Hypertension (High Blood Pressure)

High blood pressure, or hypertension, rarely has noticeable symptoms. If left untreated, it increases your risk of serious problems such as heart attacks and strokes. Around a third of adults in the UK have high blood pressure. The only way to find out if your blood pressure is high is to have your blood pressure checked.

Blood pressure readings:

Blood pressure is recorded with 2 numbers in units of millimetres of mercury (mmHg).

1. The systolic (higher number) is the force at which your heart pumps blood around your body.
2. The diastolic pressure (lower number) is the resistance to the blood flow in the blood vessels.

The ideal blood pressure is usually considered to be between 90/60 mmHg and 120/80 mmHg. **Blood pressure readings between 120/80 mmHg and 140/90 mmHg could mean you're at risk of developing high blood pressure if you do not take steps to keep your blood pressure under control.**

Blood pressure monitoring treatment targets:

Patient Group		Clinic Target	HBPM* Target
Hypertension (No co-morbidities)	Under 80 yrs	<140/90 mmHg	<135/85 mmHg
	Over 80 yrs	<150/90 mmHg	<145/85 mmHg
Type 1 Diabetes		<135/85 mmHg	<130/80 mmHg
	Microalbuminuria *Or*, two or more features of metabolic syndrome	<130/80 mmHg	<125/75 mmHg
Type 2 Diabetes		<140/80 mmHg	<135/75 mmHg
	Kidney damage Eye damage Cerebrovascular damage	<130/80 mmHg	<125/75 mmHg
Chronic Kidney Disease (Stages 3-5)		<140/80 mmHg (Target range 120-139 mmHg systolic)	<135/85 mmHg
	Diabetes Proteinuria (ACR ≥ 70mg/mol)	<130/80 mmHg (Target range 120-129 mmHg systolic)	<125/75 mmHg
Stroke and TIA		<130/80 mmHg	<125/75 mmHg
	Severe bilateral carotid stenosis	Systolic 130-150 mmHg	Systolic 125-145 mmHg

HBPM = Home Blood Pressure Monitoring*

Risks of high blood pressure:

If your blood pressure is too high, it puts extra strain on your blood vessels, heart, and other organs such as the brain, kidneys, and eyes.

Persistent high blood pressure can increase your risk of a number of serious and potentially life-threatening health conditions, such as:

- Heart disease
- Heart Attacks
- Strokes
- Heart Failure
- Peripheral Arterial Disease
- Aortic aneurysms
- Kidney disease
- Vascular dementia
- Erectile Dysfunction

Reducing high blood pressure by even a small amount can help lower your risk of these health conditions.

Checking you blood pressure:

The only way of knowing whether you have high blood pressure is to have a blood pressure test. Adults over 40 are advised to have their BP checked at least every 5 years.

Home blood pressure monitoring is quite simple and works out cheaper in the long run. Having BP checked in the GP clinic is usually a one- off reading that does not give a day-to-day estimate of BP control. Anxiety of visiting the GP, rushing to the GP, other illness when visiting the GP can influence BP readings at the GP clinic. Thus, it is beneficial to own a BP monitor. The British and Irish Hypertension Society (BIHS) website (www.bihs.org/bp-monitors/for-home-use) has details of validated BP monitors to use at home. The expensive ones usually have added features and extra memory to store BP readings, but this could easily be charted on a paper if records need to be kept. Pharmacies also stock cheap validated BP monitors which can be used to monitor BP at home. Some pharmacies also offer blood pressure testing services if purchasing one is out of question.

Things that can increase your risk of getting high blood pressure:

You might be more at risk if you:

- **Are overweight**- being overweight forces your heart to work harder to pump blood around your body, which can raise your blood pressure. Find out your ideal weight using the BMI healthy weight calculator and read advice about losing weight if you're overweight. Adults should do at least 150 minutes (2hrs and 30mins) of moderate-intensity aerobic activity, such as cycling or fast walking, every week. Physical activity can include anything from sport to walking and gardening. For those unable to partake in walking or are wheelchair bound, please see the NHS website on how to lose weight in a wheelchair (https://www.nhs.uk/live-well/healthy-weight/managing-your-weight/how-to-lose-weight-in-a-wheelchair/)
- **Eat too much salt and do not eat enough fruit, vegetables, and fibre**- cut down salt intake to less than 6g (0.2oz) a day, which is about a teaspoonful. Eating a low-fat, high fibre (such as whole grain rice, pasta, and bread), balanced diet including plenty of fresh fruit and vegetables.
- **Drink too much alcohol**- men and women are advised not to regularly drink more than 14 units a week. Spread your drinking over 3 days or more if you drink as much as 14 units a week.

