

Issue date: August 2004

## **Quick reference guide**

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

## **Clinical Guideline 18**

Developed by the Newcastle Guideline Development and  
Research Unit

## Contents

Why a NICE guideline on hypertension?	3
Key priorities for implementation	3
Management flowchart for hypertension	5
Measuring blood pressure	6
Lifestyle interventions	8
Cardiovascular risk	9
Drug treatment	12
Continuing treatment	13
Implementation	14
Further information	14
Quick reference guide	14
NICE guideline	14
Full guideline	14
Information for the public	14
Review date	14

---

### **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. Health professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

### **National Institute for Clinical Excellence**

MidCity Place  
71 High Holborn  
London  
WC1V 6NA

[www.nice.org.uk](http://www.nice.org.uk)

ISBN: 1-84257-758-1

Published by the National Institute for Clinical Excellence

August 2004

Artwork by LIMA Graphics Ltd, Frimley, Surrey

© Copyright National Institute for Clinical Excellence, August 2004. All rights reserved. This material may be freely reproduced for educational and not-for-profit purposes within the NHS. No reproduction by or for commercial organisations is allowed without the express written permission of the National Institute for Clinical Excellence.

## Why a NICE guideline on hypertension?

This NICE guideline on the management of hypertension is based on the best available evidence. A multi-disciplinary Guideline Development Group carefully considered evidence of both the clinical effectiveness and cost effectiveness of treatment and care in developing these recommendations. The draft guideline was then modified in the light of two rounds of extensive consultation with the relevant stakeholder groups, including NHS organisations, healthcare professionals, patient/carer groups and manufacturers.

## 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 their blood pressure is assessed from two readings using 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, 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.

