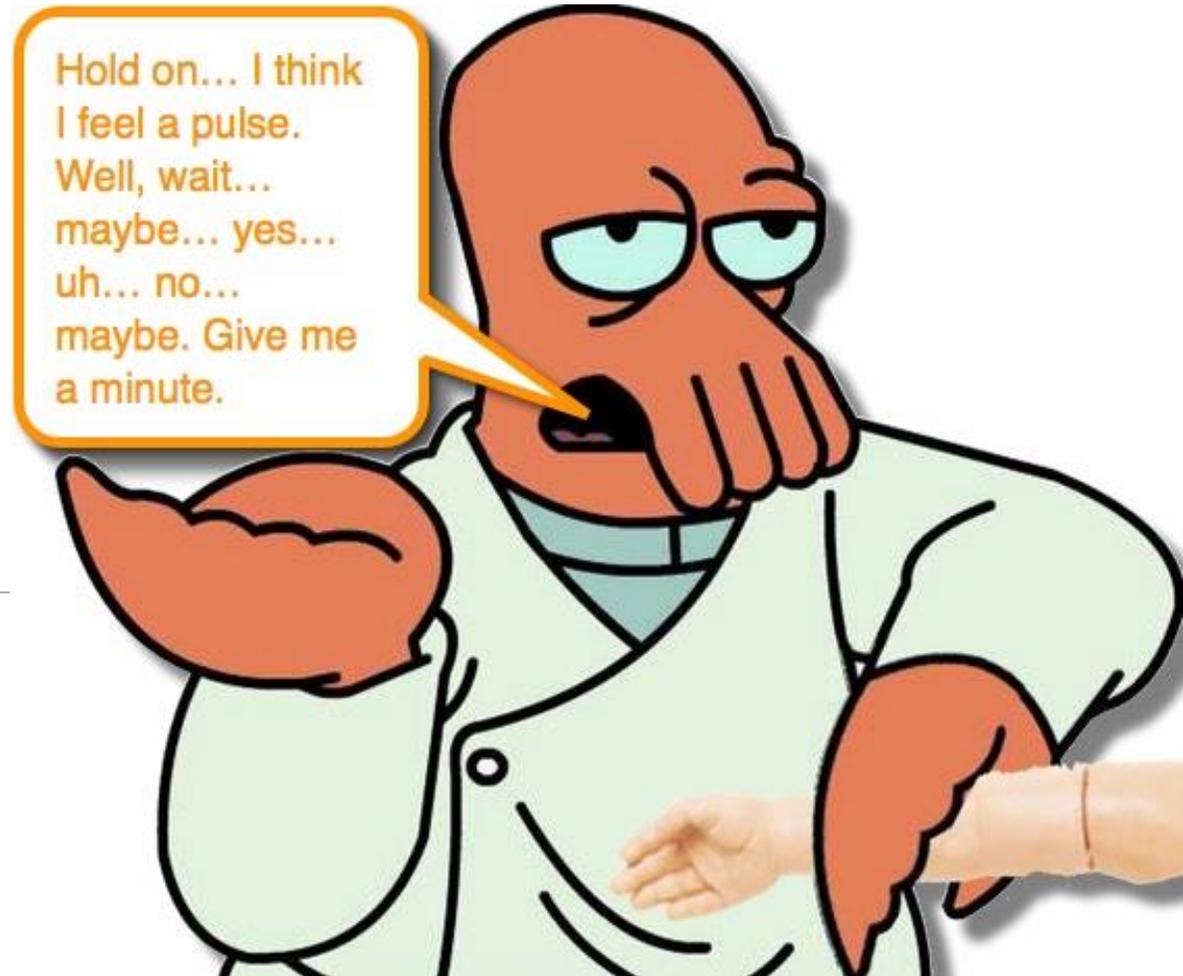


Vital Signs: Pulse



Pulse



- Pressure of blood pushing against artery walls as heart contracts
- Abbreviated=P or HR
- Can be auscultated (listened to) or palpated (felt)
- More easily palpated in arteries that lie close to the skin & can be pressed against a bone by the fingers
- Palpate by using your 1st and 2nd fingers
- Never palpate with your thumb; it has a pulse that can be confused with the pt's pulse

