ESC
European Society
of Cardiology

ESC Clinical Practice Guidelines for the

Management of Elevated Blood Pressure and Hypertension: What Patients Need to Know

Image is for illustrative purposes only

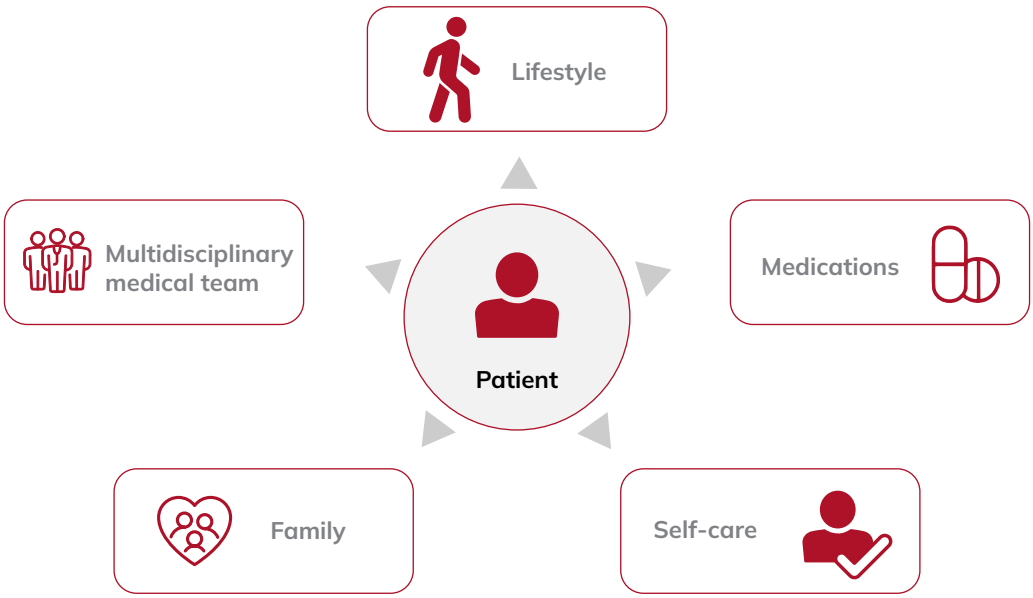
What are Clinical Practice Guidelines?

Clinical Practice Guidelines are documents created by healthcare professionals and scientists. They are primarily intended for doctors and medical staff and offer recommendations on diagnosis and treatment based on the latest available medical and scientific evidence. These guidelines help ensure that patients receive the best possible care.

How will this document help me?

This guide is designed for patients and their families. It is based on the European Society of Cardiology (ESC) Clinical Practice Guidelines for the management of elevated blood pressure and hypertension.

Blood pressure (BP) is the pressure of the blood flowing through your arteries. Like the air pressure in car tyres, BP needs to be checked from time to time. If BP is too high – called 'hypertension' – it can lead to major health problems. You can control your BP with the help of your medical team, support from your family and community, and by practising a healthy lifestyle.

