



# GREENLIGHT CLINICAL GUIDELINES

Blood Pressure Monitoring

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# Blood Pressure Monitoring Guidelines

## Introduction

'Blood pressure' (BP) is a clinical observation that measures the pressure of blood moving along the inner walls of blood vessels. This is measured by a Blood Pressure (BP) machine also known as a Sphygmomanometer. These can be manual or mechanical. BP is measured in millimeters of Mercury, e.g 140/90 mmHg.

## What does a Sphygmomanometer measure?

A Sphygmomanometer measures a person's blood pressure. Blood pressure is recorded in two numbers; the first is the systolic (Sys) pressure and this measures the amount of pressure against the inner wall when the heart is contracting. The second is the diastolic (Dia) pressure and this measures the amount of pressure against the inner wall when the heart is relaxing.

## What are blood pressure ranges?

A healthy blood pressure is noted as 120-140/80-90mmHg. Although this can vary slightly with age, fitness and body type amongst other things.

### Hypertension:

Stage 2: Sys  $\geq$ 160 mmHg - Dia  $\geq$  100 mmHg

HTN Crisis: Sys  $\geq$ 180mmHg – Dia  $\geq$  110 mmHg

### Hypotension:

Systolic  $\leq$  90 mmHg – Diastolic  $\leq$  54 mmHg

Hyper and Hypotension both can have serious side effects and if the BP remains out of range it can cause Strokes, Heart Attacks, Kidney Injury and many others.

If a high or low reading is obtained, encourage the service user to relax and retake the blood pressure again. If the blood pressure remains out of range, consider discussing with the Senior Medic On-Call.

*If a patient has an abnormally high or low blood pressure and feels unwell, please do not hesitate to escalate for urgent medical review.*

## Common causes for abnormal blood pressure

There is no known single cause for Hypertension, but many things are known to contribute to it: lifestyle choices, stress and fitness levels. However, it can also be genetic, gender and race related. Blood pressure can be affected positively with lifestyle and diet choices and can also be pharmacologically treated.

Hypotension can also be affected by genes and race. A smaller framed person could have a naturally lower Blood Pressure.

However, it does have more acute indications:

- Anaemia
- Adverse reaction to drugs
- Active bleeding.
- Hypovolemia
- Sepsis

## Common medications used to treat Hypertension

- Amlodipine
- Perindopril
- Irbesartan
- Felodipine
- Doxazosin
- Atenolol
- Losartan
- Glyceryl Titrate
- Diltiazem
- Bisoprolol
- Ramipril

## How to measure blood pressure

Manual: Using a manual Sphygmomanometer and a Stethoscope.

- Step 1: Wash and dry hands thoroughly.
- Step 2: Obtain consent and explain procedure.
- Step 3: Make sure you have the correct size cuff; the cuff length should be 80% of the arm circumference. At the same time make sure the arm is free from clothing and resting at around the heart level.
- Step 4: Wrap the cuff around the arm with the arrow on the cuff pointed down toward the brachial artery, the bottom of the cuff should be an inch above the elbow crease.
- Step 5: Find the brachial artery and palpate whilst pumping air into the cuff. When you are unable to feel the pulse any longer inflate the cuff another 20-30mmHg.
- Step 6: Now place the diaphragm of the stethoscope over the brachial artery where you felt the pulse.

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### How to measure blood pressure

#### Continued

- Step 7: Slowly release the air from the cuff until a rhythmic thudding sound can be heard.  
The first introduction of this sound is the systolic blood pressure measurement.
- Step 8: Continue to deflate the cuff slowly and when the rhythmic thudding sounds stop completely this is the diastolic blood pressure measurement.
- Step 9: Completely deflate the cuff and remove from the patient, then assist where needed to cover the arm again.
- Step 10: Wash and dry hands thoroughly then clean the blood pressure cuff and stethoscope.
- Step 10: Document the measurements.

*NB All Greenlight Clinical Guidelines are based upon approved existing guidelines adapted for the specific use and demographic of service users seen on the medical van in the community.*

#### Mechanical: Using a blood pressure machine.

- Step 1: Wash and dry hands thoroughly.
- Step 2: Obtain consent and explain procedure.
- Step 3: Make sure you have the correct size cuff; the cuff length should be 80% of the arm circumference. At the same time make sure the arm is free from clothing and resting at around the heart level.
- Step 4: Wrap the cuff around the arm with the arrow on the cuff pointed down toward the brachial artery, the bottom of the cuff should be an inch above the elbow crease.
- Step 5: Press the start button on the blood pressure machine.
- Step 6: The blood pressure machine will inflate and deflate the cuff, remember the recorded Blood Pressure (Be mindful that the HR may also be shown on the screen).
- Step 7: Remove the cuff from the patient arm and assist where needed to cover the arm again.
- Step 10: Wash and dry hands thoroughly then clean the blood pressure cuff and machine.
- Step 11: Document the measurements.

#### References:

- Dougherty, L, Lister, S & West-Oram (2015) *The Royal Marsden Manual of Clinical Nursing Procedures, 9<sup>th</sup> edn*. Wiley, London.
- Mariab, N (2006) *Essentials of Human Anatomy & Physiology, 8<sup>th</sup> edn*, Pearson, San Francisco.
- National Institute for Health and Care Excellence (2016) *Hypertension in adults: diagnosis and management*. Available at: <https://www.nice.org.uk/guidance/CG127/chapter/1-Guidance#diagnosing-hypertension-2> [Accessed 19 September 2018]
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