

Hypertension guidelines (NICE CG127)

Updated NICE clinical guidelines on the diagnosis and management of hypertension will have significant service and cost implications, especially in primary care. Patients >80 years should now be offered the same treatment as those >55 years, taking into account their comorbidity and concurrent medication. Calcium channel blockers are now the recommended first-line treatment for patients >55 years and those of African-Caribbean origin, while angiotensin enzyme converting inhibitors or low-cost angiotensin II receptor blockers are still recommended for those <55 years. NICE recommends thiazide-like diuretics chlortalidone and indapamide over conventional thiazide diuretics bendroflumethiazide and hydrochlorothiazide, although evidence of the advantages is limited. Pending availability of low cost generic preparation of appropriate doses of thiazide like diuretics, it remains reasonable to continue to use bendroflumethiazide.

Diagnosing and monitoring hypertension

Use 24-hour **ambulatory blood pressure monitoring (ABPM)** to confirm the diagnosis of hypertension in people with a clinic BP $\geq 140/90$ mmHg. At least two measurements per hour should be taken during normal waking hours and the average value of at least 14 measurements should be used.

If the patient is unable to tolerate ABPM, **home BP monitoring (HBPM)** is a suitable alternative.

- For each BP, two consecutive measurements are taken, at least 1 minute apart and with the person seated **and**
- blood pressure is recorded twice daily, ideally in the morning and evening **and**
- blood pressure recording continues for at least 4 days, ideally for 7 days.

Discard the measurements taken on the first day and use the average value of all the remaining measurements to confirm a diagnosis of hypertension.

If a patient has **severe hypertension**, consider starting antihypertensive drug treatment immediately, without waiting for the results of ABPM or HBPM.

Definitions for stage of hypertension:

	Clinic BP	ABPM or HBPM
Stage 1	$\geq 140/90$	$\geq 135/85$
Stage 2	$\geq 160/100$	$\geq 150/95$
Severe	$\geq 180/110$	—

Offer antihypertensive drug treatment to people **<80 years with stage 1 hypertension** who have one or more of the following: target organ damage, established cardiovascular disease, renal disease, diabetes, a 10-year CVD risk >20% or greater.

* If hypertension is not diagnosed, measure clinic BP at least every five years. Consider measuring more frequently if BP is close to 140/90.

Antihypertensive drug treatment should be offered to **anyone with stage 2 hypertension**.

People <40 years with stage 1 hypertension and none of these risk factors require specialist evaluation as 10-year CVD risk assessments can underestimate the lifetime risk in these people.

Blood pressure targets:

	Clinic BP	ABPM or HBPM
<80 years	<140/90	<135/85
>80 years	<150/90	<145/85

For **diabetes** (clinic BP): **Type 2** (most) <140/80 mmHg, **Type 2** (higher risk—proteinuria, retinopathy, stroke/TIA) <130/80 mmHg, **Type 1** <130/80 mmHg.

For people identified as having a **'white-coat effect'** (discrepancy of >20/10 mmHg between clinic and average daytime ABPM or average HBPM blood pressure measurements at the time of diagnosis)

consider ABPM or HBPM as an adjunct to clinic blood pressure measurements to monitor the response to antihypertensive treatment with lifestyle modification or drugs.

Antihypertensive drug treatment

Prescribe generically, using medicines taken once daily if appropriate and minimise cost. Offer people aged 80 years and over the same antihypertensive drug treatment as people aged 55–80 years, taking into account any comorbidities. Use a stepped approach and ensure medication is at optimal tolerated doses before moving to the next step.

Step 1

For **people <55 years** offer an angiotensin enzyme converting inhibitor (ACEi). If not tolerated (eg. cough) a low cost angiotensin II receptor blocker (ARB) is an alternative. Do not combine an ACEi with an ARB.

For **people ≥55 years** or **those of black African/Caribbean origin of any age**, offer a calcium channel blocker (CCB). If unsuitable (eg. oedema or intolerance), or there is evidence/high-risk of heart failure, a thiazide-like diuretic (TLD) is recommended.

NICE now recommends TLDs chlortalidone (CTD, 12.5 - 25 mg once daily) or indapamide (IND, 1.5 mg modified-release or 2.5 mg once daily) over conventional thiazide diuretics such as bendroflumethiazide (BFZ) or hydrochlorothiazide (HCT). However, for patients already receiving treatment with BFZ or HCT and whose BP is stable and well controlled, treatment should be continued with these drugs.

