

## Understanding NICE guidance

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Information for people who use NHS services

### High blood pressure

*NICE 'clinical guidelines' advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive.*

This booklet is about the care and treatment of people with high blood pressure (hypertension) in the NHS in England and Wales. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence). It is written for people with high blood pressure but it may also be useful for their families or carers or for anyone with an interest in the condition.

The booklet is to help you understand the care and treatment options that should be available in the NHS. It does not describe high blood pressure or the tests or treatments for it in detail. Your GP should discuss these with you. There are examples of questions you could ask throughout this booklet to help you with this. You can get more information from the organisations listed on page 15.

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### **The advice in the NICE guideline covers:**

- Adults (aged 18 and over) with high blood pressure, including special consideration of:
  - black people of African and Caribbean family origin
  - people aged 80 and over.

### **It does not specifically look at:**

- People with diabetes.
- Children and young people (aged under 18).
- Pregnant women.

This is an update of advice on hypertension that NICE produced in 2006. The advice on measuring blood pressure, what blood pressure measurements mean and treating high blood pressure with drugs has changed.

## Your care

In the NHS, patients and healthcare professionals have rights and responsibilities as set out in the NHS Constitution ([www.dh.gov.uk/en/DH\\_113613](http://www.dh.gov.uk/en/DH_113613)). All NICE guidance is written to reflect these. You have the right to be involved in discussions and make informed decisions about your treatment and care with your healthcare team. Your choices are important and healthcare professionals should support these wherever possible. You should be treated with dignity and respect.

To help you make decisions, healthcare professionals should explain high blood pressure and the possible treatments for it. They should cover possible benefits and risks related to your personal circumstances. You should be given relevant information that is suitable for you and reflects any religious, ethnic, or cultural needs you have. It should also take into account whether you have any physical or learning disability, sight or hearing problem or language difficulties. You should have access to an interpreter or advocate (someone who helps you put your views across) if needed.

Your family and carers should be given their own information and support. If you agree, they should also have the chance to be involved in decisions about your care.

You should be able to discuss or review your care as your treatment progresses, or your circumstances change. This may include changing your mind about your treatment or care. If you have made an 'advance decision' (known as a 'living will' in the past) in which you have already given instructions about any treatments that you do not wish to have, your healthcare professionals have a legal obligation to take this into account.

All treatment and care should be given with your informed consent. If, during the course of your illness, you are not able to make decisions about your care, your healthcare professionals have a duty to talk to your family or carers unless you have specifically asked them not to. Healthcare professionals should follow the Department of Health's advice on consent ([www.dh.gov.uk/en/DH\\_103643](http://www.dh.gov.uk/en/DH_103643)) and the code of practice for the Mental Capacity Act. Information about the Act and consent issues is available from [www.nhs.uk/CarersDirect/moneyandlegal/legal](http://www.nhs.uk/CarersDirect/moneyandlegal/legal). In Wales healthcare professionals should follow advice on consent from the Welsh Government ([www.wales.nhs.uk/consent](http://www.wales.nhs.uk/consent)).

*If you think that your care does not match what is described in this booklet, please talk to a member of your healthcare team in the first instance.*

## High blood pressure

Your blood pressure is a measure of how strongly your blood is pressing against the walls of your arteries as it is pumped around your body by your heart. Blood pressure is made up of two measurements, one taken when your heart is beating and pumping blood (known as systolic blood pressure) and another taken when your heart is filling up with blood between beats (known as diastolic blood pressure). It is measured in millimetres of mercury (which is written as mmHg) and is recorded as systolic blood pressure over diastolic blood pressure, for example 120/70 mmHg.

If your blood pressure is 140/90 mmHg or above when it is measured in the GP practice or clinic, you may have high blood pressure. The medical name for this is hypertension.

High blood pressure is common, affecting at least one quarter of adults in the UK. It often has no symptoms and many people do not know they have it. The chance of developing high blood pressure becomes greater as a person grows older.

If you have high blood pressure, your heart has to work harder to pump blood around your body. This means that you may be at risk of cardiovascular disease, for example a heart attack (when the blood supply to your heart is affected) or a stroke (when the blood supply to your brain is affected). You may also be at risk of damage to the blood vessels in your kidneys or eyes. The higher your blood pressure is, the greater your risk becomes.