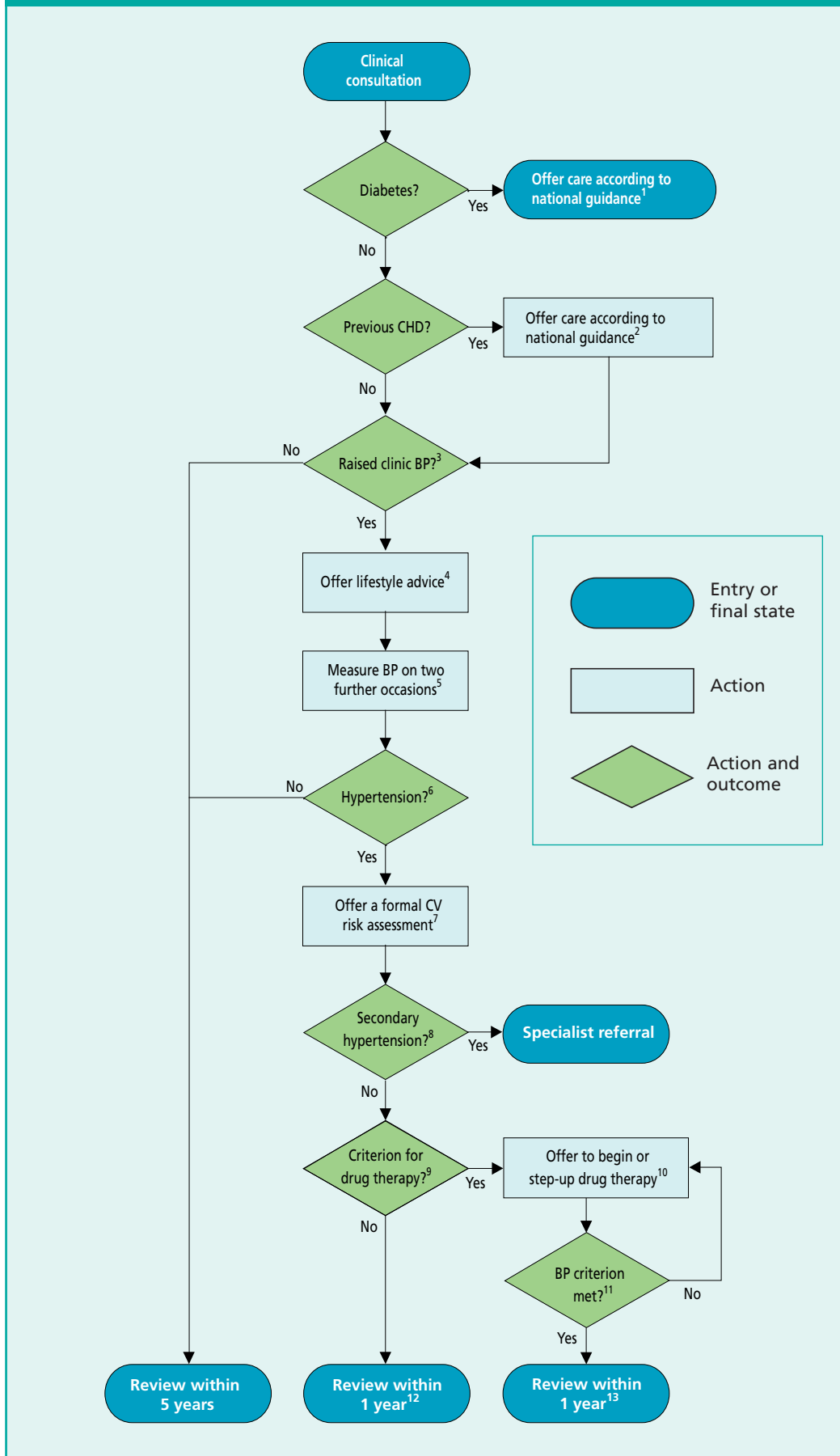
### Pharmacological interventions

- 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 CHD  $\geq$  15% or CVD  $\geq$  20% or existing cardiovascular disease or target organ damage) with persistent blood pressure of more than 140/90 mmHg.
- Drug therapy should normally begin with a low-dose thiazide-type diuretic. If necessary, second line add a beta-blocker unless patient is at raised risk of new onset diabetes, in which case add an ACE-inhibitor. Third line, add a dihydropyridine calcium-channel blocker. (See point 10 in the management flowchart for more information.)

### 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.

# Management flowchart for hypertension



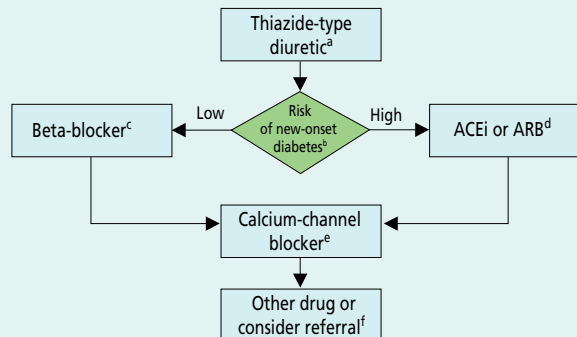
## Management flowchart for hypertension *continued*

- 1 See the NICE guideline 'Management of type 2 diabetes: management of blood pressure and blood lipids'.
- 2 See the NICE Guideline 'Prophylaxis for patients who have experienced a myocardial infarction: drug treatment, cardiac rehabilitation and dietary manipulation'.
- 3 Raised blood pressure (BP) > 140/90 mmHg (BP > 140/90 means either or both systolic and diastolic exceed threshold). Take a secondary confirmatory reading at the end of the consultation. Take a standing reading in patients with symptoms of postural hypotension.
- 4 Explain the potential consequences of raised BP. Promote healthy diet, regular exercise and smoking cessation.
- 5 Ask the patient to return for at least two subsequent clinics at monthly intervals, assessing BP under the best conditions available.
- 6 Hypertension: persistent raised BP > 140/90 mmHg at the last two visits.
- 7 Cardiovascular (CV) risk assessment may identify other modifiable risk factors and help explain the value of BP lowering and other treatment. Risk charts and calculators are less valid in patients with cardiovascular disease (CVD) or on treatment.
- 8 Refer patients with signs and symptoms of secondary hypertension to a specialist. Refer patients with malignant hypertension or suspected pheochromocytoma for immediate investigation.
- 9 Offer treatment for: (A) BP  $\geq$  160/100 mmHg; or (B) BP > 140/90 mmHg and (10-year coronary heart disease [CHD] risk  $\geq$  15%, CVD risk  $\geq$  20% or existing CVD or target organ damage).

Consider other treatments for raised cardiovascular risk including lipid lowering and antiplatelet therapies.

