



*National Institute for  
Health and Clinical Excellence*

**Quick reference guide**

Issue date: June 2006

## **Hypertension: management of hypertension in adults in primary care**

NICE clinical guideline 34 (Partial update of NICE clinical guideline 18)  
This clinical guideline was developed by the Newcastle Guideline Development and Research Unit; the section on prescribing drugs has been updated by the British Hypertension Society and the National Collaborating Centre for Chronic Conditions

### **Hypertension: management of hypertension in adults in primary care (NICE clinical guideline 34)**

**This replaces NICE clinical guideline 18, issued in August 2004.**

The section on drug treatment for hypertension (pages 8–9) has been updated in line with new evidence. The pages containing the new recommendations are highlighted by a red border. All other recommendations are unchanged from the original guideline.

This partial update has been developed by the National Collaborating Centre for Chronic Conditions and the British Hypertension Society. The original guideline was developed by the Newcastle Guideline Development and Research Unit.

### **Patient-centred care**

Treatment and care should take into account patients' individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow patients to reach informed decisions about their care. Carers and relatives should have the chance to be involved in discussions unless the patient thinks it inappropriate.

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#### **This guidance is written in the following context**

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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## Key priorities for implementation

### Measuring blood pressure

- To identify hypertension (persistent raised blood pressure above 140/90 mmHg), ask the patient to return for at least two subsequent clinics where blood pressure is assessed from two readings under the best conditions available.
- Routine use of automated ambulatory blood pressure monitoring or home monitoring devices in primary care is not currently recommended because their value has not been adequately established; appropriate use in primary care remains an issue for further research.

### Lifestyle interventions

- Lifestyle advice should be offered initially and then periodically to patients undergoing assessment or treatment for hypertension.

### Cardiovascular risk

- If raised blood pressure persists and the patient does not have established cardiovascular disease (CVD), discuss with them the need to formally assess their cardiovascular risk. Tests may help identify diabetes, evidence of hypertensive damage to the heart and kidneys, and secondary causes of hypertension such as kidney disease.
- Consider the need for specialist investigation of patients with signs and symptoms suggesting a secondary cause of hypertension. Accelerated (malignant) hypertension and suspected pheochromocytoma require immediate referral.

