



A summary of prescribing recommendations from NICE guidance

This edition includes one guideline.

Hypertension in adults

NICE NG136: 2019

This guideline covers the diagnosis and management of hypertension in adults, including people with type 2 diabetes. It aims to reduce the risk of cardiovascular problems such as heart attacks and strokes by helping healthcare professionals to diagnose hypertension accurately and treat it effectively.

Definition of terms

ABPM	ambulatory blood pressure monitoring
ACEI	angiotensin-converting enzyme inhibitor
ARB	angiotensin II receptor blocker
CCB	calcium channel blocker
CKD	chronic kidney disease
CV	cardiovascular
BP	blood pressure
HBPM	home blood pressure monitoring

Definitions of hypertension

- ◆ **Stage 1:** Clinic BP ranging from 140/90 mmHg to 150/99 mmHg **and** subsequent ABPM daytime average or HBPM average BP ranging from 135/85 mmHg to 145/94 mmHg.
- ◆ **Stage 2:** Clinic BP 160/100 mmHg or higher but less than 180/120 mmHg **and** subsequent ABPM daytime average or HBPM average BP of 150/95 or higher.
- ◆ **Stage 3 or severe:** Clinic systolic blood pressure of 180 mmHg or higher or clinic diastolic blood pressure of 120 mmHg or higher.

Diagnosis

Measuring BP in the clinic – see [NICE pathway](#)

Confirming the diagnosis – see [NICE pathway](#)

Assessing CV risk and target organ damage – see [NICE pathway](#)

Referral for same-day specialist review – see [NICE pathway](#)

Box 1

ABPM and HBPM monitoring

ABPM

- ◆ Use ABPM to confirm a diagnosis of hypertension.
- ◆ Ensure at least 2 measurements per hour are taken during waking hours e.g. between 8am and 10pm.
- ◆ Use the average value of at least 14 measurements.
- ◆ If ABPM is unsuitable or not tolerated, use HBPM.

HBPM

- ◆ Ensure for each BP reading, two consecutive measurements are taken, at least 1 minute apart and with the person seated, **AND**
- ◆ BP is recorded twice daily, ideally in the morning and evening, **AND**
- ◆ BP recording continues for at least 4 days, ideally 7 days.
- ◆ Discard measurements taken on the first day; use the average value of all the remaining measurements.

Managing hypertension

Lifestyle interventions

Also see NICE guidance on [obesity prevention](#) and [cardiovascular disease](#).

- ◆ Offer lifestyle advice to people with suspected or diagnosed hypertension and continue to offer it periodically (see [pathway](#)). Include advice about:
 - diet and exercise patterns
 - alcohol intake
 - caffeine intake
 - dietary sodium intake
 - smoking cessation.
- ◆ Do **not** offer calcium, magnesium or potassium supplements to reducing blood pressure.
- ◆ Inform people about local initiatives that provide support and promote healthy lifestyle change.

Pharmacological management

Also see the NICE 2-page [visual summary](#)

Starting antihypertensive drug treatment

Also see the NICE patient decision aid (under [Tools and Resources](#)) to aid discussion about treatment.

Pharmacotherapy is for use in addition to lifestyle advice.

- ◆ **Offer** antihypertensive drug treatment to adults of **any age** with persistent **stage 2** hypertension.
- ◆ Discuss starting antihypertensive drug treatment to adults aged **<80 years** with persistent **stage 1** hypertension **and** ≥ 1 of the following:
 - target organ damage,
 - established CV disease,
 - renal disease,
 - diabetes,
 - estimated 10 year CV risk ≥10%.
- ◆ Discuss with the person their individual CV risk and preferences for treatment, including no treatment, and explain risks and benefits before starting antihypertensive drug treatment. Continue to offer lifestyle advice and support them to make lifestyle changes whether or not they choose to start antihypertensive drug treatment.
- ◆ **Consider** antihypertensive drug treatment for adults:
 - Age **< 60 years** with **stage 1** hypertension and estimated 10-year risk <10%, **OR**
 - Age **>80 years** with clinic BP >150/90 mmHg.
- ◆ For adults aged <40 years with hypertension, consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of the long-term balance of treatment benefit and risks.
- ◆ Use clinical judgement for people of any age with frailty or multimorbidity.

Recommendations – wording used such as ‘offer’ and ‘consider’ denote the [strength of the recommendation](#).

Drug recommendations – the guideline assumes that prescribers will use a drug’s [Summary of Product Characteristics \(SPC\)](#) to inform treatment decisions.

