



Clinical Practice Procedures: Assessment/Non-invasive blood pressure

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Date	February, 2021
Purpose	To ensure a consistent procedural approach to determining non-invasive blood pressure.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Non-invasive blood pressure

February, 2021

Measuring blood pressure (BP) is an integral part of the vital signs examination and provides two readings; a systolic and a diastolic pressure. The blood pressure is controlled by the nervous and endocrine systems through the baroreceptor reflex and renin angiotensin system resulting in normal variations in response to gravity, stress, exercise and drugs. Hypotension and hypertension both have many causes and can range from mild to severe. It is crucial to be able to accurately measure the blood pressure to identify and appropriately manage patients who are cardiovascularly compromised.^[1]



Accepted methods to measure BP include by auscultation, with automated NIBP and, in appropriate circumstances, palpation.

Indications

- To determine a patient's blood pressure

Contraindications

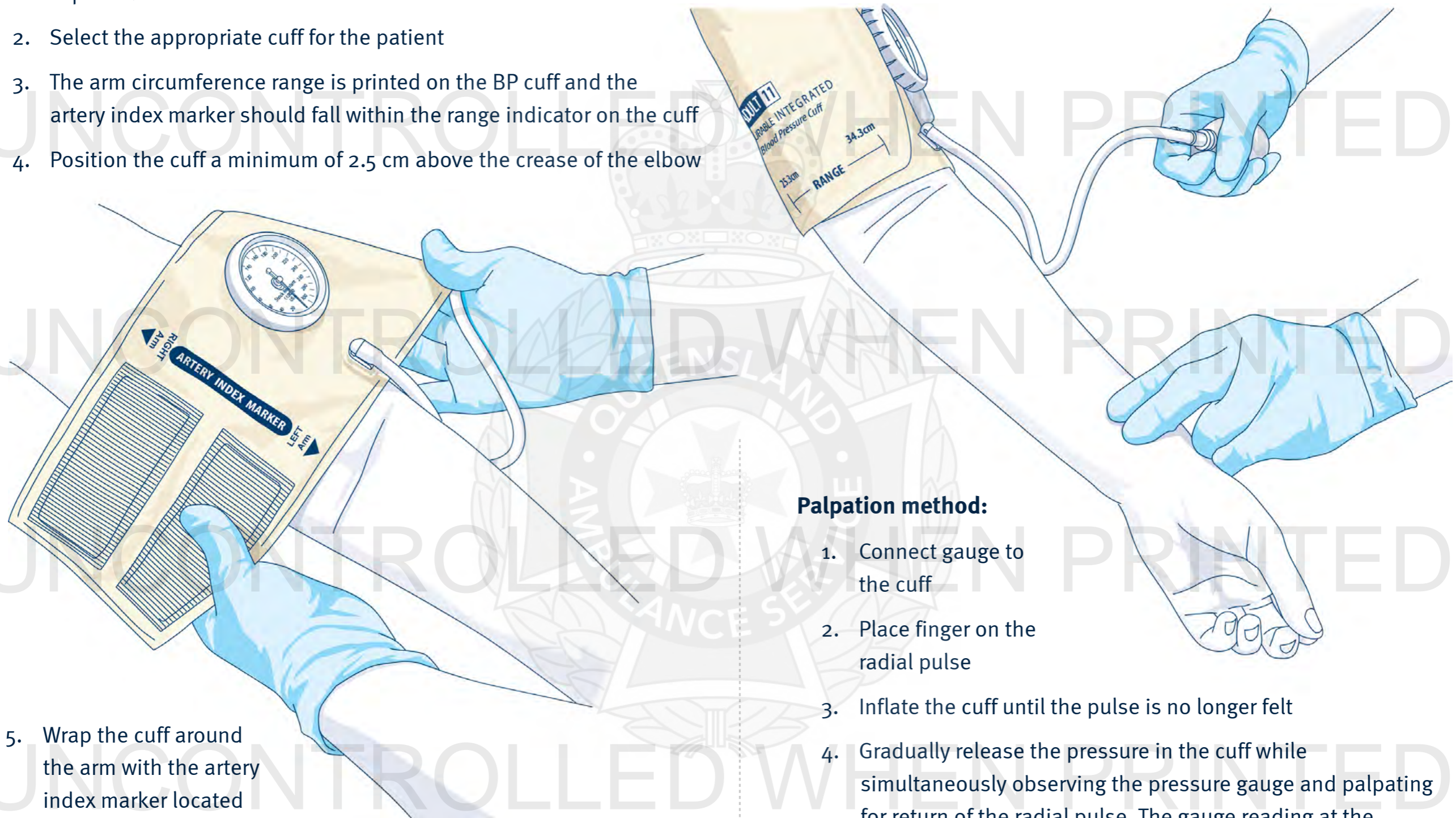
- Do not apply to limb with:
 - AV fistula
 - Significant injury or burn
 - Lymph node removal post mastectomy

Complications

- The use of high pressures can result in significant patient discomfort or pain.
- Excessive patient or vehicular movement will result in inaccurate automated NIBP readings.
- Incorrect cuff size selection and/or incorrect placement will result in inaccurate NIBP readings.

Procedure – Non-invasive blood pressure

1. Expose arm
2. Select the appropriate cuff for the patient
3. The arm circumference range is printed on the BP cuff and the artery index marker should fall within the range indicator on the cuff
4. Position the cuff a minimum of 2.5 cm above the crease of the elbow



5. Wrap the cuff around the arm with the artery index marker located over the brachial artery
6. Position the patient's arm in a relaxed and supported position at approximately the same level as the patient's heart.

Palpation method:

1. Connect gauge to the cuff
2. Place finger on the radial pulse
3. Inflate the cuff until the pulse is no longer felt
4. Gradually release the pressure in the cuff while simultaneously observing the pressure gauge and palpating for return of the radial pulse. The gauge reading at the moment of radial pulse return provides an approximation of systolic blood pressure.

Procedure – Non-invasive blood pressure

Auscultation method:

1. Connect gauge to the cuff
2. Inflate cuff to a level 30 mmHg above estimated (or palpated) systolic pressure. The artery should be completely compressed and no sound heard through the stethoscope
3. Partially open the valve to allow slow deflation and listen with stethoscope for Korotkoff sounds I and V indicative of the systolic and diastolic pressure respectively
 - **Korotkoff I** – is a sharp thud sound created when the blood pressure is able to overcome the cuff pressure and flow through the artery; systolic pressure
 - **Korotkoff V** – is the loss of sound created when the cuff is deflated enough for the artery to remain completely patent; diastolic pressure

+ Additional information

- Where practical, clinicians should perform a manual NIBP (auscultation method) for the first blood pressure on every patient.
- Where doubt exists regarding the accuracy of an automated NIBP, or where an automated NIBP is borderline, a manual NIBP by auscultation is required.
- QAS provides three (3) sizes of blood pressure cuffs for differing arm circumferences.

SPECIFICATIONS	
Size	Range
Child (9)	15 – 21 cm
Adult (11)	25 – 34 cm
Large Adult (12)	32 – 43 cm

