

Blood Pressure Measurement

Aim

To safely and effectively measure and record a patient's blood pressure

Indications

A blood pressure should be taken on every patient as part of circulation and perfusion assessment.

Background

Blood pressure is the amount of pressure exerting on the walls of blood vessels within the body, measured in mmHg. It involves calculating the pressure during the contraction (systole) and relaxation (diastole) of the heart. Blood pressure measurement is a routine vital sign taken by paramedics to assist in the overall circulation and perfusion assessment of a patient. It involves feeling the pulse or listening to the heart beat whilst an inflatable cuff is wrapped around the arm and inflated, showing a reading on the attached sphygmomanometer. In paramedic practice many drugs are blood pressure dependent and fluid administration is often titrated to blood pressure, placing an emphasis on this skill.

There are a range of different blood pressure measurement devices used in the hospital and prehospital settings. There are portable digital devices, automated monitoring functions, or fully manual options. Auscultation manually with stethoscope is the most accurate way to measure a patient's blood pressure. The size of the cuff used must be appropriate to the size of the patient – the 'infant' cuff used for small children, up to an 'extra-large' adult cuff for obese adults.



Objective	Rationale	Action
Manage Safety	Safety is the first priority in managing any patient.	<ol style="list-style-type: none"> 1. Use universal precautions. Always wear gloves and goggles when attending to a patient. 2. You may also want to consider wearing a facemask and gown.
Prepare Patient	<p>Explaining the procedure to the patient ensures they comply, are reassured, and follow your commands.</p> <p>You must also gain consent with any intervention.</p>	<ol style="list-style-type: none"> 1. Explain the process to the patient and gain consent. 2. Turn patient's arm outward so their palm is facing upward. 3. Remove any heavy clothing over arm. 4. Make sure their arm is relaxed.
Apply Cuff	Proper alignment of the cuff gives the most accurate reading.	<ol style="list-style-type: none"> 1. Select appropriate sized cuff for patient. 2. Place cuff around arm, above the elbow, and fasten by the Velcro. 3. Align arrows on cuff with brachial artery.  <ol style="list-style-type: none"> 4. Clip the sphygmomanometer gauge on to the cuff for easy visualisation.
Locate pulse	Where you initially palpate the pulse will depend on the blood pressure measurement method you are using.	<ol style="list-style-type: none"> 1. If using the palpation method, identify the radial pulse. 2. If using the auscultation method, identify the brachial pulse.

Objective	Rationale	Action
Palpation method	<p>This is a simple and quick way to determine the patient's systolic BP. It is unreliable however in a full patient assessment and should be used as a guide only.</p>	<ol style="list-style-type: none"> 1. With one hand, place a few fingers over the radial pulse. 2. With the other hand, inflate the cuff until the pulse disappears. 3. Slowly deflate the cuff to the point where you can again feel the pulse. This is the systolic pressure. 4. Completely deflate the cuff and remove. Leave cuff on if you will need to take further BP measurements but ensure it is fully deflated.
Auscultation method	<p>This is the most accurate method and should take priority. You cannot determine a full MAP (mean arterial pressure) without a diastolic reading.</p> <p>Ensure the cuff is fully deflated after each measurement is complete as a prolonged inflated cuff can become painful for the patient.</p>	<ol style="list-style-type: none"> 1. Place diaphragm of stethoscope over brachial pulse point. <div data-bbox="802 869 1394 1368" data-label="Image"> </div> 2. Inflate cuff listening to heart beat – stop inflating after the heartbeat disappears. 3. Slowly deflate the cuff and identify the value of when the heart beat commences again. This is the systolic pressure. 4. Keep slowly deflating the cuff until the heart beat disappears. This is the diastolic pressure. 5. Deflate cuff completely and remove from patient's arm. Leave cuff on if you will need to take further BP measurements.