IND is more expensive than other thiazide diuretics and there is limited evidence of greater efficacy. The modified release preparation is 4 times the cost of BFZ. Currently, CTD is only available in the UK as a 50 mg tablet. Quartering or halving tablets on a regular basis is not an ideal solution resulting in inconsistent dosing and wastage. It is therefore reasonable to continue prescribing BFZ until suitable generic doses of CTD or IND become available.

Beta-blockers are not preferred in step 1 but they may be considered for younger people if ACEi and ARB contraindicated/not tolerated or there is evidence of increased sympathetic drive, and for women of child-bearing potential.

Step 2

Offer a CCB in combination with either an ACEi or ARB. If a CCB is unsuitable, a TLD is recommended. For people of black African/Caribbean origin give a CCB in combination with an ARB in preference to a CCB and ACEi. Do not combine an ACEi with an ARB.

If a beta-blocker was used in step 1 add a CCB rather than a TLD to reduce risk of developing diabetes.

Step 3

Offer an ACEi (or ARB), CCB and TLD. Regard BP>140/90 mmHg at step 3 with optimal doses as resistant and consider seeking expert advice.

Step 4

Consider further diuretic therapy with low-dose (25mg od) spironolactone if blood potassium <4.5 mmol/l. Use with caution in people with a reduced eGFR, because greater risk of hyperkalaemia. Spironolactone does not currently have a UK marketing authorisation for the treatment of hypertension therefore informed consent should be obtained and documented.

If blood potassium level >4.5 mmol/l consider higher dose TLD.

With further diuretic therapy monitor blood sodium and potassium and renal function within 1 month and as required thereafter.

If further diuretic therapy is unsuitable, consider an alpha- or beta-blocker.

If blood pressure remains uncontrolled with optimal or maximum tolerated doses of four drugs, seek expert advice if it has not yet been obtained.