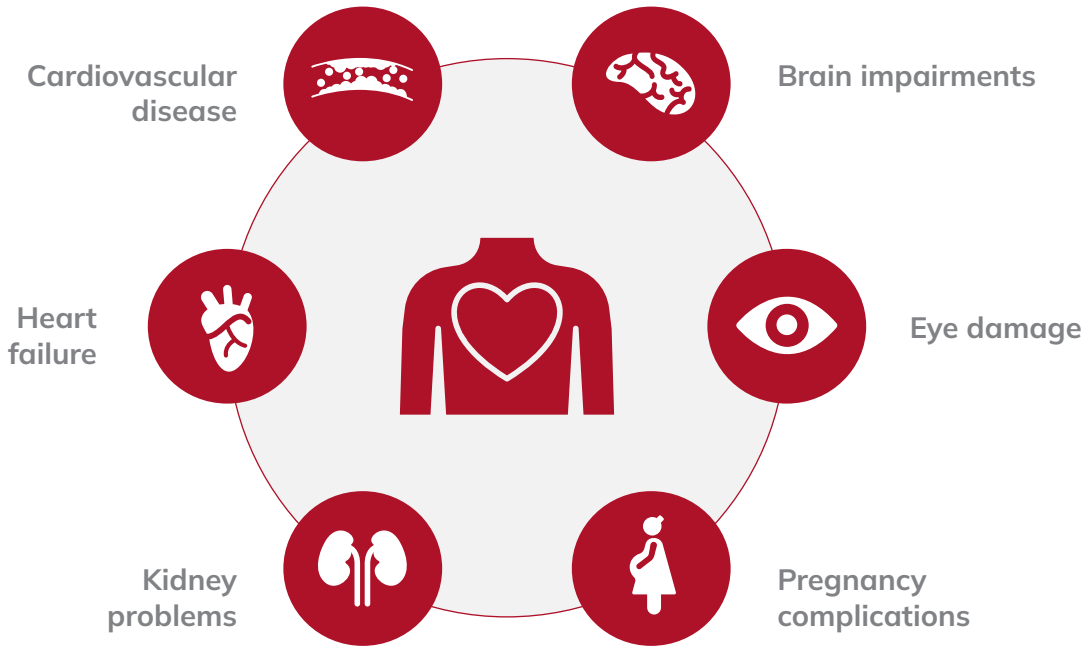


This document provides important information to help keep your BP under control. It aims to help you understand your condition and give you confidence to work with your healthcare team to make informed decisions about BP management, treatment and health.

What are the risks of high blood pressure?

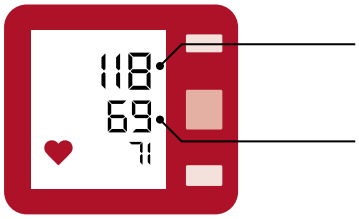
Many people do not notice or feel unwell when their BP is high, so it is important to be aware of the serious health risks that may occur if your BP is not kept under control.

Untreated high BP can damage arteries, causing them to become stiff or narrow. Fatty material can build up in damaged arteries to the heart and brain, which may trigger a cardiovascular event, such as a heart attack or stroke. In addition, hypertension may contribute to heart failure and may damage other organs, including the brain, eyes and kidneys. High BP can also cause complications during pregnancy.



How is blood pressure measured?

BP is reported as two numbers: **systolic pressure** is measured when the heart is contracting and **diastolic pressure** is measured when the heart is relaxing. The units for BP measurements are 'millimetres of mercury' or 'mmHg'.



Systolic pressure (top number)
Measures the pressure when your heart contracts and pumps blood

Diastolic pressure (bottom number)
Measures the pressure when your heart relaxes between beats

Keeping your BP in a healthy range is important to protect your blood vessels, heart and other organs. Normal BP is considered to be less than 120/70 mmHg.

It is recommended that everyone under 40 years of age should have their BP measured every 3 years. People over 40 years should have theirs checked every year.

How is high blood pressure (hypertension) diagnosed?

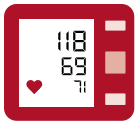
BP that is consistently 140/90 mmHg or higher is termed 'hypertension.' Diagnosing hypertension can be achieved in different settings using different techniques to measure BP accurately. It sometimes requires multiple BP checks to confirm a diagnosis.

BP may be checked **at the doctor's office** during a visit to your healthcare professional.

If needed, healthcare professionals may arrange for **ambulatory BP monitoring** (or 'ABPM'), where BP is checked over a 24-hour period using a special device.

You may also be asked to carry out '**home BP monitoring**' (or 'HBPM') using a BP monitor. You should check your BP by taking at least two recordings in the morning and in the evening, over several days. Your healthcare team will work out your average BP reading.

Home BP monitoring



Use a validated BP monitor

Measure BP in a quiet room after 5 mins of rest with arm and back supported

Obtain two readings on each occasion, 1-2 mins apart

Obtain readings morning and evening for at least 3 and ideally 7 days

Record your readings and show them to your healthcare team

Healthcare providers decide whether you have normal BP, elevated BP or hypertension, depending on your BP measurements and where they were taken:

	BP measured at the doctor's office (mmHg)	BP measured at home (mmHg)
Not elevated	Less than 120/70	Less than 120/70
Elevated	More than 120/70 but less than 140/90	More than 120/70 but less than 135/85
Hypertension	Equal to or more than 140/90	Equal to or more than 135/85

If you have not done so already, it is important to seek medical advice if your BP is consistently higher than 120/70 mmHg to discuss treatment strategies.