## Management flowchart for hypertension *continued*

10 As needed, add drugs in the following order\*:



\* If a drug is not tolerated discontinue and proceed to the next line of therapy. If a drug is tolerated but target BP is not achieved, add the next line of therapy. Drug cautions and contraindications are listed fully in the *British National Formulary*.

- a In young patients (under 55) whose BP may be managed on monotherapy, consider starting with a beta-blocker.
- b Patients at high risk have a strong family history of type 2 diabetes, have impaired glucose tolerance (FPG  $\geq 6.5$  mmol/l), are clinically obese (body mass index  $\geq 30$ ) or are of South-Asian or African-Caribbean ethnic origin.
- c Beta-blocker contraindications include asthma, coronary obstructive pulmonary disease and heart block.
- d Offer an angiotensin receptor blocker (ARB) if an angiotensin-converting enzyme inhibitor (ACEi) is not tolerated because of cough. Contraindications include known or suspected renovascular disease and pregnancy.
- e Only dihydropyridine calcium-channel blockers should be prescribed with a beta-blocker. Contraindications include heart failure.
- f Consider offering a beta-blocker or angiotensin-converting enzyme inhibitor (ACEi if not yet used), another drug or specialist referral. A beta-blocker and thiazide-type diuretic combination may become necessary in patients at high risk of developing diabetes if hypertension or CVD progresses.

11 BP  $\leq 140/90$  mmHg or further treatment is inappropriate or declined.

12 Check BP, reassess CV risk and discuss lifestyle.

13 Review patient care: medication, symptoms and lifestyle.

## Measuring blood pressure

- Healthcare professionals taking blood pressure measurements need adequate initial training and periodic review of their performance.
- Healthcare providers must ensure that devices for measuring blood pressure are properly validated, maintained and regularly recalibrated according to manufacturers' instructions.
- Where possible, standardise the environment when measuring blood pressure: provide a relaxed, temperate setting, with the patient quiet and seated and with their arm outstretched and supported.
- If the first measurement exceeds 140/90 mmHg, if practical, take a second confirmatory reading at the end of the consultation.
- Measure blood pressure on both of the patient's arms with the higher value identifying the reference arm for future measurement.
- In patients with symptoms of postural hypotension (falls or postural dizziness) measure blood pressure while patient is standing. In patients with symptoms or documented postural hypotension (fall in systolic BP when standing of 20 mmHg or more) consider referral to a specialist.
- Refer immediately patients with accelerated (malignant) hypertension (BP more than 180/110 mmHg with signs of papilloedema and/or retinal haemorrhage) or suspected pheochromocytoma (possible signs include labile or postural hypotension, headache, palpitations, pallor and diaphoresis).
- 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.
- Measurements should normally be made at monthly intervals. However, patients with more severe hypertension should be re-evaluated more urgently.
- 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.



## Measuring blood pressure *continued*

- Consider the need for specialist investigation of patients with unusual signs and symptoms, or whose management depends critically on the accurate estimation of their blood pressure.

## Lifestyle interventions

- Ascertain patients' diet and exercise patterns because a healthy diet and regular exercise can reduce blood pressure. Offer appropriate guidance and written or audiovisual materials to promote lifestyle changes.
- Relaxation therapies can reduce blood pressure and individual patients may wish to pursue these as part of their treatment. However, routine provision by primary care teams is not currently recommended.
- Ascertain patients' alcohol consumption and encourage a reduced intake if patients drink excessively, because this can reduce blood pressure and has broader health benefits.
- Discourage excessive consumption of coffee and other caffeine-rich products.
- Encourage patients to keep their dietary sodium intake low, either by reducing or substituting sodium salt, as this can reduce blood pressure.
- Do not offer calcium, magnesium or potassium supplements as a method for reducing blood pressure.
- Offer advice and help to smokers to stop smoking.
- A common aspect of studies for motivating lifestyle change is the use of group working. Inform patients about local initiatives by, for example, healthcare teams or patient organisations that provide support and promote healthy lifestyle change.

## Cardiovascular risk

- If raised blood pressure persists and the patient does not have established cardiovascular disease, 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.
- Test for the presence of protein in the patient's urine. Take a blood sample to assess plasma glucose, electrolytes, creatinine, serum total cholesterol and HDL cholesterol. Arrange for a 12-lead electrocardiograph to be performed.
- 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.
- Use the cardiovascular risk assessment to discuss prognosis and healthcare options with patients, both for raised blood pressure and other modifiable risk factors.