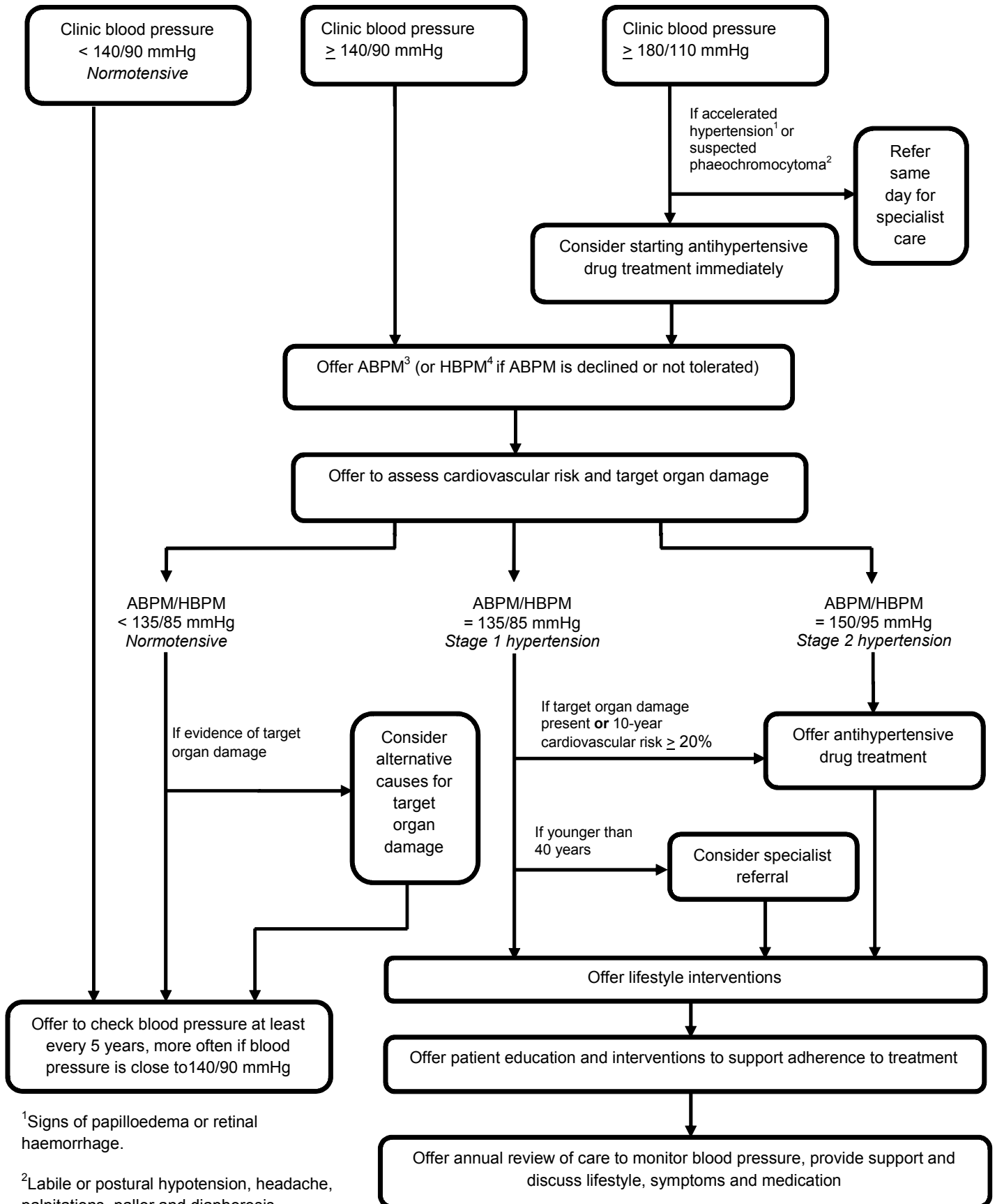
References

NICE CG127 Hypertension: Clinical management of primary hypertension in adults (August 2011)

RDTC Medicines Management Briefing: No. 3. Hypertension – Diagnosis and Monitoring (January 2012)

RDTC Medicines Management Briefing: No. 4. Hypertension – Stepped Care Management (January 2012)

Care pathway for hypertension



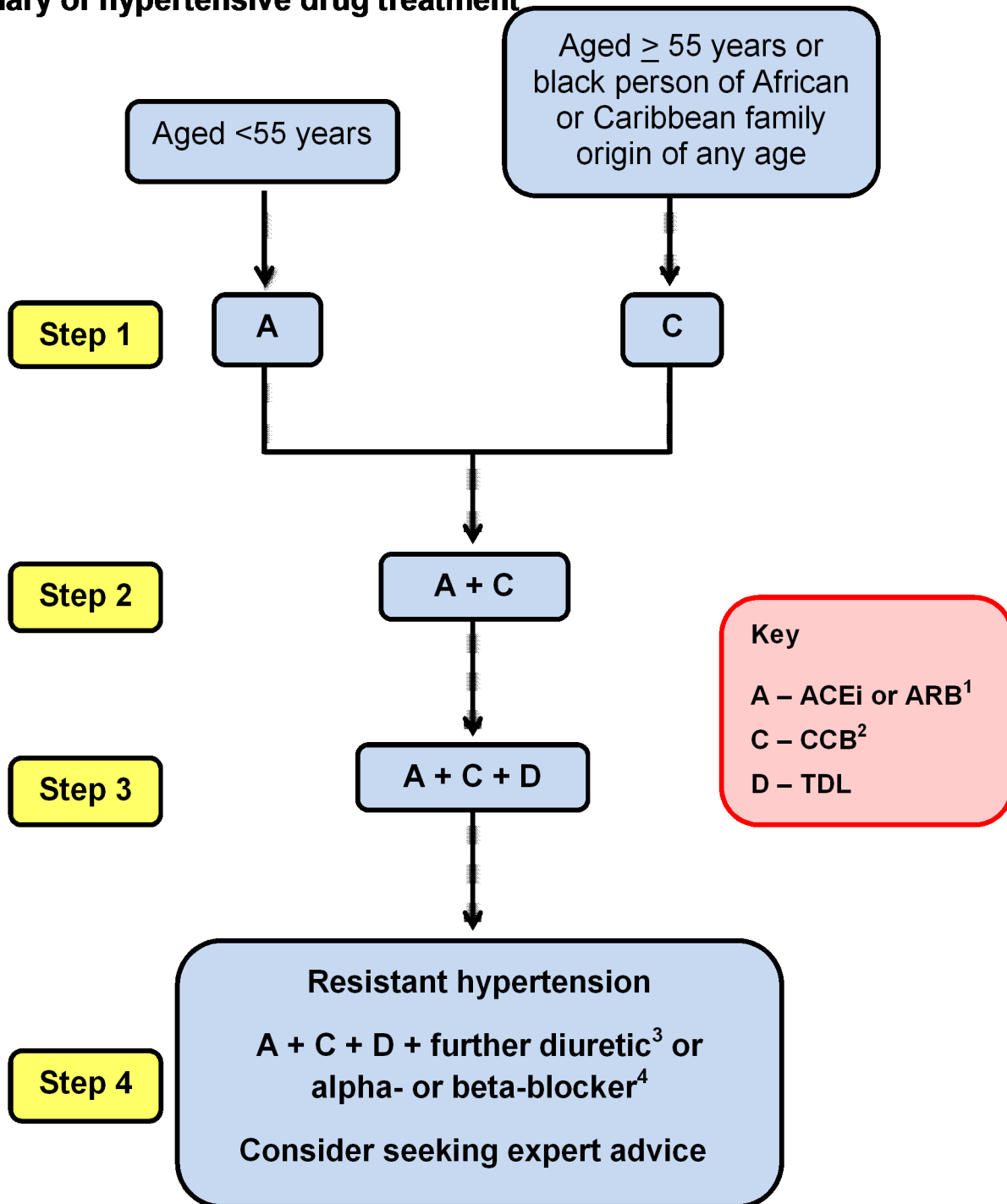
¹Signs of papilloedema or retinal haemorrhage.