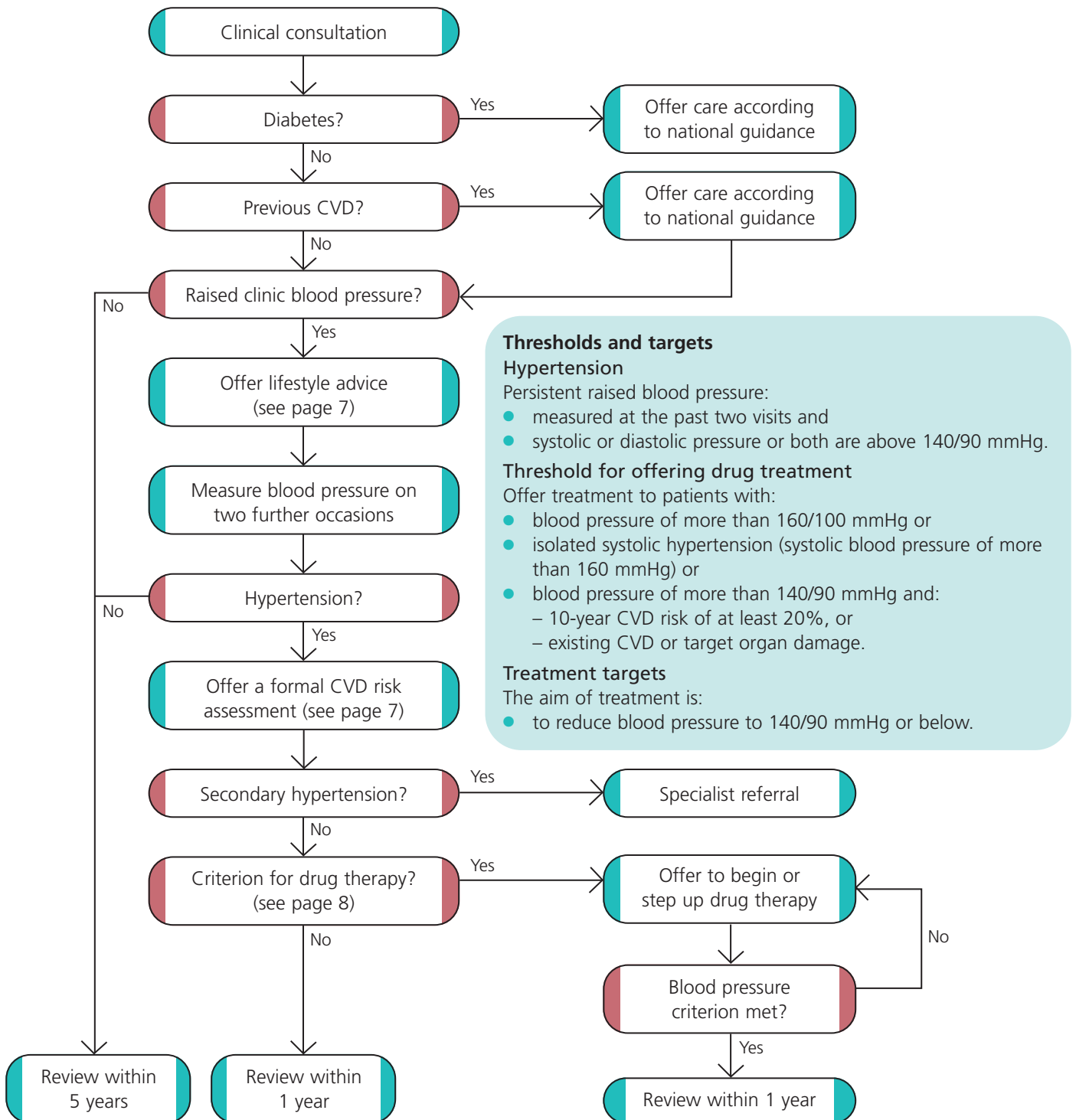
### Pharmacological interventions

- Drug therapy reduces the risk of cardiovascular disease and death. Offer drug therapy to:
  - patients with persistent high blood pressure of 160/100 mmHg or more
  - patients at raised cardiovascular risk (10-year risk of CVD of 20% or more or existing CVD or target organ damage) with persistent blood pressure of more than 140/90 mmHg.
- In hypertensive patients aged 55 or older or black patients of any age, the first choice for initial therapy should be either a calcium-channel blocker or a thiazide-type diuretic. For this recommendation, black patients are considered to be those of African or Caribbean descent, not mixed-race, Asian or Chinese.
- In hypertensive patients younger than 55, the first choice for initial therapy should be an angiotensin-converting enzyme (ACE) inhibitor (or an angiotensin-II receptor antagonist if an ACE inhibitor is not tolerated).

### Continuing treatment

- Provide an annual review of care to monitor blood pressure, provide patients with support and discuss their lifestyle, symptoms and medication.
- Patients may become motivated to make lifestyle changes and want to stop using antihypertensive drugs. If at low cardiovascular risk and with well controlled blood pressure, these patients should be offered a trial reduction or withdrawal of therapy with appropriate lifestyle guidance and ongoing review.

## Care pathway for hypertension



**Abbreviation:**  
CVD – cardiovascular disease

## Measuring blood pressure

- Healthcare professionals taking blood pressure measurements need adequate initial training and should have their performance reviewed periodically.
- Devices for measuring blood pressure must be properly validated, maintained and regularly recalibrated according to manufacturers' instructions.

### Taking the measurements

- Where possible, standardise the environment when measuring blood pressure: the environment should be relaxed, quiet and warm, and the patient seated with their arm outstretched and supported.
- If the first measurement exceeds 140/90 mmHg, take a second confirmatory reading at the end of the consultation if possible.
- Measure blood pressure on both of the patient's arms and use the arm with the higher value as the reference arm for future measurements.
- If the patient has symptoms of postural hypotension (falls or postural dizziness), measure blood pressure while they are standing.
- To identify hypertension (persistent raised blood pressure, above 140/90 mmHg), ask the patient to return for at least two more appointments; check blood pressure twice on each occasion, under the best conditions available.
- Take measurements at monthly intervals – but if the patient has severe hypertension re-evaluate him or her earlier.
- Routine use of automated ambulatory blood pressure monitoring or home monitoring devices in primary care is not recommended.

### When to refer

- Refer immediately if the patient has signs of:
  - accelerated (malignant) hypertension (blood pressure more than 180/110 mmHg with signs of papilloedema and/or retinal haemorrhage)
  - suspected pheochromocytoma (possible signs include labile or postural hypotension, headache, palpitations, pallor and diaphoresis).
- Consider referral if:
  - the patient has unusual signs and symptoms
  - the patient has signs or symptoms suggesting a secondary cause
  - the patient's management depends critically on the accurate estimation of their blood pressure
  - the patient has symptoms of postural hypotension, or a fall in systolic blood pressure when standing of 20 mmHg or more.

## Lifestyle interventions to reduce blood pressure

- Ask patients about their diet and exercise patterns, and offer guidance and written or audiovisual information.
- Ask about alcohol consumption and encourage patients to cut down if they drink excessively.
- Discourage excessive consumption of coffee and other caffeine-rich products.
- Encourage patients to reduce their salt intake or use a substitute.
- Offer smokers advice and help to stop smoking.
- Tell patients about local initiatives (for example, run by healthcare teams or patient organisations) that provide support and promote lifestyle change.