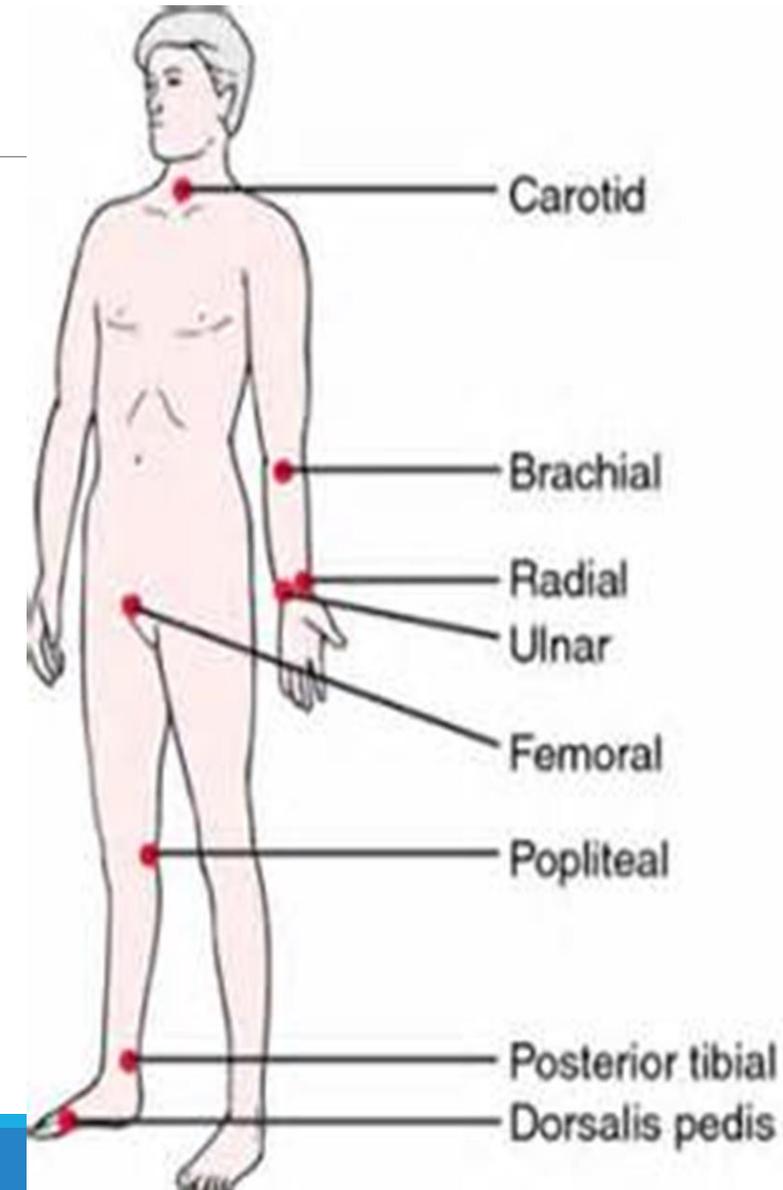
Pulse

- Major arterial pulse sites:
- 1. Temporal**=on either side of the forehead
 - 2. Carotid**=at the neck on either side of the trachea
 - 3. Brachial**=inner aspect of forearm at antecubital space; often used in very young children before the brachial muscle is developed



Pulse

- Major arterial pulse sites:
- 5. Radial**=inside the wrist, near the thumb; pulse rate is usually measured here
 - 6. Femoral**=inner aspect of upper thigh where thigh joins with the trunk of the body
 - 7. Popliteal**=behind the knee
 - 8. Dorsalis pedis**=at the top of the foot arch
 - 9. Posterior tibial**=inner aspect of ankle



Pulse Characteristics

➤ When measuring pulse, assess for these characteristics:

1. Rate
2. Rhythm
3. Volume
4. Bilateral presence



Pulse Rate

- Measured in beats per minute=BPM
- Rates vary, depending on age, sex, body size, activity, diseases, and medications
- As the CV system matures as we grow, the pulse rate **decreases**
- Women usually have faster rate than men
- Count the pulse for 15, 20, 30, or 60 seconds
- Then multiply to find the bpm



Pulse Rate

➤ If you count 90 for 60 seconds, what is the bpm?

