Complete Summary

GUIDELINE TITLE

Essential hypertension: managing adult patients in primary care.

BIBLIOGRAPHIC SOURCE(S)

North of England Hypertension Guideline Development Group. Essential hypertension: managing adult patients in primary care. Newcastle upon Tyne (UK): Centre for Health Services Research, University of Newcastle; 2004 Aug. 261 p. [558 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Essential hypertension

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Risk Assessment
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine
Nursing

INTENDED USERS

Advanced Practice Nurses
Dietitians
Health Care Providers
Hospitals
Nurses
Patients
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To provide evidence-based recommendations for health care professionals, patients, and carers to guide the appropriate primary care management of persistently raised blood pressure without primary cause (essential hypertension).
- To promote the dialogue between professionals and patients on the relative benefits, risks, harms, and costs of treatments.

TARGET POPULATION

Adults in primary care with essential hypertension, who may or may not have cardiovascular disease

This guideline does not address the following populations:

- Women with hypertension in pregnancy
- Patients requiring specialist management of secondary hypertension (where renal or pulmonary disease, endocrine complications or other disease provides an identifiable cause of raised blood pressure)
- Hospitalized patients
- Patients with diabetes mellitus

INTERVENTIONS AND PRACTICES CONSIDERED

Measuring Blood Pressure (BP)

1. Assure trained staff for measurement of BP
2. Assure use of validated, maintained, and calibrated equipment in a standardized environment
3. If first measurement >140/90 mmHg, obtain confirmatory measurement
4. Obtain BP on both arms
5. Obtain standing BP in patients with symptoms of postural hypotension
6. Referral, when appropriate
7. Schedule follow-up visits as needed

8. Special investigations, as appropriate

Estimating Cardiovascular Risk

1. Tests to evaluate diabetes, damage to heart and kidneys, secondary causes of hypertension
2. Urine protein test
3. Blood test for plasma glucose, electrolytes, creatinine, serum total cholesterol, and high-density lipoprotein (HDL) cholesterol
4. 12 lead electrocardiograph (ECG)
5. Special investigations, as appropriate
6. Perform a cardiovascular risk assessment

Lifestyle Interventions

1. Provide guidance and written or audiovisual materials to promote lifestyle changes
2. Relaxation therapies
3. Encourage reduced alcohol intake
4. Discourage excessive coffee/caffeine consumption
5. Encourage reduced sodium intake
6. Calcium, magnesium, or potassium supplements should not be offered to reduce BP
7. Assistance/advice to stop smoking
8. Group working (healthcare teams, patient organizations)

Pharmacological Interventions

1. Drug therapy to achieve target of 140/90 mmHg
2. Provide information and materials regarding benefits and side-effects of drug therapies
3. Low dose thiazide-type diuretic
4. Second line therapy with a beta-blocker or angiotensin converting enzyme (ACE)-inhibitor if at raised risk of new onset diabetes
5. Third line therapy with a dihydropyridine calcium-channel blocker
6. Substitute an angiotensin receptor blocker in patients who can not tolerate angiotensin converting enzyme-inhibitors
7. Offer same treatment regardless of age, ethnicity, or isolated systolic hypertension
8. Discontinue treatment if BP controlled, with appropriate guidance and ongoing review
9. Non-proprietary drugs where appropriate
10. Review of patient status

MAJOR OUTCOMES CONSIDERED

- Effectiveness of blood pressure management interventions on decreasing subsequent cardiovascular morbidity and mortality due to stroke and coronary heart disease
- Effectiveness of risk assessment at identifying modifiable risk factors and providing prognostic information

- Effectiveness of lifestyle interventions at reducing blood pressure and the need for drug therapy.
- Cost-effectiveness of treatment

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The aim of reviewing was to identify and synthesise relevant published and unpublished evidence to allow recommendations to be evidence-based wherever possible. The search was carried out using the electronic databases MEDLINE, EMBASE, and CENTRAL, attempting to locate systematic reviews and meta-analyses, and original randomised trials using a combination of subject heading and free text searches. We made extensive use of high quality recent review articles and bibliographies, as well as contact with subject area experts. New searches were concentrated in areas of importance to the guideline development process, for which existing systematic reviews were unable to provide valid or up to date answers. The expert knowledge and experience of group members also backed up the search of the literature.