Hypertension.....continued

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Box 2

Choice of antihypertensive Use this table in conjunction with treatment steps

Step	Type 2 diabetes (any age or family origin) Age <55 years and not of black African or African-Caribbean family origin)	Age ≥55 years (without type 2 diabetes) Black African or African/Caribbean family origin (any age, without type 2 diabetes)
1	A	C
2	A and C	
3	A and C and D	
4	<p style="text-align: center;">Resistant hypertension</p> <p>Consider seeking specialist advice or adding:</p> <ul style="list-style-type: none"> ➢ spironolactone if blood potassium ≤4.5 mmol/l ➢ alpha-blocker of beta-blocker if blood potassium >4.5 mmol/l <p style="text-align: center;">Seek expert advice if BP uncontrolled on optimal tolerated doses of four drugs.</p>	

A = ACEI or ARB

C = calcium-channel blocker

D = thiazide-like diuretic

Before considering next-step treatment for hypertension, review the person's medications to ensure they are being taken at the optimal tolerated doses **and** discuss adherence.

Step 1

- ◆ Offer an ACEI or ARB to adults^{*}:
 - with type 2 diabetes (any age of family origin), **OR**
 - aged <55 years but not of black African or African-Caribbean family origin.
- ◆ If an ACEI is not tolerated due to cough, offer an ARB^{*}.
- ◆ Do not combine ACEI with ARB to treat hypertension.
- ◆ Offer a CCB to adults:
 - aged ≥55 years without type 2 diabetes, **OR**
 - of black African or African-Caribbean family origin without type 2 diabetes.
- ◆ If a CCB is not tolerated, e.g. because of oedema, offer a thiazide-like diuretic.
- ◆ If there is evidence of heart failure, offer a thiazide-like diuretic and follow NICE guidance on [heart failure](#).
- ◆ If starting or changing diuretic treatment for hypertension, offer a thiazide-like diuretic, such as indapamide in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide.
- ◆ For adults with hypertension already being treated with bendroflumethiazide or hydrochlorothiazide, who have stable, well-controlled BP, continue with their current treatment.

Step 2

- ◆ If hypertension is not controlled by Step 1 treatment of an ACEI or ARB, offer the choice of **adding** one of the following:
 - a CCB **OR**
 - a thiazide-like diuretic.
- ◆ If hypertension is not controlled by Step 1 treatment of a CCB, offer the choice of **adding** one of the following:
 - an ACE or ARB^{*}, **OR**
 - a thiazide-like diuretic.
- ◆ If hypertension is not controlled in adults of black African or African-Caribbean family origin without type 2 diabetes taking Step 1 treatment, consider adding an ARB, in preference to an ACEI, to their Step 1 treatment.

Step 3

- ◆ If hypertension is not controlled by Step 2 treatment, offer a combination of:
 - an ACEI or ARB **and**
 - a CCB **and**
 - a thiazide-like diuretic.

Step 4

- ◆ If hypertension is not controlled in adults taking the optimal tolerated dose of an ACEI or ARB plus a CCB and a thiazide-like diuretic, regard them as having resistant hypertension.
- ◆ Before considering further treatment for a person with resistant hypertension:
 - confirm elevated clinic blood pressure measurements using ABPM or HBPM,
 - assess for postural hypotension,
 - discuss adherence.
- ◆ For people with confirmed resistant hypertension, consider adding a fourth antihypertensive drug as Step 4 treatment or seeking specialist advice.
- ◆ Consider further diuretic therapy with low-dose spironolactone^{**} for adults starting Step 4 treatment who have blood potassium level ≤4.5 mmol/l. Use particular caution in people with reduced eGFR because they have increased risk of hyperkalaemia.
- ◆ When using further diuretic therapy for Step 4 treatment, monitor blood sodium and potassium and renal function within one month of starting treatment and repeat as needed thereafter.
- ◆ Consider an alpha-blocker or beta-blocker for adults starting Step 4 treatment who have blood potassium level >4.5 mmol/l.
- ◆ If BP remains uncontrolled in people with resistant hypertension taking the optimal tolerated doses of four drugs, seek specialist advice.

For guidance on BP control in people with CKD, see NICE guidance on [CKD](#).

Blood pressure targets

- ◆ For patients <80 years with hypertension, reduce clinic BP to below 140/90 mmHg and maintain that level.
- ◆ For patients ≥80 years with hypertension, reduce clinic BP to below 150/90 mmHg and maintain that level.
- ◆ Use clinical judgement for people with frailty or multimorbidity.
- ◆ When using ABPM or HBPM, corresponding measurements are 5 mmHg lower than for clinic BP measurement i.e.
 - below 135/85 mmHg for patients <80 years,
 - below 145/85 mmHg for patients ≥80 years.

Monitoring – see [NICE pathway](#)

Footnotes

^{*} See MHRA advice on ACEI and ARB use in [pregnancy](#) and [breastfeeding](#), and related [clarification](#).

^{**} At time of publication, not all spironolactone preparations are licensed for this indication.

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Drug recommendations – the guideline assumes that prescribers will use a drug's [Summary of Product Characteristics \(SPC\)](#) to inform treatment decisions.

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