- **Drink too much caffeine**-based drinks- caffeine found in coffee, tea and cola can cause insomnia, increased anxiety, palpitations and increase in blood pressure.
- **Do not get much sleep or have disturbed sleep**- all the above points i.e., drinking high amounts of caffeine, high alcohol intake and being overweight can cause sleep disturbance. Lack of sleep of disturbed sleep causes anxiety and can lead to increased blood pressure.
- **Smoke**- smoking harden and narrow the arteries as well as cause lung diseases and cancer. The narrowing of arteries can increase risk of heart disease and blood pressure.
- **Genetic predisposition and age**- certain genetic predispositions make some prone to suffering from blood pressure. If you have a family history of high blood pressure, then it's very likely to suffer from high blood pressure sooner. With increasing age especially if over 65yrs, can increase chances of high blood pressure.

Making healthy living choices early on may help avoid high blood pressure and related complications.

<u>Known causes of high blood pressure</u>:
In about 1 in 20 cases, high blood pressure happens as the result of an underlying health condition or taking a certain medicine.
Health conditions that can cause high blood pressure include:

- Kidney disease
- Diabetes
- Long-term kidney infections
- Obstructive sleep apnoea- where the walls of the throat relax and narrow during sleep, interrupting normal breathing.
- Glomerulonephritis- damage to the tiny filters inside the kidneys
- Narrowing of the arteries supplying the kidneys
- Hormone problems- such as an underactive thyroid, an overactive thyroid, Cushing's syndrome, acromegaly, increased levels of the hormone aldosterone (hyperaldosteronism) and phaeochromocytoma
- Lupus- a condition in which the immune system attacks parts of the body, such as the skin, joints, and organs
- Scleroderma- a condition that causes thickened skin, and sometimes problems with organs and blood vessels.

Medications that can increase your blood pressure include:

- The contraceptive pill
- Steroids
- Non-steroidal anti-inflammatory drugs (NSAIDS)- such as ibuprofen and naproxen
- Some pharmacy cough and cold remedies
- Some herbal remedies- particularly those containing liquorice
- Recreational drugs- such as cocaine and amphetamines
- Some antidepressants- such as venlafaxine

  In these cases, your blood pressure may return to normal once you stop taking the medicine or drug.

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Home Blood Pressure Monitoring Explained

What is home blood pressure monitoring?
Home blood pressure monitoring is when you measure your own blood pressure at home using a blood pressure monitor.

What are the benefits of monitoring my blood pressure at home?
Measuring your blood pressure at home while you go about your everyday life can help to give you and your doctor/nurse a more accurate picture of your blood pressure over time.

Everyone's blood pressure naturally rises and falls over the course of a day and some people can be stressed or anxious when having their blood pressure taken by their doctor or nurse, making their blood pressure higher than it normally is (known as 'white coat effect'). This means that a 'one-off' reading taken at your doctor's surgery or the hospital may not accurately reflect your real blood pressure. Home blood pressure readings can avoid these problems and can help doctors and nurses to:

- Establish whether you have high blood pressure (also known as hypertension)
- Identify whether your blood pressure is higher when taken at the GP surgery or hospital than at home (white coat effect)
- Decide if blood pressure medication is required
- Decide whether any changes to blood pressure medication are required
- See how well your blood pressure medication is controlling your blood pressure
- Further investigate people whose blood pressure is hard to control.

Monitoring your blood pressure at home can also help you to see how the medication you are taking is working and gain a better understanding of your condition.

Is home blood pressure monitoring suitable for everyone?
Home blood pressure monitoring is suitable for most people. However, pulse irregularities (such as the condition atrial fibrillation (AF)) can affect the accuracy of blood pressure readings and you should therefore speak to your doctor or nurse about home monitoring if you have such a condition. There is also little known about the benefits of home monitoring for children, pregnant women and patients with vascular problems (such patients should speak to their doctor or nurse before commencing home blood pressure monitoring).