Electronic searches used a sensitive search strategy based on a combination of text and index terms to locate randomised controlled trials of treatments relevant to the guideline. If data necessary for our analyses were not reported, we wrote to authors or sponsoring agencies. We are grateful to investigators and sponsors who provided unpublished information to aid our work.

We assessed the quality of relevant studies retrieved and their ability to provide valid answers to the clinical questions addressed by the group. Assessment of study quality concentrated on internal validity (the extent to which the study measured what it intended to measure), external validity (the extent to which study findings could be generalised to other treatment settings), and construct validity (the extent to which measurement corresponded to theoretical understanding of a disease).

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Evidence Grade

I: High

The described effect is plausible, precisely quantified, and not vulnerable to bias.

II: Intermediate

The described effect is plausible but is not quantified precisely or may be vulnerable to bias.

III: Low

Concerns about plausibility or vulnerability to bias severely limit the value of the effect being described and quantified.

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis of Randomized Controlled Trials
Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Once data had been abstracted from individual papers and their quality assessed, the information was synthesised. Individual trials often have an insufficient sample size to identify significant outcomes with confidence, so where appropriate, the results of randomised studies were combined using meta-analytic techniques. Questions were answered using the best evidence available. When considering the effect of an intervention, if this could be addressed by the best study design then weaker designs were not reviewed. Where studies were of poor quality, or contained patient groups considered likely to have different responses, the effects of inclusion or exclusion were examined in sensitivity analyses. No trials that met our inclusion criteria were excluded from the primary analyses. However, where data on relevant outcomes were not available, these studies could not be included, thus leading to the potential for publication bias. A summary of methods used to describe the results of trials is provided in Appendix 1 of the original guideline document.

Statistical Methods

Pharmacological Interventions

The outcomes analyzed were: all cause mortality, fatal and non-fatal myocardial infarction, fatal and non-fatal stroke. The guideline developers did not consider the following endpoints: renal disease (rare in non-diabetic patients); heart failure (inconsistently reported in trials); cardiovascular events (a concatenation of myocardial infarction and stroke). For each trial, the risk ratios comparing the risk of each outcome in the active treatment and control groups-or, for head-to-head trials, in the different treatment groups-were calculated. Results of trials were combined in a meta-analysis using the DerSimonian and Laird random effects

model, to estimate an overall pooled risk ratio (RR) and its 95% confidence interval (95%CI). This model assumes that there are different effects of treatment in different populations, which are clustered about a mean effect; the pooled RR gives the best estimate of this mean effect. In the placebo-controlled trials reported in this guideline, a RR less than 1 favours treatment and a RR greater than 1 favours control. If the 95%CI include 1, there is no statistically significant difference between the treatments being compared.

Finally, guideline developers assessed the tolerability of the interventions by comparing the rate of overall withdrawal (percentage of patients who withdrew each year) in each treatment arm of a trial and calculating the difference in these rates (called the "incident risk difference"). These incident risk differences were combined in a meta-analysis using the DerSimonian and Laird random effects model, to estimate an overall pooled incident risk difference and its 95% confidence interval.

Guideline developers assessed heterogeneity between trials using a chi-squared statistic (Q). This assesses whether the trials are sufficiently similar to be validly combined. Although the test for heterogeneity is weak, it is usually assumed that if it gives p-values greater than 0.10, there is no significant heterogeneity and it is valid to discuss the combined findings.

They also assessed whether the effect in individual trials was related to the size of the trial; any such trend might indicate publication bias, e.g. where small trials were published only if they showed a positive effect. Again, this test for systematic variation in the magnitude of the estimated effect with the size of the trial is weak, but it is usually assumed that if it gives a p-value greater than 0.10, there is unlikely to be any such bias.

Lifestyle Interventions

None of the studies identified were designed to quantify significant changes in rates of death or cardiovascular events, so guideline developers analysed the surrogate endpoint of reduced blood pressure. For each trial, the difference in the final value mean blood pressure in the treatment and control groups-or, for head-to-head trials, in the different treatment groups-was calculated. Change scores from baseline were used where complete data for final values was unavailable. These mean differences were weighted according to the precision of each trial (which depends largely on its size, with larger trials getting more weight) and combined in a meta-analysis using the DerSimonian and Laird random effects model, to estimate an overall pooled weighted mean difference and its 95% confidence interval. While most of the trials were of parallel design (two or more groups received the various interventions at the same time), some were of crossover design (all participants received both active treatment and control interventions, but in a random order). Crossover trials have about four times greater precision than parallel trials of the same size, so the guideline developers used methods have been developed recently to combine the parallel and crossover trials in the same meta-analysis. Heterogeneity and the potential for publication bias were assessed in the same way as for pharmaceutical trials.