90 bpm

➤ If you count 40 for 30 seconds, what is the bpm?

80 bpm

➤ If you count 20 for 20 seconds, what is the bpm?

60 bpm

➤ If you count 25 for 15 seconds, what is the bpm?

100 bpm

Pulse Rate

- Adults: 60-100 bpm
- Just for comparison, look at how that compares to infants & children:

Infants: 100-160 bpm

Children aged 1-7: 80-110 bpm

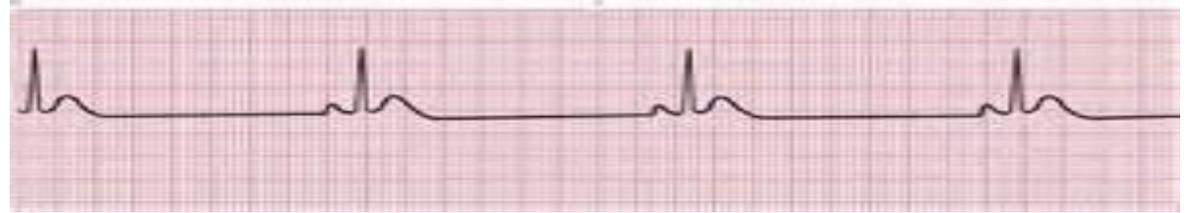
Children aged >7: 70-100 bpm



Pulse Rate

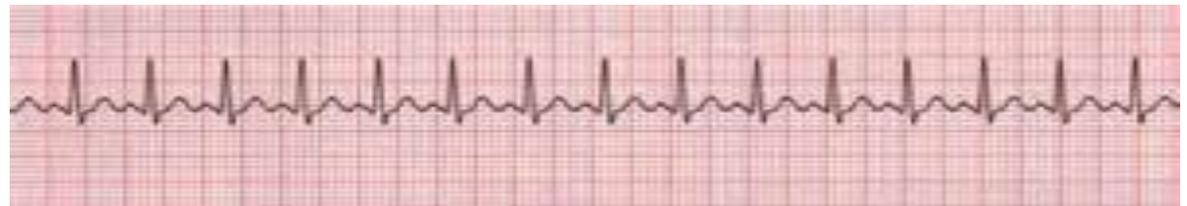
➤ **Bradycardia:** pulse rate under 60 bpm

Seen in physically fit athletes, pts taking heart meds, pts experiencing severe lack of oxygen or BP



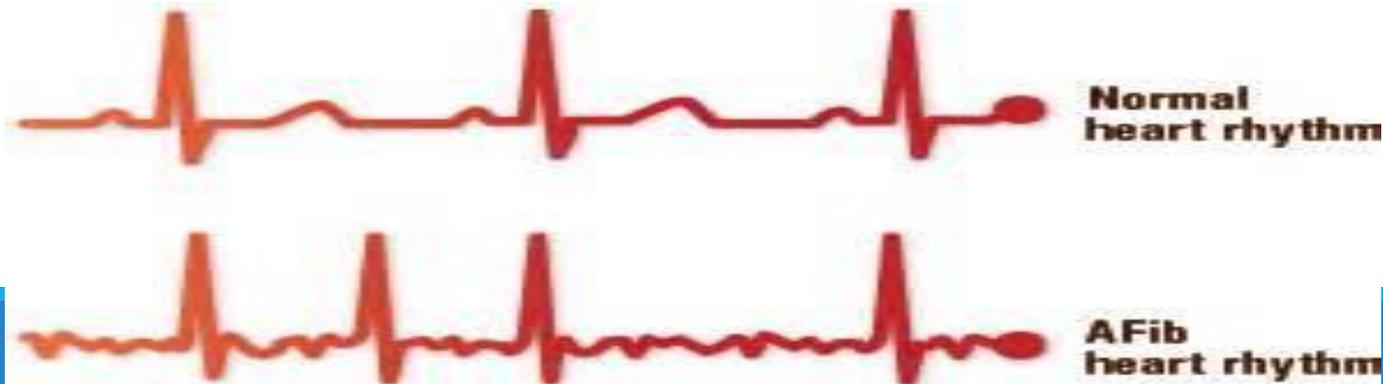
➤ **Tachycardia:** pulse rate over 100 bpm (except in children)