## Drug treatment

- See flowchart for further information.
- Provide appropriate guidance and materials about the benefits of drugs and the unwanted side effects sometimes experienced in order to help patients make informed choices.
- Offer drug therapy, adding different drugs if necessary, to achieve a target of 140/90 mmHg, or until further treatment is inappropriate or declined. Titrate drug doses as described in the *British National Formulary* noting any cautions and contraindications.
- Offer treatment as described to patients regardless of age and ethnicity. Be prepared to tailor drug therapy for individual patients who do not respond to the sequence of drugs indicated.
- Offer patients with isolated systolic hypertension (systolic BP  $\geq$  160 mmHg) the same treatment as patients with both raised systolic and diastolic blood pressure.
- Offer patients over 80 years of age the same treatment as younger patients, taking account of any comorbidity and their existing burden of drug use.
- Where possible, recommend treatment with drugs taken only once a day.
- Prescribe non-proprietary drugs where these are appropriate and minimise cost.

## Continuing treatment

- The aim of medication is to reduce blood pressure to 140/90 mmHg or below. However, patients not achieving this target, or for whom further treatment is inappropriate or declined, will still receive worthwhile benefit from the drug(s) if these lower blood pressure.
- Patients may become motivated to make lifestyle changes and want to reduce or stop using antihypertensive drugs. If at low cardiovascular risk and with well controlled blood pressure, these patients may be offered a trial reduction or withdrawal of therapy with appropriate lifestyle guidance and ongoing review.
- Patients vary in their attitudes to their hypertension and their experience of treatment. It may be helpful to provide details of patient organisations that provide useful forums to share views and information.
- Provide an annual review of care to monitor blood pressure, provide patients with support and discuss their lifestyle, symptoms and medication.

## Implementation

Local health communities should review their existing practice in the treatment and management of hypertension against this guideline. The review should consider the resources required to implement the recommendations set out in Section 1 of the NICE guideline, the people and processes involved and the timeline over which full implementation is envisaged. It is in the interests of patients with hypertension that the implementation timeline is as rapid as possible.

Relevant local clinical guidelines, care pathways and protocols should be reviewed in the light of this guidance and revised accordingly.

## Further information

### Quick reference guide

This quick reference guide to the Institute's guideline on managing hypertension contains the key priorities for implementation, summaries of the guidance, and notes on implementation. The distribution list for this quick reference guide is available on the NICE website at [www.nice.org.uk/CG018distributionlist](http://www.nice.org.uk/CG018distributionlist)

### NICE guideline

The NICE guideline on hypertension 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. The NICE guideline also gives details of the grading scheme used for the evidence and recommendations, the Guideline Development Group, the Guideline Review Panel, and technical details on criteria for audit. The NICE guideline is available on the NICE website at [www.nice.org.uk/CG018NICEguideline](http://www.nice.org.uk/CG018NICEguideline)

### Full guideline

The full guideline includes the evidence on which the recommendations are based, in addition to the information in the NICE guideline. It is published by the Centre for Health Services Research, University of Newcastle upon Tyne. It is available from [www.nice.org.uk/CG018fullguideline](http://www.nice.org.uk/CG018fullguideline) and on the website of the National Electronic Library for Health ([www.nelh.nhs.uk](http://www.nelh.nhs.uk)).

### Information for the public

NICE has produced a version of this guidance for people with hypertension and the public. This information is available, in English and Welsh, from the NICE website ([www.nice.org.uk/CG018publicinfo](http://www.nice.org.uk/CG018publicinfo)). Printed versions are also available – see below for ordering information.

### 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 earlier than 4 years if significant evidence that affects the guideline recommendations is identified sooner. The updated guideline will be available within 2 years of the start of the review process.

### Ordering information

Copies of this quick reference guide can be obtained from the NICE website at [www.nice.org.uk/CG018quickrefguide](http://www.nice.org.uk/CG018quickrefguide) or from the NHS Response Line by telephoning 0870 1555 455 and quoting reference number N0692. Information for the public is also available from the NICE website or from the NHS Response Line (quote reference number N0693 for the English version and N0694 for the version in English and Welsh).

National Institute for  
Clinical Excellence

MidCity Place  
71 High Holborn  
London  
WC1V 6NA

[www.nice.org.uk](http://www.nice.org.uk)