High blood pressure can be treated by making changes to your lifestyle (see page 10) and with drugs (see page 12), both of which can help to lower your blood pressure.

### Questions you might like to ask your doctor or nurse about high blood pressure

- Can you tell me more about high blood pressure?
- Is there any information about high blood pressure that I can have?
- Are there any local organisations that can give me support or advice about lowering my blood pressure?

### Questions families or carers might like to ask the doctor or nurse about high blood pressure

- What can I do to help and support someone to lower their blood pressure?
- Can you provide any information on how I can help them?

## Measuring your blood pressure

When your blood pressure is measured you should be seated with your arm stretched out and supported, for example on the arm of a chair or a cushion. You should be quiet and relaxed, and not too hot or cold.

If you have atrial fibrillation you should tell your doctor or nurse so that they can measure your blood pressure correctly.

The first time your blood pressure is checked, your doctor or nurse should measure it in both arms. If the blood pressure in one arm is very different from the blood pressure in the other arm, your doctor or nurse should measure it in both arms again. If it is still very different, your doctor or nurse should note this and take all of your future blood pressure measurements in the arm that has the higher blood pressure.

If the measurement shows that your blood pressure is 140/90 mmHg or above, your doctor or nurse should measure it again a few minutes later. If the second measurement is very different from the first, your doctor or nurse should take a third measurement a few minutes after the second. The lowest of these measurements is your 'clinic blood pressure' and your doctor or nurse should record it.

### **If you have been feeling dizzy or faint or have fallen**

If you have been feeling dizzy or faint or, for example, have had a fall because you became dizzy or felt faint, you may have a condition known as postural hypotension. This happens when a person's blood pressure falls when they stand up. In this case your doctor or nurse should measure your blood pressure twice, first when you are sitting or lying down and again after you have been standing up for at least 1 minute. If your systolic blood pressure falls quite a bit when you stand up, your doctor should check any drugs you are taking. All your future blood pressure measurements should be taken when you have been standing up for at least 1 minute. Your doctor may offer to refer you to a specialist if your symptoms of hypotension persist.

If your clinic blood pressure is 140/90 mmHg or above, your doctor should:

- offer to check your risk of cardiovascular disease (see page 6)
- offer to check the health of your heart, kidneys and eyes (see page 7)
- offer you blood pressure monitoring to check whether your clinic blood pressure is a true picture of your usual blood pressure (see page 8).

If your clinic systolic blood pressure is 180 mmHg or above, or your clinic diastolic blood pressure is 110 mmHg or above, or both, your doctor may offer you drug treatment for high blood pressure straight away.

## Checking your risk of cardiovascular disease

There are factors other than high blood pressure that can increase your risk of cardiovascular disease, for example, smoking or having high levels of fats (known as lipids), such as cholesterol, in your blood. Your doctor or nurse should offer to calculate your likely risk of developing cardiovascular disease. They should do this using a computer program that takes account of:

- your age
- your sex
- whether you smoke
- your blood pressure
- your cholesterol level.

They may offer to take a blood sample to measure your cholesterol and lipid levels.

Your doctor or nurse should consider the other factors that affect your risk of cardiovascular disease. For example, they should ask you about your family origin and whether any of your close relatives had heart disease at a young age. They should also measure your height and weight.

Your doctor or nurse should then tell you your likely risk of developing cardiovascular disease during the next 10 years (for example, a one-in-five or 20% chance). They should offer to discuss with you your risk of cardiovascular disease and ways of reducing your risk.

### Questions you might like to ask your doctor or nurse about your risk of cardiovascular disease

- What is my risk of cardiovascular disease? Can you explain what it might mean to me?
- Do you have a graph or picture that shows my risk?
- Would it help if I made some changes to my lifestyle, such as stopping smoking, doing more exercise or changing my diet?
- Is there a drug I can take to lower my cholesterol level?

## Checking the health of your heart, kidneys and eyes

To check the health of your heart, kidneys and eyes, your doctor should offer you:

- a urine test
- a blood test (from a blood sample usually taken from your arm)
- an examination of your eyes
- an ECG (ECG stands for electrocardiogram, which is a test that records how well your heart is working).