Seen if having physical, emotional, or mental stress (infection, pain, exercise, taking a test), or experiencing severe lack of oxygen or low BP



Pulse Rhythm

- The regularity of the pulse or spacing of heartbeats
- Described as **regular** or **irregular**
- **Arrhythmia** or dysrhythmia=irregular or abnormal rhythm
- If rhythm is irregular, it should be counted for a full minute
- Irregular rhythms can be caused by defect in electrical conduction pathway, medications, lack of oxygen, or it can be a normal condition in infants



Pulse Volume

- Strength or intensity of the pulse
- Described as strong/normal, weak/thready, or bounding/full

Bilateral Presence

- Both sides of the body should have the same rate, rhythm, and volume
- If a pulse is only on one side of the body, it should be documented as **unilateral**

Recording Pulse

- When recording a pulse, include the rate, rhythm, and volume
- Examples:
 - P 82, strong and regular
 - P 76, weak and irregular

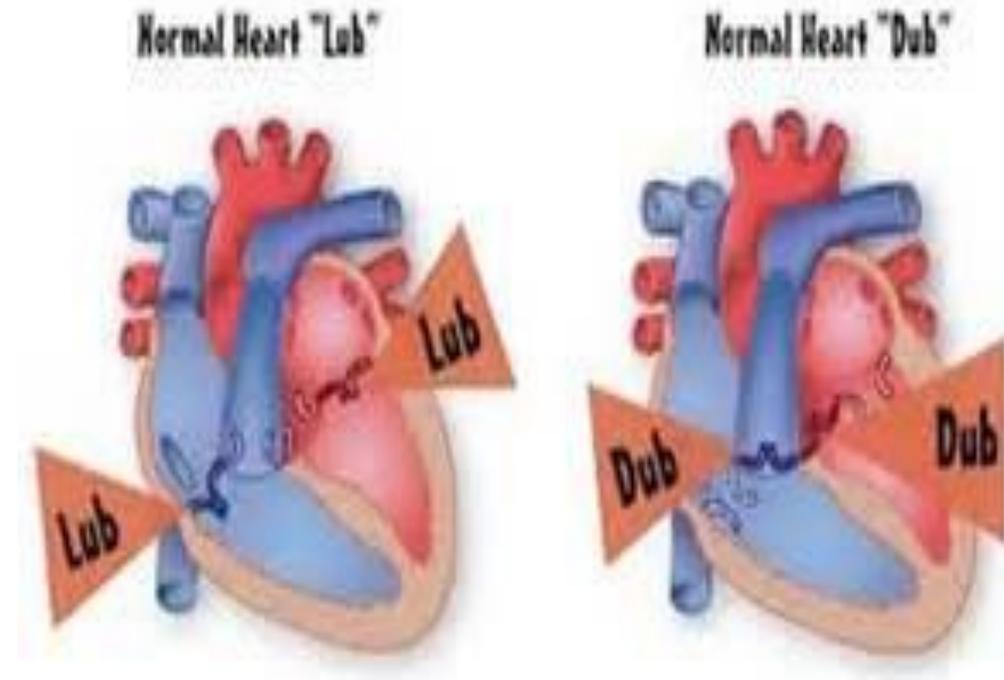
Apical Pulse

- Pulse count auscultated with stethoscope at apex of heart
- Found at the 5th-6th intercostal space on the midclavicular line



Apical Pulse

- 2 separate sounds are heard=“lub-dub”
- “Lub-dub” sounds are caused by the closing of the heart valves as blood flows through the chambers
- Each “lub-dub” is one contraction and counted as 1 beat
- Count for **1** full minute
- Record “AP” or “apical” next to the rate



Apical Pulse

- Must be assessed with pts who have irregular heartbeats, hardening of the arteries, weak or rapid pulses
- Must be assessed before giving certain drugs that can slow the heart rate or if pulse deficit is being checked
- **Pulse deficit**=when there is a difference in the rate of radial and apical pulses
- Usually assessed in children & infants due to their rapid pulse is easier to count while listening rather than palpating
- Give infant a pacifier, calm the child, or ask the adult not to talk so you can hear the apical pulse