The mean percentage achieving a reduction of 10 mmHg or more in systolic blood pressure was then estimated from the cumulative normal distribution, and confidence intervals were estimated using the delta method.

Finally, guideline developers assessed the tolerability of the interventions by comparing the proportion of withdrawals (% of patients who withdrew) in each treatment arm of a trial and calculating the difference in these proportions (called the "risk difference"). These risk differences were combined in a meta-analysis using the DerSimonian and Laird random effects model, to estimate an overall pooled risk difference and its 95% confidence interval.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline development group was run using the principles of small group work and was led by a trained facilitator. The group underwent initial exercises to set its own rules to determine how it wanted to function and received brief training on reviewing methods, economic analysis, and grading methodology. Additional training was provided in the group as the need arose in subsequent meetings. Findings, expressed as narratives, statements of evidence, and recommendations, were reached by informal consensus. There was no obligation to force an agreement where none existed after discussion: dissensions were recorded in the guideline narrative.

The guideline development group process produces summary statements of the evidence concerning available treatments and healthcare and from these makes its recommendations. Evidence statements and recommendations are commonly graded in guidelines reflecting the quality of the study designs on which they are based.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Recommendations Grades

Recommendations provide guidance about appropriate care. Ideally, these should be based on clear evidence: a robust understanding of the benefits, tolerability, harms and costs of alternative patterns of care. They also need to be feasible in the healthcare setting addressed. There are 3 unique categories, and each recommendation may be positive or negative, conditional or unconditional reflecting current evidence and the understanding of the guideline group.

A. Recommendation There is robust evidence to recommend a pattern of care.

B. Provisional Recommendation On balance of evidence, a pattern of care is recommended with caution.

C. Consensus Opinion Evidence being inadequate, a pattern of care is recommended by consensus.

COST ANALYSIS

Approaches to cost-effectiveness have assisted in reaching recommendations in a series of primary care evidence-based guidelines. This guideline involves a systematic appraisal of effectiveness, compliance, quality-of-life, safety and health service resource use, and costs of a medical intervention provided in the British health care setting. Using the most current, pertinent and complete data available, the economic analysis attempts a robust presentation showing the possible bounds of cost-effectiveness that may result.

The guiding principle behind economic analysis is that it is desirable to use limited healthcare resources to maximise health improvements in the population. Well defined but narrow notions of health improvement may not reflect all aspects of value to patients, carers, clinicians, or society. For example, evidence may lead the guideline group to recommend targeting additional resources to certain patient groups when unequal access to care is apparent. The group process allows discussion of what should be included in the definition of "improved health" and more broadly of other concepts of value to society such as fairness, justice, dignity or minimum standards of care.

The range of values used to generate cost-effectiveness estimates reflects the available evidence and the concerns of the guideline development group. Recommendations are graded reflecting the certainty with which the costs and consequences of a medical intervention can be assessed. This practice reflects the desire of group members to have simple, understandable, and robust information based on good data.

It is not generally helpful to present an additional systematic review of previous economic analyses that have adopted a variety of differing perspectives, analytic techniques and baseline data. However, the economic literature is reviewed to compare guideline findings with representative published economic analyses and to interpret any differences in findings when these occurred. A commentary is included when the group feels this aids understanding.

Findings

From a model of lifetime costs and effects, based on the findings of trials, treatment using stepped care including thiazide-type diuretics, beta-blockers, angiotensin-converting-enzyme (ACE)-inhibitors/angiotensin receptor blockers and calcium-channel blockers is estimated to be cost-effective.

A recent review identified 10 pharmacoeconomic studies of antihypertensive therapy published between 1995 and 2000. Although costs per life-year gained were reported by the majority of studies, the review noted a lack of conformity in outcomes assessed, costs included, and populations studied. Two studies used a similar approach to our model and produced similar findings indicating cost-effective care, which becomes more favourable with increasing age and blood pressure level.