What type of monitor should I use to take my blood pressure at home?
You may be given a blood pressure monitor by your doctor's surgery or the hospital to use when measuring your blood pressure. However, you may decide or need to buy your own. If this is the case, it is important that you buy the right monitor:

- Automatic, upper-arm monitor: You should choose an automatic blood pressure monitor (as these are the easiest to use) that measures your blood pressure at your upper arm. Monitors that measure your blood pressure at your finger or wrist should be avoided as they do not always provide accurate readings.

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- Clinically validated: You should choose a monitor that has been 'clinically validated'. This means that it has been through a series of tests and has been shown to give accurate readings. A list of clinically validated monitors is available on the Blood Pressure UK website (www.bloodpressureuk.org).

- Correct cuff size: An upper arm monitor uses a cuff that you wrap around your arm. Cuffs come in different sizes and, to get accurate readings, it is important that you use the cuff that is the right size for you. Some monitors may already come with a standard sized cuff, so you may need to order a different one if this is too big or small (the instructions that come with your monitor will provide information about how you should decide what size of cuff you need to use).

- Calibrated: To ensure that a monitor continues to produce accurate results, it will need to be re-calibrated (tested and adjusted to ensure that it is still accurate) every year or so. The instructions that come with your monitor will provide information about precisely how often the monitor should be re-calibrated and how this should be done. There is often a charge for this service. Alternatively, you may decide to replace the monitor with a new one (many pharmacies have monitors available to buy).

When, how often and for how long should I monitor my blood pressure?

Your doctor or nurse will be able to provide advice about how long you should monitor your blood pressure for. However, they will often ask you to take your blood pressure for 7 consecutive days.

On each day, you should monitor your blood pressure on two occasions: in the morning (between 6am and 12noon) and again in the evening (between 6pm and midnight). Try to take the readings at the same time every day. Each time you will need to take a minimum of two readings, leaving at least one minute between each. If the first two readings are very different, you should take 2 or 3 further readings. It is important that you do not check your blood pressure too often or become stressed and worried about your readings, as this could in fact make your blood pressure higher.

Do I need to do anything different because I am monitoring my blood pressure?

No. It is important that you continue to go about your normal daily routine, as this will provide an accurate picture of your blood pressure during a typical day. This includes continuing to take all of your medication in the way you have been advised to: you should NOT make any changes to your medication based on your home blood pressure readings.

My blood pressure readings are not always the same. Is this normal?

Blood pressure naturally rises and falls throughout the day, so it is completely normal for your blood pressure readings to vary slightly. If you get an unexpectedly high or low reading, you should not be alarmed. Continue to take your blood pressure as planned. If it continues to be high/low, you should then contact your doctor or nurse.

Do I need to write anything down?

Yes. You should keep a blood pressure diary, clearly documenting all of your blood pressure readings (even if your monitor has a memory function), as well as the date and time at which each readings was taken. The numbers you write down should be the same as those that appear on the monitor screen: do not round the numbers up or down. You should also document anything that you think could have affected your readings,

such as feeling unwell or changes in your medication. You do not need to write down your pulse/heart rate. Remember to take your diary with you to your next appointment/review. You can visit the British Hypertension Society website to download a home blood pressure monitoring diary (http://www.bhsoc.org/resources/)

I have my own blood pressure monitor. Do I need to bring it to my next appointment?
Yes. Please bring your blood pressure monitor to your next appointment, together with your blood pressure diary.

How do I work out what my blood pressure is?
Your doctor or nurse will be able to help you to work out what your blood pressure is when you take your diary to your appointment. However, if you wish to do this yourself, you should ignore the first day of readings (as this was when you were getting used to the monitor) and take an average of the remaining readings. This will give you a useful picture of what your average blood pressure is.

Example:

	1st reading	2nd reading
Day 1	~~160/72~~	~~158/70~~
Day 2	158/65	160/71
Day 3	159/60	162/63
Day 4	164/68	158/65
Day 5	155/70	152/70
Day 6	158/74	158/72
Day 7	156/76	154/75

Average Blood Pressure: 158/69

If, at any time, you have any questions or concerns about monitoring your own blood pressure at home, you should discuss these with your doctor or nurse.

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Taking Your Blood Pressure At Home

There are several simple steps you should take to make sure that your home blood pressure readings are as accurate as possible.

Before you take your reading:

- There are many factors that can make your blood pressure rise for a short period of time. You should not smoke, have a drink containing caffeine (such as coffee) or exercise for 30 minutes before you take your blood pressure reading. You should also avoid measuring your blood pressure when you need to use the toilet.

