



Diagnosis and management of hypertension in adults: Updated NICE guidance 2019

Hypertension facts

- Cardiovascular disease (CVD) is a leading cause of death and disability¹.
- Hypertension is a major risk factor for CVD¹.
- Over one quarter of adults in the UK are estimated to have high blood pressure (BP). More than half of these are not receiving effective treatment².
- Many people with hypertension are asymptomatic and up to 4.7 million UK adults may be undiagnosed².
- The new guideline ([NG136](#)) covers identifying and treating primary hypertension in adults, **including people with type 2 diabetes**.
- For managing hypertension in **people with chronic kidney disease (CKD)**, refer to NICE's guideline on CKD in adults ([CG182](#)). Around 40% of people with diabetes will develop CKD during their lifetime.

Key guideline changes in NG136³

Diagnosing hypertension

- **Measure** BP in both arms:
 - if the difference is >15 mmHg, the measurements should be repeated
 - if the difference remains >15 mmHg on the second measurement, use the arm with the higher reading for subsequent checks.
- **Offer** ambulatory BP monitoring (ABPM) or home BP monitoring (HBPM) if the clinic BP is between 140/90 mmHg and 180/120 mmHg, to confirm the diagnosis.

Assessing CV risk and target organ damage

- **Use** glycated haemoglobin (HbA_{1c}) instead of serum glucose and perform electrolytes, creatinine, eGFR, cholesterol and HDL, urinalysis, ACR and ECG.

Treatment recommendations

- **Offer** antihypertensive medication and lifestyle advice for persistent stage 2 hypertension (*see table overleaf*).
- **Discuss** antihypertensive medication and lifestyle modification with patients aged <80 years if they have persistent stage 1 hypertension and at least one of the following:
 - established CVD
 - target organ damage
 - renal disease
 - diabetes
 - an estimated 10-year CVD risk of ≥10%.
- **Consider** antihypertensive medication and lifestyle advice for patients:
 - aged <60 years, if they have stage 1 hypertension and an estimated 10-year CVD risk <10% (bearing in mind that 10-year CVD risk may underestimate the lifetime probability of developing CVD)
 - aged >80 years, if they have a clinic BP >150/90 mmHg.
- **Use clinical judgement** for those with frailty or multimorbidity.
- **Discuss** individual CVD risk, treatment preferences (including no treatment), and the risks and benefits of treatment before starting treatment.
- NICE provides a decision aid for patients to facilitate the patient–healthcare professional discussion regarding lifestyle modification, treatment types and treatment choice: <https://bit.ly/2kButJf>
- **Offer** lifestyle advice and support in making any changes, regardless of treatment/non-treatment choice.
- **Consider** specialist referral in adults aged <40 years with hypertension, to evaluate secondary causes and assess the long-term benefits and risks of treatment.

Monitoring

- **Measure** seated and standing BP in people who have hypertension and:
 - type 2 diabetes, or
 - symptoms of postural hypotension, or
 - are aged >80 years.
- **Advise** those who wish to self-monitor their BP to use HBPM and provide:
 - advice and training on its use
 - information on what to do if not achieving their target BP.
- Be aware that the ABPM and HBPM measurements may be 5 mmHg lower than clinic measurements.
- Review patients annually to monitor BP, provide support and discuss their lifestyle, symptoms and medication.

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Treatment steps for hypertension (including those with type 2 diabetes, but NOT those with chronic kidney disease)³