If you have swelling or bleeding inside your eye, your doctor should refer you to a specialist the same day.

### Questions you might like to ask your doctor or nurse about tests to check your heart, kidneys and eyes

- Can you give me more details about the tests you are recommending for me?
- What do these tests involve?
- Where will the tests be done? Will I need to have them in hospital?
- When can I have these tests?
- How long will it take to get the results?

## Blood pressure monitoring

### Ambulatory blood pressure monitoring

Ambulatory blood pressure monitoring can be used to measure your average blood pressure when you are going about your usual activities. This helps to make sure that your blood pressure is worked out from measurements that are as accurate as possible.

Ambulatory blood pressure monitoring measures your blood pressure automatically, wherever you are. The monitor has a cuff that is wrapped around your arm, and is connected to a small device on a belt or strap worn on your body. Your doctor or nurse should make sure that the monitor cuff is the right size for your arm. The monitor should measure your blood pressure twice an hour during your normal waking hours. Your doctor or nurse should use at least 14 of these measurements to work out your average blood pressure.

### Home blood pressure monitoring

If you find ambulatory blood pressure monitoring too uncomfortable or inconvenient, you may be offered home blood pressure monitoring instead.

Home blood pressure monitoring uses a device that is similar to the device used by the doctor or nurse to measure your blood pressure in the GP practice or clinic. As with ambulatory blood pressure monitoring, your doctor or nurse should make sure that the monitor cuff is the right size for your arm. You should measure your blood pressure twice a day, ideally once in the morning and once in the evening, while you are sitting down. Each time you do this, you should take two readings, 1 minute apart. You should continue to measure your blood pressure twice daily for at least 4 days and ideally for 7 days. Your doctor or nurse should use all the measurements you have taken after the first day to work out your average blood pressure.

#### Questions you might like to ask your doctor or nurse about blood pressure monitoring

- Do I need to be at home to take the measurements?
- Can I have a bath or shower when I am wearing an ambulatory blood pressure monitor?
- What should I do if I think the ambulatory or home blood pressure monitor isn't working properly?
- What should I do if I forget to take a blood pressure reading?
- Who should I contact if I need help using the ambulatory or home blood pressure monitor?
- Can someone take my blood pressure for me or help me to do it?
- Can you give me information to remind me what to do each time?



## What blood pressure measurements mean

Your blood pressure is not considered to be high if:

- your clinic blood pressure is below 140/90 mmHg **or**
- your clinic blood pressure is 140/90 mmHg or above but your average ambulatory or home blood pressure is below 135/85 mmHg.

Your blood pressure is considered to be high if:

- your clinic blood pressure is 140/90 mmHg or above **and** your average ambulatory or home blood pressure is 135/85 mmHg or above.

If your blood pressure is not considered to be high, your doctor or nurse should offer to measure it again within 5 years, or sooner if your clinic blood pressure is close to 140/90 mmHg.

If your blood pressure is considered to be high, your doctor should tell you about lifestyle changes you can make to help lower your blood pressure. Your doctor may also offer you drugs to lower your blood pressure, depending on how high your blood pressure is and whether you have any other health problems (see page 12).

If your blood pressure is considered to be high and you are aged under 40, or if your doctor thinks your high blood pressure might be caused by another problem, such as a problem with your kidneys, they may refer you to a specialist. This is to find out more about the possible cause of your high blood pressure and the best treatment for you.

# Treating high blood pressure with lifestyle changes

## Diet and exercise

Your doctor or nurse should talk to you about what you usually eat and the amount of exercise you do. They should discuss with you how a healthy diet and regular exercise can help to lower your blood pressure, and they should offer you information sheets, booklets, DVDs or CDs about how you can make the changes needed.

## Smoking

If you smoke, your doctor or nurse should offer advice on how to stop, and should help you stop. Smoking greatly increases your chances of getting heart and lung diseases.

## Alcohol

If you drink large amounts of alcohol, your doctor or nurse should advise you to cut back. Cutting down can lower your blood pressure and is generally good for you.

## Salt

Your doctor or nurse should advise you to reduce the amount of salt you eat to help lower your blood pressure. You can do this either by cutting out salt as far as possible, or by using a salt substitute (which has a lower amount of sodium than normal salt). High levels of salt are found in some processed foods so it is a good idea when buying food to check the salt content by reading the label.