Elevated BP: If your BP is between 120/70 and 140/90 mmHg, lifestyle changes are recommended. Improving your diet and increasing physical activity can significantly lower your BP and prevent it from rising further. In some individuals with elevated BP, such as those with other health conditions, BP-lowering medication may also be recommended.

High BP (hypertension): If you have confirmed BP measurements of 140/90 mmHg or more, you will need to take BP-lowering medication in addition to adopting a healthy lifestyle. Individuals with hypertension often have other factors that may increase the risk of serious health conditions. The healthcare team may test blood and urine samples to measure blood sugar, cholesterol and kidney function. An electrocardiogram may be ordered to check the heart's rhythm. If you know you have conditions like diabetes, high cholesterol, heart disease or kidney problems, you should tell your healthcare professional.

Key actions to control your blood pressure

Actively managing your own BP is very important. Here, you can learn about the different ways to control your own BP so you can take action.

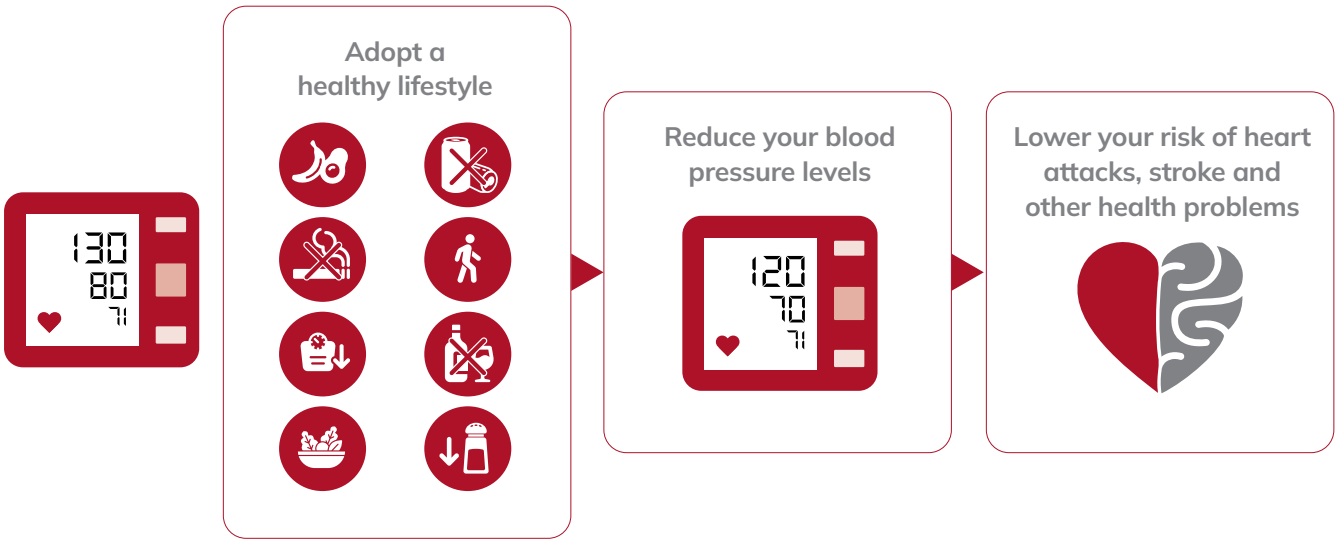
Regular monitoring

Tracking your BP consistently is extremely helpful and recommended. Regular monitoring helps you understand the trends of your BP over time and identify factors that may affect your BP. This is important information to share with your healthcare provider.

- Measure your blood pressure weekly
- Observe any changes or trends
- Speak to your healthcare team to discuss adjustments to your treatment plan if your BP readings consistently rise

Lifestyle changes

Taking proactive steps, such as adopting a healthy diet and engaging in regular exercise, can lower your BP and protect your heart and other organs, improving your overall health.



A healthy lifestyle is important for all people with elevated or high BP, whether you are taking BP-lowering medication or not.