It is worth emphasising that modelled findings are hypothetical: they cannot reflect the observed experiences of real patients. While potentially helpful to policy makers, a limitation of aggregating the various costs and consequences of treatment is that it removes any consideration of the physical reality of treatment. It is this reality that will guide patients' decisions and a patient at age 50 may find it helpful to know that treatment for the rest of their life may (on average) extend their life expectancy by 8-11 months. From a policy perspective drug treatment looks cost-effective; from a personal perspective some patients will decline treatment while others will accept and both decisions may be a rational weighing of informed personal values.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The process involves identifying and registering relevant patient and professional organizations as stakeholders, obtaining their comments on the scope of the work; providing an opportunity for the submission of relevant evidence and commenting on two draft versions of the final documents.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Evidence categories (I-III) and recommendation grades (A-C) are defined at the end of the "Major Recommendations" field.

Measuring Blood Pressure (BP)

C - Healthcare professionals taking blood pressure measurements need adequate initial training and periodic review of their performance.

C - Healthcare providers must ensure that devices for measuring blood pressure are properly validated, maintained, and regularly recalibrated according to manufacturers' instructions.

C - 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*.

*See original guideline document for information on estimating blood pressure by auscultation.

C - If the first measurement exceeds 140/90 mmHg, if practical, take a second confirmatory reading at the end of the consultation.

C - Measure blood pressure on both of the patient's arms with the higher value identifying the reference arm for future measurement.

C - 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.

C - 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).

C - 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.

C - Measurements should normally be made at monthly intervals. However, patients with more severe hypertension should be re-evaluated more urgently.

B - The value of routinely using automated ambulatory blood pressure monitoring or home monitoring devices as part of primary care has not been established: their appropriate use in primary care remains an issue for further research.

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

Lifestyle Interventions

B - Ascertain patients' diet and exercise patterns, as a healthy diet and regular exercise can reduce blood pressure. Offer appropriate guidance and written or audiovisual materials to promote lifestyle changes.

B - Relaxation therapies (e.g., stress management, meditation, cognitive therapies, muscle relaxation, and biofeedback) 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.

B - Ascertain patients' alcohol consumption and encourage a reduced intake where patients drink excessively as this can reduce blood pressure and has broader health benefits.

B - Discourage excessive consumption of coffee and other caffeine-rich products.

B - Encourage patients to keep their dietary sodium intake low, either by reducing or substituting sodium salt, as this can reduce blood pressure.

B - Do not offer calcium, magnesium, or potassium supplements as a method for reducing blood pressure.

A - Offer advice and help to smokers to stop smoking.

C - 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.

Estimating Cardiovascular Risk

C - If raised blood pressure persists and the patient does not have established cardiovascular disease, ask to formally assess the patient's 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.

C - 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 high-density lipoprotein (HDL) cholesterol. Arrange for a 12-lead electrocardiograph to be performed.

B - 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.

B - Use the cardiovascular risk assessment to discuss prognosis and healthcare options with patients, both for raised blood pressure and other modifiable risk factors.

Pharmacological Interventions

A - 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 coronary heart disease [CHD] $\geq$15% or cardiovascular disease [CVD] $\geq$20% or existing cardiovascular disease or target organ damage) with persistent blood pressure of more than 140/90 mmHg.

C - 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.

A - 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.

A - Drug therapy should normally begin with a low-dose thiazide-type diuretic*. If necessary, second line add a beta-blocker unless a patient is at raised risk of new-onset diabetes**, in which case add an angiotensin converting enzyme (ACE)-inhibitor. Third line, add a dihydropyridine calcium-channel blocker.

*In younger patients, aged under 55, with moderately raised blood pressure and who may be managed on one drug, consider beginning with a beta-blocker.
**Patients are considered at a raised risk of new-onset diabetes with a strong family history of type II diabetes, impaired glucose tolerance (fasting plasma glucose [FPG] $\geq$6.5 mmol/L), if clinically obese (body mass index [BMI] $\geq$30), or of South-Asian or African-Caribbean ethnic origin.

B - Concern about increased new-onset diabetes among patients prescribed a thiazide-type diuretic with a beta-blocker means that this is not recommended as an initial combination for patients at raised risk of developing type II diabetes. However, the combination may become appropriate to manage treatment resistant hypertension or if cardiovascular disease develops.

A - If further blood pressure lowering is warranted, consider adding an ACE-inhibitor or beta-blocker (if not yet used), another antihypertensive drug, or referring to a specialist.