## Coffee and other drinks with caffeine

If you drink unusually large amounts of coffee, tea or other drinks that contain caffeine (such as cola and some other soft drinks), your doctor or nurse should encourage you to cut back.

## Relaxation therapies

Relaxation therapies and exercise can help to lower blood pressure. These treatments are not normally provided by the NHS, although you may want to find out more about them for yourself.

## Calcium, magnesium or potassium supplements

Calcium, magnesium and potassium supplements have been looked at as ways of lowering blood pressure. But these supplements don't seem to work, and they aren't recommended (and they shouldn't be offered to you).

## Getting further help

Your doctor or nurse should tell you about local events and courses that are organised to help and support people who want to live more healthy lives. You may find it helpful to meet other people making similar changes to their lifestyle.

### Questions you might like to ask your doctor or nurse about making lifestyle changes

- Can you tell me more about diet and how it can affect my blood pressure?
- Are there any foods I should eat or avoid to help lower my blood pressure?
- Are there any foods I should eat or avoid to help lower my cholesterol level?
- Can I join a gym?
- Are there any things that I should avoid doing? For example, are there any types of exercise that I shouldn't do?
- What information and support is available to help me make changes to my lifestyle, such as taking more exercise, changing my diet or reducing stress?

*Some treatments may not be suitable for you, depending on your exact circumstances. If you have questions about the specific treatments and options covered in this booklet, please talk to your doctor or nurse.*

## Treating high blood pressure with drugs

Your doctor should offer you drug treatment if your blood pressure is considered to be high and any of the following apply to you.

- You have damage to the blood vessels in your heart, brain, kidneys or eyes.
- You have cardiovascular disease.
- You have kidney disease.
- You have diabetes.
- Your likely risk of developing cardiovascular disease during the next 10 years is 20% (a one-in-five chance) or more.
- Your clinic blood pressure is 160/100 mmHg or above **and** your average ambulatory or home blood pressure is 150/95 mmHg or above.

Your doctor or nurse should offer you information about how drugs can help to lower blood pressure and about their possible side effects so that you can be involved in all the decisions about your treatment.

If you are aged over 80, your doctor should offer you the same drug treatment for high blood pressure that is offered to people aged over 55. When offering you drug treatment they should take into account any other medical problems you have.

If you are a woman who is pregnant or breastfeeding, or if you may become pregnant, it is important that you tell your doctor or nurse. They should check whether the drugs you are taking to lower your blood pressure are still safe for you to take. You may be advised to switch to another type of drug. There is more information about this in 'High blood pressure in pregnancy' (available from [www.nice.org.uk/guidance/CG107](http://www.nice.org.uk/guidance/CG107)).

Most people will need more than one type of drug to lower their blood pressure. Whenever possible, your doctor should offer you drugs that only need to be taken once a day.

Your doctor or nurse should offer you practical advice and support to make sure you get the most benefit from your drugs, for example by:

- making a note when you take your drugs
- using a box with different compartments to help you remember whether you've taken your drugs
- having special packaging that you can open more easily
- fitting your drugs into your daily routine.

## Blood pressure targets

The aim of treatment is to get your clinic blood pressure down to below 140/90 mmHg if you are aged under 80, or below 150/90 mmHg if you are aged 80 or over.

If your blood pressure is generally higher than usual for you when it is measured at the GP practice or clinic, your doctor may offer you ambulatory or home blood pressure monitoring to check how well your drug treatment is working (see page 8). The aim is to get your average ambulatory or home blood pressure down to below 135/85 mmHg if you are aged under 80, or below 145/85 mmHg if you are aged 80 or over.

If the first drug you take doesn't work well enough, your doctor may offer to add a second drug of a different type. If these two drugs together don't work, your doctor may offer to add a third type of drug. And if three types of drug taken together don't work, your doctor may offer to add a fourth.

If your blood pressure is still high after taking four drugs, your doctor should refer you to a specialist.

Once your blood pressure has come down to below 140/90 mmHg, or below 150/90 mmHg if you are aged 80 or over, you should be offered a yearly check-up. At this check-up the doctor or nurse should measure your blood pressure and offer you further support and advice. The check-up also gives you a chance to ask questions about your treatment and discuss any symptoms or side effects you may have noticed.