### Not recommended

- Do not offer calcium, magnesium or potassium supplements to reduce blood pressure.
- Relaxation therapies can reduce blood pressure and patients may wish to try them. However, primary care teams are not recommended to provide them routinely.

## Cardiovascular risk

- If raised blood pressure persists and the patient does not have established cardiovascular disease, discuss the need to formally assess their cardiovascular risk.
- Use the cardiovascular risk assessment to discuss prognosis and options for managing both raised blood pressure and other modifiable risk factors.
- Consider whether specialist referral is needed (see page 6).

### Tests to assess risk

- Urine test for protein (using test strip).
- Plasma glucose, electrolytes, creatinine, serum total cholesterol and HDL cholesterol.
- 12-lead electrocardiography.



## Drug treatment

### Key issues in updating the recommendations

**Beta-blockers:** In head-to-head trials, beta-blockers were usually less effective than a comparator drug at reducing major cardiovascular events, particularly stroke. Beta-blockers were also less effective than an ACE inhibitor or a calcium channel blocker at reducing the risk of diabetes, particularly in patients taking a beta-blocker and a thiazide-type diuretic.

**Calcium-channel blockers or thiazide-type diuretics:** These are the most likely drugs to confer benefit as first-line treatment for most patients aged 55 or older.

**People younger than 55 years:** The evidence suggests that initial therapy with an ACE inhibitor may be better than initial therapy with a calcium-channel blocker or a thiazide-type diuretic.

**Using more than one drug:** Adding an ACE inhibitor to a calcium-channel blocker or a diuretic (or vice versa) is a logical combination, and has been commonly done in trials. There is little evidence on using three drugs so the recommendation is based on the most straightforward option.

### Drug therapy reduces the risk of cardiovascular disease and death

- Offer drug therapy to patients with:
  - persistent high blood pressure of 160/100 mmHg or more
  - persistent blood pressure above 140/90 mmHg and raised cardiovascular risk (10-year risk of cardiovascular disease of at least 20%, existing cardiovascular disease or target organ damage).

See flow chart on page 9 for choice of drugs.
- Aim to reduce blood pressure to 140/90 mmHg or less, adding more drugs as needed, until further treatment is inappropriate or declined.
- Titrate drug doses as described in the 'British national formulary', noting any cautions and contraindications.

### General issues when prescribing

- Offer patients with isolated systolic hypertension (systolic blood pressure more than 160 mmHg) the same treatment as patients with both raised systolic and diastolic blood pressure.
- Offer patients older than 80 years the same treatment as other patients aged 55 or older – take account of any comorbidity and other drugs they are taking.
- Prescribe drugs taken only once a day if possible.
- Prescribe non-proprietary drugs if these are appropriate and minimise cost.
- Give information about the benefits and side effects of drugs so that patients can make informed choices.

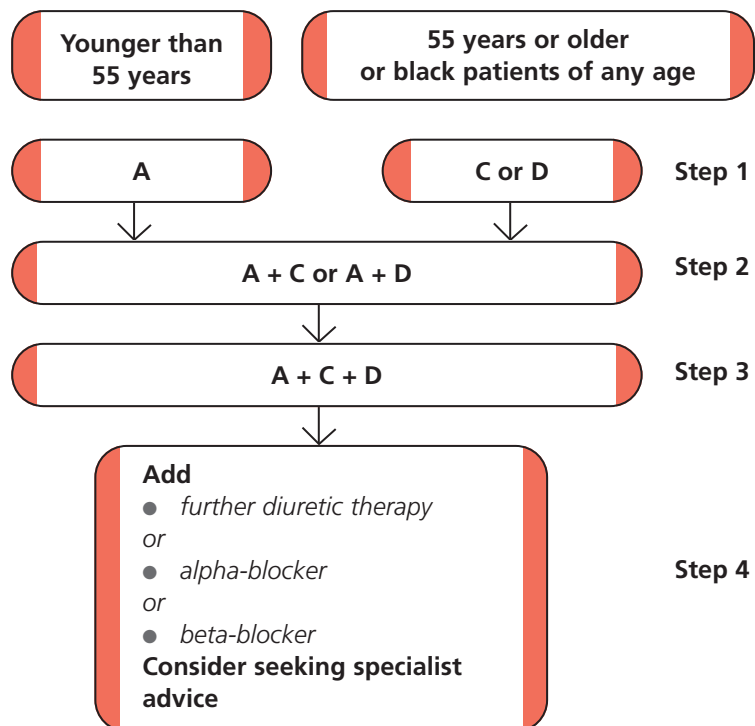


## Choosing drugs for patients newly diagnosed with hypertension

### Abbreviations:

A = ACE inhibitor  
(consider angiotensin-II receptor antagonist if ACE intolerant)  
C = calcium-channel blocker  
D = thiazide-type diuretic

