



Department of Anesthesia Techniques



Title of the lab 6

Measurement of arterial Blood Pressure : Auscultation methods

by

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BLOOD PRESSURE

- **Blood pressure (BP)** Blood pressure is the force of blood against the walls of the arteries when the heart contracts.
- Most of this pressure results from the heart pumping blood through the circulatory system.
- "blood pressure" refers to the pressure in the large arteries.
- Blood pressure is usually expressed in terms of the **systolic pressure** (maximum pressure during one heartbeat) over **diastolic pressure** (minimum pressure between two heartbeats) in the cardiac cycle.
- In an adult is approximately 120 millimetres of mercury (systolic) over 80 millimetres of mercury (diastolic)
- It is affected by various factors including body position, breathing, emotional state, exercise and sleep.

How to measure blood pressure

- Arterial pressure are the most commonly measured via a sphygmomanometer, which historically used the height of a column of mercury to reflect of circulating pressure. Blood pressure values are generally reported in millimeters of mercury(mm hg).
- Measured by wrapping an inflatable pressure cuff around patient's upper arm. This cuff is part of a machine called sphygmomanometer. It is best to measure blood pressure when you are relaxed or sitting.




Steps of measuring blood pressure

1. Patients arm should be supported, with his/her upper arm at heart level, back supported, legs uncrossed, and feet on the floor. Your upper arm should be bare, with sleeve comfortably rolled up.
2. Medical personnel should wrap the blood pressure cuff snugly around your upper arm. The lower edge of the cuff should be 1 inch above the bend of your elbow.

A red arrow points to the right at the top left. On the left side, there are several thin, curved lines in shades of green and brown.

Steps of measuring blood pressure

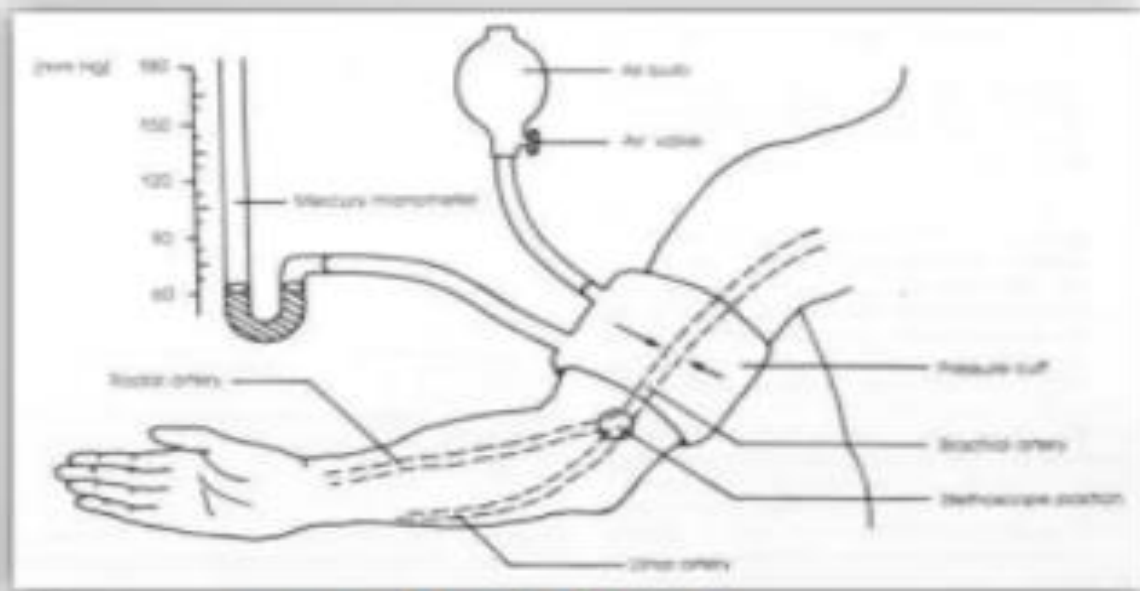
3. The cuff must be inflated quickly, either by pumping the squeeze bulb or pushing a button. Patient would feel tightness around his/her arm.
4. Next, the valve of the cuff should be opened slightly, allowing the pressure to slowly fall.
5. As the pressure falls, the reading when the sound of blood pulsing is first heard is recorded. This is the systolic pressure.



Steps of measuring blood pressure

5. As the air continues to be let out, the sounds would disappear. The point at which the sound disappears is recorded. This is the diastolic pressure.
- Inflating the cuff too slowly or not high enough may cause a false reading. If you loosen the valve too much, you won't be able to determine your blood pressure.

Auscultatory method



Source - www.laerdal.com

- The brachial pulse is palpated just above the angle of the elbow (the "antecubital fossa").
- The diaphragm is placed over the brachial artery in the space between the bottom of the cuff and the crease of the elbow. At this point no sounds should be heard

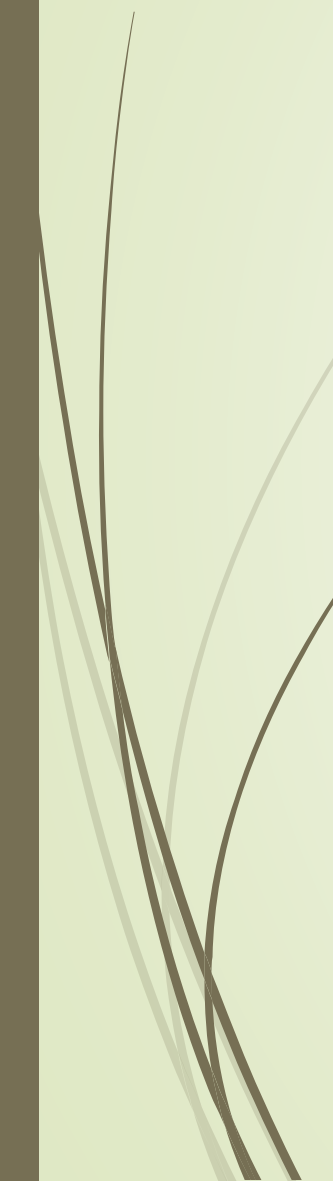


Auscultatory method

- The cuff pressure is inflated quickly to a pressure about 30 mm Hg higher than the systolic pressure determined by the method of palpation. Then the air is let out of the cuff at a rate such that cuff pressure falls at a rate of about 5 mm Hg/sec.
- At some point the personnel listening with the stethoscope will begin to hear sounds with each heartbeat. This point marks the systolic pressure.
- The sounds are called “Korotkoff” sounds.



Auscultatory method

- As the pressure is lowered further, the character of the Korotkoff sounds should change. At some point, the sounds will disappear.
 - The pressure reading at this point gives the diastolic pressure.
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Blood measuring apparatus



Blood measuring apparatus





Thank You