<p>Step 1</p> <ul style="list-style-type: none"> • Offer an ACEi or ARB to adults who: <ul style="list-style-type: none"> – have type 2 diabetes and are of any age or family origin* – are aged <55 years but are not of black African or African–Caribbean family origin • Offer an ARB if an ACEi is not tolerated • Do not combine ACEi and ARB treatments • Offer a CCB to adults without type 2 diabetes who are: <ul style="list-style-type: none"> – aged >55 years – black African or African–Caribbean • Offer a thiazide-like diuretic** if: <ul style="list-style-type: none"> – a CCB is not tolerated – the patient has heart failure 	<p>Step 2</p> <ul style="list-style-type: none"> • Before proceeding to step 2, ensure the patient is taking their medication as prescribed and support adherence • If BP is not controlled with step 1 ACEi or ARB treatment, offer an additional: <ul style="list-style-type: none"> – CCB, or – thiazide-like diuretic** • If BP is not controlled with step 1 CCB treatment, offer an additional: <ul style="list-style-type: none"> – ACEi*, or – ARB, or – thiazide-like diuretic**
<p>Step 3</p> <ul style="list-style-type: none"> • Before proceeding to step 3, ensure the patient is taking their medications at the optimal tolerated doses and discuss adherence • If BP remains uncontrolled with step 2 treatment, offer the following combination: <ul style="list-style-type: none"> – an ACEi* or ARB and – a CCB and – a thiazide-like diuretic** 	<p>Step 4</p> <ul style="list-style-type: none"> • If BP remains uncontrolled with optimal tolerated doses of step 3 medications, the patient should be regarded as having resistant hypertension • Before considering further treatment: <ul style="list-style-type: none"> – confirm clinic BP using ABPM or HBPM – check for postural hypotension – discuss adherence • If resistant hypertension is confirmed, consider specialist advice or adding: <ul style="list-style-type: none"> – low-dose spironolactone*** if blood potassium ≤ 4.5 mmol/L – an alpha- or beta-blocker if blood potassium > 4.5 mmol/L • If BP remains uncontrolled with optimal tolerated doses of step 4 medications, seek specialist advice

Abbreviations and footnotes

ACEi=angiotensin-converting enzyme inhibitor; ARB=angiotensin II receptor blocker; CCB=calcium-channel blocker.

*Consider an ARB in preference to an ACEi in patients of black African or African–Caribbean family origin.

**Thiazide-like diuretics (e.g. indapamide) are preferred over conventional thiazide diuretics (e.g. bendroflumethiazide), unless the patient's hypertension is already well controlled on the latter.

***Use with caution in those with a reduced estimated glomerular filtration rate (eGFR), due to the increased risk of hyperkalaemia.

Hypertension stages³

Stage 1. Clinic BP from 140/90 mmHg to 159/99 mmHg **PLUS** subsequent ABPM daytime average or HBPM average BP from 135/85 mmHg to 149/94 mmHg.

Stage 2. Clinic BP from $\geq 160/100$ mmHg to $< 180/120$ mmHg **PLUS** subsequent ABPM daytime or HBPM average BP $\geq 150/95$ mmHg.

Stage 3 (severe). Clinic BP $\geq 180/120$ mmHg.

Who to refer for same-day specialist review³

• People with severe hypertension (clinic BP $\geq 180/120$ mmHg) and:

- signs of retinal haemorrhage or papilloedema, or
- life-threatening symptoms (e.g. chest pain, signs of heart failure or acute kidney injury or new-onset confusion).
- Those with suspected pheochromocytoma (e.g. labile or postural hypotension, palpitations, pallor, headache, abdominal pain or diaphoresis).

Clinic blood pressure targets

• Adults with hypertension aged < 80 years: $< 140/90$ mmHg.

- Adults with hypertension aged ≥ 80 years: $< 150/90$ mmHg (using clinical judgement for those with frailty or multimorbidity).
- These targets apply to people with type 2 diabetes.
- For targets in people with CKD (with or without type 2 diabetes), refer to [CG182](#)⁴:
 - Adults with CKD and diabetes (and those with an ACR > 70 mg/mmol): systolic BP < 130 mmHg (target range 120–129 mmHg); diastolic BP < 80 mmHg.

Conclusions:

- Hypertension is a highly preventable cause of death and disability through strokes and heart disease.
- The lower CVD risk threshold in the updated guidelines means more people will be eligible for treatment.
- Management plans, including both pharmacological and non-pharmacological options, should be discussed with the individual and tailored to their circumstances.
- Avoiding over- or under-medicalisation, improving compliance with antihypertensive medications and controlling BP to target rates are important.
- Associated increases in healthcare staff time and costs may be offset by increased savings resulting from a subsequent reduction in CV events.

References

- ¹NHS (2019) *Cardiovascular disease*. Available at: <https://bit.ly/2SGt56V>
- ²British Heart Foundation (2019) *BHF Statistics Factsheet – UK*. Available at: <https://bit.ly/2zXS1wI>
- ³NICE (2019) *Hypertension in adults: diagnosis and management* (NG136). <https://www.nice.org.uk/guidance/ng136>
- ⁴NICE (2019) *Chronic kidney disease in adults: assessment and management* (CG182). Available at: <https://www.nice.org.uk/guidance/cg182>