	Why make this change?	What do I need to do?
 **Reduce salt intake**	Lowering your salt consumption can significantly reduce BP levels	Aim for less than 5 g of salt per day
 **Increase potassium intake**	Potassium-rich foods can help lessen the effects of sodium and lower BP	Eat bananas, avocados, spinach and/or beans
 **Limit sugary drinks**	Cutting back on sugary drinks can help prevent weight gain and reduce BP spikes	Choose water or unsweetened drinks
 **Regular physical activity**	Engaging in regular physical activity strengthens your heart, enabling it to pump blood more efficiently, which decreases the pressure on your arteries	The recommended level of exercise is 150 minutes of moderate-intensity physical activity a week (e.g. 30 minutes a day, 5 days a week) Increase your current level of physical activity gradually to recommended levels if your health status allows Brisk walking may be sufficient Strength training also helps
 **Maintain a healthy body weight**	Achieving and maintaining a healthy weight reduces the burden on your heart, lowering your BP	If your body mass index is greater than 25, reduce your food intake and increase your activity to bring about gradual weight loss. Your healthcare provider can provide more specific guidance
 **Maintain a healthy diet**	A balanced diet supports overall heart health and helps manage BP	Prioritise fruits, vegetables, whole grains and lean proteins in your diet
 **Quit smoking**	Smoking damages your blood vessels and raises BP. Quitting can help restore your heart and vascular health	Speak to your healthcare provider for advice on a smoking cessation strategy that suits you e.g. using nicotine replacement therapy
 **Limit alcohol consumption**	Excessive alcohol consumption can cause an increase in BP	No alcohol is healthiest Women and people over 65 years of age should drink no more than 1 drink a day and no more than 7 drinks per week Men should drink no more than 2 drinks a day and no more than 14 drinks per week Do not start drinking alcohol if you currently don't consume alcohol

Medication

In addition to adopting a healthy lifestyle, people with hypertension will need to take medication to lower their BP. Medication may also be necessary in people with elevated BP who have other diseases, like diabetes, a history of heart disease or stroke.

Your healthcare team will discuss the type of medication that is best for you. In most cases, a combination of two or more drugs is recommended. Regular follow-up visits are essential to adjust your treatment plan as needed.

NEVER DECIDE
about your treatment
ON YOUR OWN

ALWAYS DISCUSS
your ideas with your doctor or nurse (and/or pharmacist)

DECIDE TOGETHER
with your healthcare provider on the best treatment for you

The most common types of BP-lowering medication are shown below. Other types of medicines may also be used based on your individual medical history.

Medication class	How can they help me?	When used
Angiotensin-converting enzyme inhibitors (e.g., enalapril, ramipril)	Help relax your blood vessels to make it easier for your heart to pump blood to lower your BP	These drugs are often the first type of medication to be used due to strong evidence of BP reduction and prevention of cardiovascular events
Angiotensin II receptor blockers (e.g., losartan, valsartan)	Block a hormone that tightens blood vessels, helping them to relax and lower BP	
Calcium channel blockers (e.g., amlodipine, nifedipine)	Stop calcium from entering your heart and blood vessel cells to help blood vessels relax and reduce BP	
Diuretics (e.g., hydrochlorothiazide, chlorthalidone)	Help your body get rid of excess salt and water to reduce the amount of fluid in your blood and lower BP	
Beta-blockers (e.g., atenolol, bisoprolol)	Slow your heart rate and reduce the force of each heartbeat to lower your BP	These drugs are often combined with other BP-lowering drugs in individuals with heart disease
Mineralocorticoid receptor antagonists (e.g., spironolactone, eplerenone)	Help your body to get rid of salt while keeping potassium	These drugs are useful in difficult-to-control BP

Skills for taking pills

Treatment adherence means taking your medication as agreed with your healthcare provider. Adherence is essential for your medication to work properly.

You can establish good medication-taking habits by following the PILLS strategy:

P*rompt:* Place the medications or a reminder somewhere visible in your home. This can act as a trigger to take them each day. Audible prompts such as phone alarms or text reminders can help.

I*nclude others:* Family members or friends may be able to remind you to take your medications or support you to have access to an adequate supply of medications at all times.

L*ink it to events:* Taking medications at the same time as regular daily events that happen in your usual context can help strengthen the habit e.g. on waking, going to bed or around meal times.

L*et your doctor or pharmacist know if you are having trouble with your medication:* Your doctor or pharmacist may be able to make things easier by consolidating your medications, particularly if you are taking several medications e.g. using combination medications, deprescribing some medications or providing them in reminder packaging.

S*elf-monitoring:* Keeping a record of your medication taking may be helpful, using a pen and paper or digitally. This could be done in conjunction with self BP monitoring.