Some of the drugs that are used to treat high blood pressure are shown on page 14.

*If you have talked to your doctor or nurse, and you think that a treatment is suitable for you but it is not available, you can contact your local patient advice and liaison service ('PALS') or NHS Direct Wales.*

### Questions you might like to ask your doctor or nurse about drugs for high blood pressure

- Could you tell me why you have decided to offer me this drug?
- How will this drug help me?
- What are the most common side effects of this drug?
- What should I do if I get any side effects? For example, should I call you, or go to the emergency department at a hospital?
- How long will I need to take the drug for?
- Are there any long-term effects of taking this drug?
- Are there any other options for treatment?
- What will happen if I choose not to take the drug?
- Is there a leaflet or other information that I can have?

## Some drugs used to treat high blood pressure

Type of drug	Who does it work best for?
<p><b>ACE inhibitor</b> (for example, enalapril, lisinopril, perindopril, ramipril). An ACE inhibitor is often the first drug offered to treat high blood pressure.</p>	<ul style="list-style-type: none"> <li>• People aged under 55 years.</li> <li>• People of any age who are not of black African or Caribbean family origin (ACE inhibitors do not work as well in these groups of people).</li> </ul>
<p><b>Angiotensin II receptor blocker</b>, sometimes known as an ARB (for example, candesartan, irbesartan, losartan, valsartan). An ARB is sometimes the first drug offered to treat high blood pressure.</p>	<ul style="list-style-type: none"> <li>• People who are not able to take ACE inhibitors because of side effects such as a dry cough.</li> </ul>
<p><b>Calcium-channel blocker</b> (for example, amlodipine, felodipine, nifedipine).</p>	<ul style="list-style-type: none"> <li>• People who are aged over 55 years.</li> <li>• Black people of any age who are of African or Caribbean family origin.</li> </ul>
<p><b>Diuretic</b> (for example, chlortalidone, indapamide, bendroflumethiazide).</p>	<ul style="list-style-type: none"> <li>• People who need three or four drugs to lower their blood pressure.</li> <li>• People who cannot take a calcium-channel blocker because they have swelling caused by fluid retention or have a high risk of heart problems.</li> </ul>
<p><b>Alpha-blocker</b> (for example, doxazosin, prazosin) or <b>beta-blocker</b> (for example, atenolol, bisoprolol). Alpha-blockers and beta-blockers are used less commonly than other drugs for high blood pressure.</p>	<ul style="list-style-type: none"> <li>• People who need four drugs to lower their blood pressure and who cannot take some other drugs.</li> <li>• For some people a beta-blocker may be the first drug offered to treat high blood pressure.</li> </ul>

## More information

The organisations below can provide more information and support for people with high blood pressure. NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- Blood Pressure Association, 0845 241 0989  
[www.bpassoc.org.uk](http://www.bpassoc.org.uk)
- British Heart Foundation, 0300 330 3311  
[www.bhf.org.uk](http://www.bhf.org.uk)
- The Stroke Association, 0303 3033 100  
[www.stroke.org.uk](http://www.stroke.org.uk)

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more. Your local patient advice and liaison service (usually known as 'PALS') may be able to give you more information and support. You should also contact PALS if you are unhappy with the treatment you are offered, but you should talk about your care with a member of your healthcare team first. If your local PALS is not able to help you, they should refer you to your local independent complaints advocacy service. If you live in Wales you should speak to NHS Direct Wales for information on who to contact.

## About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider the evidence on the condition and treatments, the views of patients and carers and the experiences of doctors, nurses and other healthcare professionals. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see [www.nice.org.uk/AboutGuidance](http://www.nice.org.uk/AboutGuidance)*

*This booklet and other versions of the guideline aimed at healthcare professionals are available at [www.nice.org.uk/guidance/CG127](http://www.nice.org.uk/guidance/CG127)*

*You can order printed copies of this booklet from NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference N2637). The NICE website has a screen reader service called Browsealoud, which allows you to listen to our guidance. Click on the Browsealoud logo on the NICE website to use this service.*

*We encourage NHS and voluntary organisations to use text from this booklet in their own information about hypertension.*