A - Consider substituting an angiotensin receptor blocker in patients who do not tolerate an ACE-inhibitor because of cough.

B - At review, consider modifying the medication of patients currently using only a thiazide-type diuretic and beta-blocker and at raised risk of diabetes, and those in whom concern about their treatment may affect adherence.

B - 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.

A - Offer patients with isolated systolic hypertension (systolic BP $\geq$160 mmHg) the same treatment as patients with both raised systolic and diastolic blood pressure.

B - 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.

A - Where possible, recommend treatment with drugs taken only once a day.

B - Prescribe non-proprietary drugs where these are appropriate and minimise cost.

Continuing Treatment

B - 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.

B - 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.

C - 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.

C - Provide an annual review of care to monitor blood pressure, provide patients with support and discuss their lifestyle, symptoms, and medication.

Definitions

Grading of Recommendation:

A. Recommendation There is robust evidence to recommend a pattern of care.

B. Provisional Recommendation On balance of evidence, a pattern of care is recommended with caution.

C. Consensus Opinion Evidence being inadequate, a pattern of care is recommended by consensus.

Evidence Grade

I: High

The described effect is plausible, precisely quantified, and not vulnerable to bias.

II: Intermediate

The described effect is plausible but is not quantified precisely or may be vulnerable to bias.

III: Low

Concerns about plausibility or vulnerability to bias severely limit the value of the effect being described and quantified.

CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document for management of raised blood pressure.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is stated for each recommendation (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- The care of patients with raised blood pressure will decrease subsequent cardiovascular morbidity and mortality due to stroke and coronary heart disease.
- Formal cardiovascular risk assessment is important for patients with hypertension who have not yet developed cardiovascular disease; it may identify underlying causes and important modifiable risk factors; it provides prognostic information; and it provides the clinician and patient with a context to discuss the value of blood pressure lowering drugs alongside other treatments for raised cardiovascular risk.
- In certain patients treated for some time, lifestyle changes may help to reduce or stop drug therapy.

POTENTIAL HARMS

- Medications used to treat essential hypertension may result in side effects or adverse reactions.
- The guideline development group has had to interpret new evidence that indicates the use of a combination of older drugs (thiazide-type diuretics and beta-blockers) may lead to a small increased risk of new onset type-II diabetes. The unanimous consensus of the group was that it would be judicious to restrict the use of this combination of drugs when beginning treatment in patients at raised risk of developing diabetes, although the combination may become necessary if hypertension progresses or cardiovascular disease develops.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Drug cautions and contraindications are listed fully in the British National Formulary.
- Beta-blocker contraindications include asthma, chronic obstructive pulmonary disease (COPD), and heart block.
- Contraindications of angiotensin receptor blocker (ARB) include known or suspected renovascular disease and pregnancy.
- Only dihydropyridine calcium-channel blockers should be prescribed with a beta-blocker. Contraindications include heart failure.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The guideline development group assumes that health care professionals will use general medical knowledge and clinical judgement in applying the general principles and specific recommendations of this document to the management of individual patients. Recommendations may not be appropriate for use in all

circumstances. Decisions to adopt any particular recommendation must be made by the practitioner in the light of circumstances presented by individual patients and available resources. Recommendations about drug treatment assume that clinicians will take account both of the response of individual patients and of the indications, contra-indications and cautions listed in the British National Formulary (BNF) or Summary of Product Characteristics. Clinicians will need to share appropriately the information within this guideline to enable patients to participate in the process of decision making to the extent they are able and willing.

- 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.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The implementation of this guideline will build on the National Service Frameworks for Coronary Heart Disease and Older People in England and Wales and should form part of the service development plans for each local health community in England and Wales.

Local health communities should review their existing practice for the management of people with hypertension against this guideline. The review should consider the resources required to implement the recommendations set out in the original guideline document, the people and processes involved, and the timeline over which full implementation is envisaged. It is in the interests of patients 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.

The Faculty of Public Health has developed a Hypertension Toolkit. The aim of the Hypertension Toolkit is to provide local health improvement partnerships with the essential building-blocks to develop an effective programme for the prevention and control of hypertension. The toolkit describes the public health burden of hypertension, how to make the case for action and further information to help develop local strategies on hypertension. The target audience includes strategic planners in the National Health Service (NHS) and local government, members of local strategic partnerships and primary care professionals.