²Labile or postural hypotension, headache, palpitations, pallor and diaphoresis.

³Ambulatory blood pressure monitoring.

⁴Home blood pressure monitoring.

Summary of hypertensive drug treatment



¹Choose a low-cost ARB.

²A CCB is preferred but consider a thiazide-like diuretic if a CCB is not tolerated or the person has oedema, evidence of heart failure or a high risk of heart failure.

³Consider a low dose of spironolactone or higher doses of a thiazide-like diuretic.

⁴Consider an alpha- or beta-blocker if further diuretic therapy is not tolerated, or is contraindicated or ineffective.

Key priorities for practice

- If clinic BP ≥ 140 mmHg use ABPM to confirm diagnosis. Is unable to tolerate, use HBPM.
- Offer antihypertensive drug treatment to people <80 years with stage 1 hypertension who have one or more of the following: target organ damage, established cardiovascular disease, renal disease, diabetes, a 10-year CVD risk >20% or greater and anyone with stage 2 hypertension.
- People <40 years with stage 1 hypertension and none of these risk factors require specialist evaluation.
- 'White coat effect' - consider ABPM or HBPM as adjunct to clinic BP to monitor response to treatment.
- Offer patients >80 years the same treatment as those >55 years, taking into account any comorbidity and concurrent drugs.
- Offer an ACEi (or low-cost ARB) for patients <55 years as step 1 treatment. Offer a CCB as step 1 treatment for patients >55 or those of black African/Caribbean origin of any age.
- Offer a CCB in combination with either an ACEi or ARB as step 2 treatment.
- A triple combination of an ACEi (or ARB) in combination with a CCB and diuretic should be offered at step 3.
- Continue with BFZ as the thiazide diuretic of choice for patients initiating diuretic treatment pending the ready availability of low-cost generic TLD preparations in appropriate doses.
- Add spironolactone as the first choice additional treatment at step 4 if serum potassium ≤ 4.5 mmol/L.

Preferred drug choices

	First choice	Alternative
ACEi	Lisinopril Ramipril	Perindopril
ARB	Losartan, Candesartan	
CCB	Amlodipine	Lercanidipine Nifedipine (Coracten XL)
Thiazide and related diuretics	Bendroflumethiazide Indapamide (standard release only)	Chlortalidone
Beta-blocker	Bisoprolol	Atenolol Metoprolol
Alpha-blocker (step 4)	Doxazosin (standard release)	
Potassium sparing diuretic (step 4)	Sprinoloactone (No UK license for treatment hypertension, informed consent required. Consider seeking specialist advice as per NICE CG127)	

Related guidance

[NHS CD&D Antiplatelet Drugs – Guidance for the use in Primary Care \(February 2011\)](#)

[NHS CD&D Guideline for lipid modification in primary and secondary prevention of CVD \(May 2011\)](#)

[NICE CG 108 Chronic Heart Failure \(2010\)](#)

[NICE CG107 Hypertension in pregnancy \(2010\)](#)

[NICE PH25 Prevention of cardiovascular disease at population level \(2010\)](#)

[NICE CG87 Type 2 diabetes \(2009\)](#)

[NICE CG73 Chronic kidney disease \(2008\)](#)

[NICE CG68 Stroke \(2008\)](#)

[NICE CG67 Lipid modification \(2008\)](#)

[NICE CG 48 MI: secondary prevention \(2007\)](#)