

Field-setting considerations

When taking an infant or child's pulse, the apex (apical) or brachial site is frequently used.

Care-setting considerations

Pulse rates can be counted in any care setting, so long as the patient has not recently exercised or is not distressed or anxious.

What to watch out for and action to take

If an abnormal pulse rate is counted or if you suspect an abnormality in the regularity or volume of the pulse rate, this must be reported to a qualified nurse immediately and recorded in the patient's notes.

Abnormal pulse rates can sometimes be simply improved through adequate analgesia and encouraging the patient to drink more fluid. However, abnormal values must always be reported and acted upon as they can be an early sign of a patient's physiological deterioration.

Automated blood pressure measurement (BP)

What is normal?

Age	Systolic (mmHg)	Diastolic (mmHg)	Recorded as
Newborn	80	45	80/45 mmHg
10	105	70	105/70 mmHg
20	120	80	120/80 mmHg
40	125	85	125/85 mmHg
60	135	88	135/88 mmHg

A patient's normal BP is an individualized parameter and these values should be taken just as a guide.

Before you start

Remember the common steps for all clinical measurements (pp. 8–9).

When recording a BP you need to consider which limb is the best to use. The site generally used is the upper 1/3rd of the arm as it is the most accessible; preferably the left arm due to its proximity to the aorta. However thighs and calves can be used with a correctly sized cuff. There are contraindications to using limbs when:

- **lymphoedema** is present
- the patient has had brachial artery surgery

- an **arteriovenous fistula** is present
- there is trauma to the limb

Essential equipment

Automated Non Invasive Blood Pressure (NIBP) machine

Care setting considerations

Automated machines can be used in any care setting.

What to watch out for and action to take

Hypotension – A systolic blood pressure less than 90mmHg or a drop of 40mmHg from the patient’s normal systolic blood pressure indicates Hypotension, which is a medical emergency, requiring rapid treatment and a search for the cause.

Hypertension – A systolic blood pressure greater than 140mmHg or a diastolic above 90mmHg reflects Hypertension and requires investigation (ALERT™ 2012).

Helpful Hints – Do I ...?

- Gloves and aprons must be worn if contact with blood/body fluids/excreta is anticipated or the patient is in isolation
- Hand hygiene must be performed before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient and after touching a patient’s surroundings
- Waste should be disposed of in a clinical waste bag if it is contaminated with blood/body fluids/excreta

Step	Reason and patient-centred care considerations
1. Perform steps 1-8 of the common steps (pp. 8-9).	To prepare the patient and yourself to undertake the skill.
2. The patient should be in a comfortable position either sitting in a chair with legs uncrossed and feet flat on the floor or sitting/lying on a bed or couch with legs uncrossed. It is sometimes necessary to compare lying and standing blood pressures; in this case lying blood pressures should be taken first.	Inaccurate positioning of the patient, such as crossed legs can alter the BP reading.
3. Clothing on the limb where the BP is to be taken should be removed, if possible.	Clothing that restricts the blood flow in the limb where the BP is being taken can alter the reading.

Step	Reason and patient-centred care considerations
4. The arm should be resting on either the bed/couch, a chair arm, desk top or the patient's knee. Best practice is to place a pillow, blanket or item of clothing if available under the arm for support.	Accuracy of the BP reading is improved with a relaxed, well supported limb. The limb should be supported as near to the level of the heart as possible.
5. Cuffs are labelled with the size of the person that they are suitable for use with; such as large adult, standard adult, small adult, and child.	<p>The wrong size cuff can reduce the accuracy of the measurement.</p> <p>Falsely high readings can occur with cuffs which are too small and falsely low readings can occur with cuffs which are too large.</p> <p>When the cuff is applied check that when wrapped around the arm the outside edges lie within the 2 large white lines, marked 'range'. If so, the cuff is the correct size and you will see that the cuff bladder (the part which inflates) is 80% of the arm circumference and 40% of its width. If this is not the case you need to apply a different size cuff.</p>
6. Inside the cuff is a mark that should lie in line with the brachial artery. The lower edge of the cuff should be 2-3cms above the position where you put your fingers to palpate the brachial artery.	If the cuff is incorrectly positioned the accuracy of the measurement will be reduced.
7. Ask the patient to keep their arm still whilst the machine takes the reading.	Movement of the limb can reduce the accuracy of the measurement.
8. On most automated machines the start button is labelled NIBP (Non Invasive Blood Pressure) start. If the machine is having difficulty registering a BP or you want to stop the recording mid cycle there is a deflate NIBP button.	If a patient needs their blood pressure recorded frequently, for example every 15 minutes it is possible to set the automated machine to do this. However, remember to remove the cuff from the patient's limb at regular intervals as they can cause the skin to become hot, sweaty and cause marks or even sores on the skin.

Step	Reason and patient-centred care considerations
9. Perform steps 9-12 of the common steps (see pp. 8-9).	To ensure that the: <ul style="list-style-type: none"> • patient is safe, comfortable and receiving the appropriate care. • results have been documented in the patient's records. • equipment is clean and in working order.

Evidence base: BHS (2009); Dougherty and Lister (2011); Smith and Roberts (2011)

Manual blood pressure measurement (BP)

What is normal?

Refer to Automated Blood Pressure Measurement (BP) (pp. 17-19).

Before you start

Refer to Automated Blood Pressure Measurement (BP) (pp. 17-19).

Essential equipment

Aneroid sphygmomanometer with stethoscope

Care-setting considerations

Manual blood pressure measurements can be taken in any care setting.

What to watch out for and action to take

Refer to Automated Blood Pressure Measurement (BP) (pp. 17-19).

Step	Reason and patient-centred care considerations
1. Perform steps 1-8 of the common steps (see pp. 8-9).	To prepare the patient and yourself to undertake the skill.
2. Perform steps 1-6 in automated blood pressure measurement (see pp. 17-19).	To ensure the patient is comfortable and correctly positioned, with a cuff of the appropriate size to enable accurate BP measurement.