

Manual Blood Pressure Measurement

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Measuring Blood Pressure manually can be difficult if not practised regularly. However it is important to be able to do this using a sphygmomanometer. It is important to interact with the patient when making the measurement.



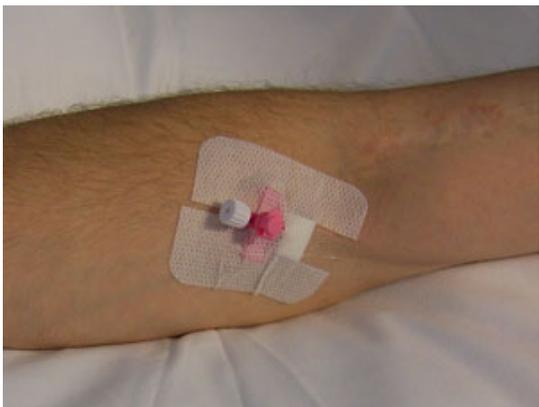
This worksheet is designed to demonstrate the technique required, using an aneroid sphygmomanometer.

The expected range of results will not be discussed, for this see the recommended reading at the end.



The consent of the patient must be obtained before commencing.

It is important that the patient is rested and relaxed for the measurement.



Check with the patient as to which arm is usually used for the cuff.

Some patients will have a preference, which may be as a result of existing medical conditions or previous procedures.

Avoid using arms with I.V. infusions or cannulae.



Ensure that the patient is rested, and that the arm to be used is supported at the same level as the heart.

The elbow needs to be extended, to allow the best detection of the brachial artery in the elbow joint.

Rest the upper arm on a pillow if possible.



Find the brachial pulse, this is where the stethoscope will be placed when listening for the Korotkoff sounds.

This pulse may be quite weak, pressing too hard can shut it down.

A tip to help find the artery, would be to ask the patient to bend the elbow, so that you can feel the tendon lift.

When the patient straighten their arm, the artery is located to the body side of the tendon.



Size the cuff, the bladder portion must extend at least 80% around the arm.

If the cuff is too small, or too large, change it.

There are various sizes to cover neonates through to large adults.



Apply the cuff to the upper arm, the centre of the bladder in line with the brachial artery.

The cuff needs to be positioned to allow the stethoscope diaphragm clear access to the brachial artery.

There should be no trapped clothing beneath the cuff, as this may cause a reading error, due to a pressure point.



Find the radial pulse, and keep monitoring this through the next step.

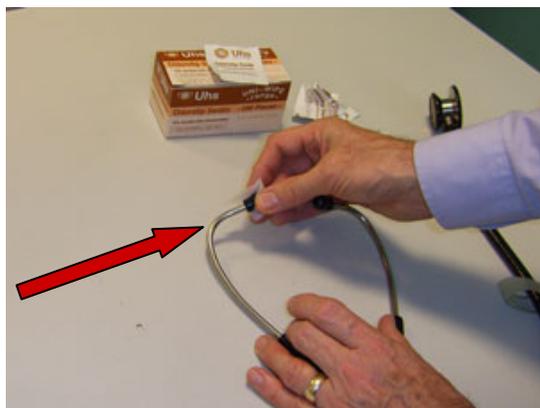


Close the control valve (*arrowed*) on the sphygmomanometer.

Gently pump the bulb, checking the radial pulse, until this cannot be felt.

Take the dial reading and mentally note the estimated Systolic pressure for future use.

Open the valve to quickly let the cuff down, this is for the patient's comfort.



Prepare the stethoscope for use, clean the earpieces if it is a communal instrument.



Set the earpieces to face slightly forward, and then gently insert into your ear canals.



Check the diaphragm is selected, by gently tapping it, so that you hear the sound.



Close the valve and inflate the cuff, so that the dial reads 30mmHg above your earlier estimated Systolic pressure.



Position the diaphragm of the stethoscope over the brachial artery, hold in place with your thumb, and locate your fingers around the elbow joint to lock it all in position.



Gently open the valve for a slow **controlled** release of air from the cuff.
Aim for the needle to drop about one mark on the dial per second (or heartbeat).



The Korotkoff sounds are quite faint, but distinctive, when recognized.
Listen carefully for the first 'Bomp', note the associated dial reading.
This is the real Systolic pressure, keep it in mind.



At some point you will not be able to detect a 'Bomp', when you expect it.

Check the dial, the nearest associated mark gives the Diastolic pressure.



Open the air valve fully, to rapidly deflate the cuff. Release the patient from the equipment.

Record your readings, Systolic over Diastolic, on the chart.

As the dial is graduated in steps of 2mmHg, the numbers should be even.

If you have any concern about the result, or the readings indicate a marked change from a previous reading, report to your supervisor.

Further reading

Nicol M, Bavin C, Cronin P, Rawlings-Anderson K. (2008) Essential Nursing Skills, 3rd edn. Edinburgh: Mosby (ISBN: 9780723434740)

Nicol M. (2004) Clinical Nursing Skills DVD with Workbook. Edinburgh: Mosby (ISBN: 0723433844)

O'Brien D, Davison M. (1994) Blood pressure measurement: rational and ritual actions. British Journal of Nursing 3(8): 393-396

Wallymahmed M. (2008) Blood pressure measurement. Nursing Standard 22(19): 45-8

Produced by Natasa Perovic CETL Learning technologist
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