Suggested audit criteria are listed in Appendix D of the National Institute for Health and Clinical Excellence (NICE) version of the original guideline document. These can be used as the basis for local clinical audit, at the discretion of those in practice.

The following have been identified as 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

- 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 coronary heart disease [CHD] $\geq$15% or cardiovascular disease [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 angiotensin converting enzyme (ACE)-inhibitor. Third line, add a dihydropyridine calcium-channel blocker.

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.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Clinical Algorithm
Patient Resources
Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

North of England Hypertension Guideline Development Group. Essential hypertension: managing adult patients in primary care. Newcastle upon Tyne (UK): Centre for Health Services Research, University of Newcastle; 2004 Aug. 261 p. [558 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Aug

GUIDELINE DEVELOPER(S)

Newcastle Guideline Development and Research Unit - International Agency

SOURCE(S) OF FUNDING

National Institute for Health and Clinical Excellence (NICE)

GUIDELINE COMMITTEE

Guideline Development Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Ms Susan L. Brent, Acting Head of Prescribing Support, Northern & Yorkshire Regional Drug & Therapeutics Centre, Newcastle upon Tyne; Dr Paul Creighton, General Practitioner, Northumberland; Dr William Cunningham, General Practitioner, Northumberland; Dr Heather Dickinson, Technical Support, Newcastle upon Tyne; Dr Julie Eccles (Group Leader), General Practitioner, Tyne & Wear; Professor Gary Ford, Professor of Pharmacology of Old Age and Consultant Physician, Newcastle upon Tyne; Dr John Harley, General Practitioner, Stockton on Tees; Ms Suzanne Laing, Nurse Practitioner, Tyne & Wear; Professor James Mason, Methodologist and Technical Support, Newcastle upon Tyne; Mr Colin Penney, Patient Representative, Derbyshire; Dr Wendy Ross, General Practitioner, Newcastle upon Tyne; Mrs Jean Thurston, Patient Representative, Tyne & Wear; Professor Bryan Williams, Professor of Medicine and Director, Cardiovascular Research Unit, Leicester

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The following people have declared no competing interests in relation to the guideline: Sue Brent, Paul Creighton, William Cunningham, Heather Dickinson, Julie Eccles, John Harley, Suzanne Laing, Colin Penney, Wendy Ross, and Jean Thurston.

Gary Ford has received honoraria from a number of pharmaceutical companies for lectures and consultancy, and grant support for clinical trials from the pharmaceutical industry. He is deputy chair of the British Geriatrics Society Drugs and Prescribing Section, chair of the British Association of Stroke Physicians Training and Education Committee, and a member of the Stroke Association Research and Development Committee.

James Mason has previously received academic funding, fees and expenses for research and consultancy work from the United Kingdom (UK) Department of Health, medical charities and from the pharmaceutical industry who manufacture treatments discussed in this report.

Bryan Williams has received honoraria from a number of pharmaceutical companies for lectures and consultancy, and grant support for research projects and clinical trials from the pharmaceutical industry. He is ex-president of the British Hypertension Society; Trustee of the Blood Pressure Association; member of the Guidelines Committee of the European Society of Hypertension

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) format from the National Institute for Health and Clinical Excellence (NICE) Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Newcastle Guideline Development and Research Unit. Hypertension: management of hypertension in adults in primary care. London (UK): National Institute for Health and Clinical Excellence (NICE); 2004 Aug. 35 p. (Clinical guideline; no. 18). Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site.
- Hypertension: management of hypertension in adults in primary care. Quick reference guide. 2004 Aug. 16 p. Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site.

Print copies: Available from the National Health Service (NHS) Response Line 0870 1555 455. 11 Strand, London, WC2N 5HR.

Additionally, Audit Criteria can be found in Appendix D of the NICE version of the guideline document.

PATIENT RESOURCES

The following is available:

- Hypertension (persistently high blood pressure) in adults: understanding NICE guidance - information for people with hypertension, their families and carers, and the public. London: National Institute for Health and Clinical Excellence. 2004 Aug. 36 p. Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site.

Print copies: Available from the National Health Service (NHS) Response Line 0870 1555 455. ref: N0693. 11 Strand, London, WC2N 5HR.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

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This NGC summary was completed by ECRI on January 25, 2005. The information was verified by the guideline developer on April 26, 2005.

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Date Modified: 5/22/2006