Black patients are those of African or Caribbean descent, and not mixed-race, Asian or Chinese patients



## Beta-blockers

- Beta-blockers are no longer preferred as a routine initial therapy for hypertension.
- But consider them for younger people, particularly:
  - women of childbearing potential
  - patients with evidence of increased sympathetic drive
  - patients with intolerance of or contraindications to ACE inhibitors and angiotensin-II receptor antagonists.
- If a patient taking a beta-blocker needs a second drug, add a calcium-channel blocker rather than a thiazide-type diuretic, to reduce the patient's risk of developing diabetes.
- If a patient's blood pressure is not controlled by a regimen that includes a beta-blocker (that is, it is still above 140/90 mmHg), change their treatment by following the flow chart above.
- If a patient's blood pressure is well controlled (that is, 140/90 mmHg or less) by a regimen that includes a beta-blocker, consider long-term management at their routine review. There is no absolute need to replace the beta-blocker in this case.
- When withdrawing a beta-blocker, step down the dose gradually.
- Beta-blockers should not usually be withdrawn if a patient has a compelling indication for being treated with one, such as symptomatic angina or a previous myocardial infarction.

## Continuing treatment

- Drug treatment to lower a patient's blood pressure is worthwhile even if the blood pressure does not fall to the target of 140/90 mmHg or below on treatment with several drugs (or if the addition of more drugs is inappropriate or declined).
- Some patients are motivated to make lifestyle changes and want to reduce or stop using antihypertensive drugs. If they are at low cardiovascular risk and their blood pressure is well controlled, they may be offered a trial reduction or withdrawal of therapy. They should be given advice on lifestyle and have regular reviews.
- Consider offering details of patient organisations where patients can share views and information.
- Offer patients with hypertension an annual review to:
  - monitor blood pressure
  - provide support
  - discuss lifestyle, symptoms and medication.

## Implementation

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website ([www.nice.org.uk/CG034](http://www.nice.org.uk/CG034)).

- Costing tools:
  - costing report to estimate the national savings and costs associated with implementation
  - costing template to estimate the local costs and savings involved.
- Audit criteria to monitor local practice (see the NICE guideline).

## Further information

You can download the following from [www.nice.org.uk/CG034](http://www.nice.org.uk/CG034)

- A quick reference guide (this document), which has been distributed to healthcare professionals in England.
- Information for patients and carers ('Understanding NICE guidance') – a version of the guideline for people with hypertension and their carers.
- The NICE guideline, which contains the following sections: Key priorities for implementation; 1 Guidance; 2 Notes on the scope of the guidance; 3 Implementation in the NHS; 4 Research recommendations; 5 Other versions of this guideline; 6 Related NICE guidance; 7 Review date. It also gives details of the grading scheme used, the Guideline Development Group, the Guideline Review Panel and technical detail on the criteria for audit.
- The full guideline – all the recommendations on hypertension, details of how they were developed, and summaries of the evidence on which they were based. This is also available from [www.rcplondon.ac.uk/pubs/books/HM](http://www.rcplondon.ac.uk/pubs/books/HM)

Printed copies of this booklet and the information for the public are also available. Phone the NHS Response Line on 0870 1555 455 and quote N1050 (quick reference guide) or N1051 (information for patients and carers).

### Related guidance

For information about NICE guidance that has been issued or is in development, see the website ([www.nice.org.uk](http://www.nice.org.uk)).

- Prophylaxis for patients who have experienced a myocardial infarction: drug treatment, cardiac rehabilitation and dietary manipulation. *NICE inherited guideline A* (2001). Available from [www.nice.org.uk/guidelineA](http://www.nice.org.uk/guidelineA)
- Management of type 2 diabetes: management of blood pressure and blood lipids. *NICE inherited guideline H* (2002). Available from [www.nice.org.uk/guidelineH](http://www.nice.org.uk/guidelineH)
- Statins for the prevention of cardiovascular events in patients at increased risk of developing cardiovascular disease or those with established cardiovascular disease. *NICE technology appraisal no. 94* (2006). Available from [www.nice.org.uk/TA094](http://www.nice.org.uk/TA094)
- Cardiovascular risk assessment: the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. *NICE clinical guideline*. Publication expected December 2007. See [www.nice.org.uk/guidelines.inprogress.hyperlipidaemiacardiovascular](http://www.nice.org.uk/guidelines.inprogress.hyperlipidaemiacardiovascular)

### Review date

The process of reviewing the evidence is expected to begin 4 years after the date of issue of this guideline. Reviewing may begin before this if significant evidence that affects the guideline recommendations is identified. The updated guideline will be available within 2 years of the start of the review process.

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