Final thoughts

Taking a proactive approach to controlling your BP will greatly lower your risk of serious health issues. Take charge of your BP: check it regularly, make healthy lifestyle changes and follow your treatment plan. Always collaborate with your healthcare provider so the plan fits well with your needs.

Testimony of a patient with high blood pressure

"As someone living with high blood pressure, I have learned that controlling it is not just about managing the numbers – it's about protecting my overall health and quality of life.

High blood pressure often has no symptoms, so it can be easy to underestimate its seriousness. However, left unmanaged, it significantly increases the risk of life-threatening conditions like strokes, heart attacks and kidney disease.

For me, controlling my blood pressure is a daily commitment to better health. Simple changes, like reducing salt intake, exercising regularly and managing stress has made a big difference.

Taking prescribed medications as directed is also essential, even when I feel fine. I have come to understand that consistency is key, as even fluctuations in blood pressure can still pose risks.

Regular monitoring helps me to stay aware of my progress and spot potential problems early. Knowing I am reducing my risks over the long term gives me confidence that I will improve my chances of ageing with good functional health that will allow me to remain independent and active.

Through lifestyle changes and working closely with my healthcare professionals, I have learned that the effort I put in today will pay off in a healthier, more fulfilling future."

– ESC Patient Forum member.

Glossary

Hypertension: Hypertension is a condition where the blood pressure in the arteries is persistently high. Normal blood pressure is below 120/70 mmHg. Hypertension is diagnosed when readings are consistently 140/90 mmHg or higher.

Systolic pressure: This is the top number in a blood pressure reading. It measures the pressure in your arteries when your heart contracts.

Diastolic pressure: This is the bottom number in a blood pressure reading. It measures the pressure in your arteries when your heart relaxes between beats.

ACE (angiotensin-converting enzyme) inhibitors: These drugs work by relaxing blood vessels and reducing the workload on the heart. Examples include enalapril and ramipril.

ARBs (angiotensin II receptor blockers): These drugs relax blood vessels but work differently from ACE inhibitors. They block a substance that causes blood vessels to tighten. Examples include losartan and valsartan.

Calcium channel blockers: These medications lower blood pressure by preventing calcium from entering the cells of the heart and blood vessel walls, which helps relax the vessels. Examples are amlodipine and nifedipine.

Diuretics: Sometimes called 'water pills,' diuretics help the kidneys remove excess salt and water from the body, reducing blood volume and lowering blood pressure. Common diuretics include hydrochlorothiazide and chlorthalidone.

Beta-blockers: These drugs work by slowing down the heart rate and reducing the force of the heartbeat, effectively lowering blood pressure. They are often prescribed for heart disease and are used less frequently for hypertension. Examples include atenolol and bisoprolol.

MRAs (mineralocorticoid receptor antagonists): These help the body get rid of excess salt while retaining potassium, which is beneficial for patients with difficult-to-treat forms of hypertension. Examples include spironolactone and eplerenone.

SGLT2 (sodium-glucose co-transporter 2) inhibitors: Originally developed for diabetes management, these drugs also have benefits in lowering blood pressure and reducing cardiovascular risks by helping the kidneys excrete more glucose and sodium. Examples include dapagliflozin and empagliflozin.

Labetalol: Often used in pregnancy, this medication helps manage hypertension by relaxing blood vessels and reducing heart rate.

Additional terms

White coat hypertension: Elevated blood pressure readings only when at the doctor's office, likely due to anxiety. Home readings are normal.

Masked hypertension: Normal blood pressure readings in the doctor's office but high readings at home, potentially due to less stress in the medical environment.

This guide for patients is a simplified version of the ESC Clinical Practice Guidelines for the management of elevated blood pressure and hypertension.

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Disclaimer

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This material was adapted from the ESC Guidelines as an aid to patients and carers. It represents the views of the ESC and was produced after careful consideration of the scientific and medical knowledge and the evidence available at the time of their publication. The ESC is not responsible in the event of any contradiction, discrepancy and/or ambiguity between the ESC Guidelines and any other official recommendations or guidelines issued by the relevant public health authorities, in particular in relation to good use of healthcare or therapeutic strategies. Please refer to the preamble of the original guidelines for further details of the role of Clinical Practice Guidelines and the individual responsibility of health professionals when making decisions for the care of patients.

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