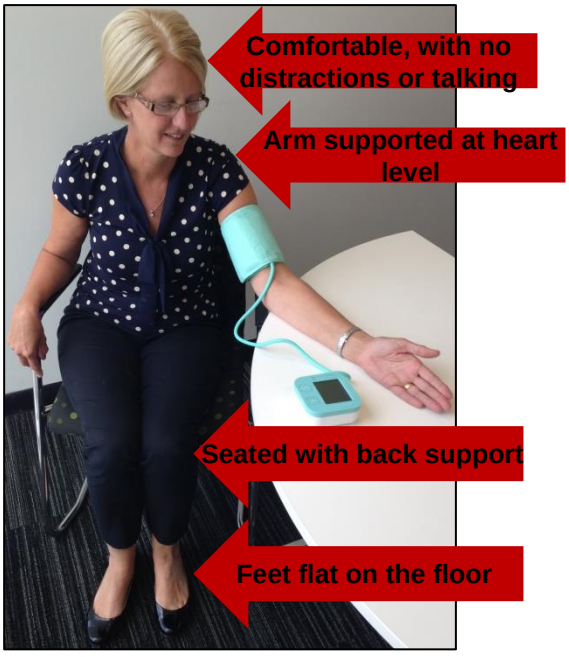
- It is important that you always measure your blood pressure in the same arm. You should use the arm which your doctor or nurse uses when they take your blood pressure, or whichever arm they ask you to use.

- Do not wear any tight or restrictive clothing around the arm you are measuring your blood pressure in. For example, you should avoid rolling up tight shirt sleeves.

- You should rest for at least five minutes before measuring your blood pressure. During this time you should sit down in a quiet place, try to relax and avoid speaking to anyone.

Taking your reading:

- Place the cuff on your arm, following the instructions that came with your monitor. The bottom of the cuff should be approximately 2cm above the bend in your elbow.



- Make sure that you are sitting down when taking your blood pressure readings and that you have both of your feet flat on the floor. You should not cross your legs as this can raise your blood pressure. The arm that you are measuring your blood pressure in should be support on a firm surface (such as a table or desk) with your palm facing up and should be at the same level as your heart.

- Take a reading, following the instructions that came with your monitor. When taking your blood pressure readings you should not talk and should try to relax.

- Take at least two readings, leaving at least a minute between each. After each measurement, you should write the reading down in your diary. Remember to write down the exact numbers that appear on the screen- do not round the numbers up or down. If the first two readings you take are very different, take 2 or 3 further readings. You should write all of your readings down in your blood pressure diary.

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Home Blood Pressure Diary

Average BP
(excluding BP readings from the first day where appropriate)

Name: …… **DOB:** ……

Patient/Hospital number *(if appropriate)*: ……

Target Blood Pressure *(if appropriate)*: *lower than* …… / ……

Arm used: Left ☐ Right ☐

Make/Model of monitor used: ……**Size of cuff:** Small ☐ Medium ☐ Large ☐

Please monitor and record your blood pressure at home for 7 consecutive days (unless you have been advised otherwise). On each day, monitor your blood pressure on two occasions- in the morning (between 6am and 12noon) and again in the evening (between 6pm and midnight). On each occasion take a minimum of two readings, leaving at least a minute between each. If the first two readings are very different, take 2 or 3 further readings.

Use the table below to record all of your blood pressure readings. The numbers you write down should be the same as those that appear on the monitor screen- do not round the numbers up or down. In the comments section, you should also write down anything that could have affected your reading, such as feeling unwell or changes in your medication. You do not need to record your pulse/heart rate. For information about taking your blood pressure, please read the 'Home Blood Pressure Monitoring Explained' leaflet. **Remember to take this diary with you to your next appointment/review**.

Date	**Time**	**Systolic BP** (top number)	**Diastolic BP** (bottom number)	**Notes** (e.g. medication changes, feeling unwell)
e.g. 7/10/2013	9:36am	142	87	Felt a bit dizzy when I woke up

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Home Blood Pressure Diary Continued…

Name: **DOB:**

…… ……

Patient/Hospital number *(if appropriate)*:

……

Date	**Time**	**Systolic BP** (top number)	**Diastolic BP** (bottom number)	**Notes** (e.g. medication changes, feeling unwell)

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