

## Practice Guidelines for Hypertension

Based on British Hypertension Society guidelines for hypertension management 2004 (BHS-IV).  
BMJ 13 March 2004.

### Classification of blood pressure levels

	Systolic blood pressure	Diastolic blood pressure
<b>Category</b>		
<b>Blood pressure</b>		
Optimal	<120	<80
Normal	<130	<85
High normal	130-139	85-89
<b>Hypertension</b>		
Grade I (mild)	140-159	90-99
Grade 2 (moderate)	160-179	100-109
Grade 3 (severe)	>180	>110
<b>Isolated systolic hypertension</b>		
Grade 1	140-159	<90
Grade 2	>160	<90

This classification is based on clinic and not ambulatory BP measurement. Threshold BP levels for the diagnosis of hypertension using self/home monitoring are greater than 135/85 mm Hg. For ambulatory monitoring 24 hour values are greater than 125/80 mm Hg. If systolic BP and diastolic BP fall into different categories the higher value should be taken for classification.

### Blood pressure measurement

All adults should have BP measured routinely at least every five years until the age of 80 years. People with "high normal" systolic BP (130-139 mm Hg) or diastolic BP (85-89 mm Hg) and people who have had high BP readings at any time previously should have their BP measured annually. The average of two readings at each of a number of visits (depending on severity) should be used to guide the decision to treat.

1. Use a properly maintained, calibrated and validated device
2. Measure sitting BP routinely: standing BP should be recorded in at least the initial estimation in elderly or diabetic patients to exclude orthostatic hypotension
3. Remove tight clothing, support arm at heart level, ensure arm relaxed and avoid talking during the measurement period
4. Use cuff of appropriate size
5. Lower mercury column slowly – 2 mm per second
6. Read BP to the nearest 2 mmHg
7. Measure diastolic BP as disappearance of sound (phase V)
8. Take the mean of at least 2 readings, more recordings are needed if marked differences between initial measurements are found
9. Do not treat on the basis of an isolated reading

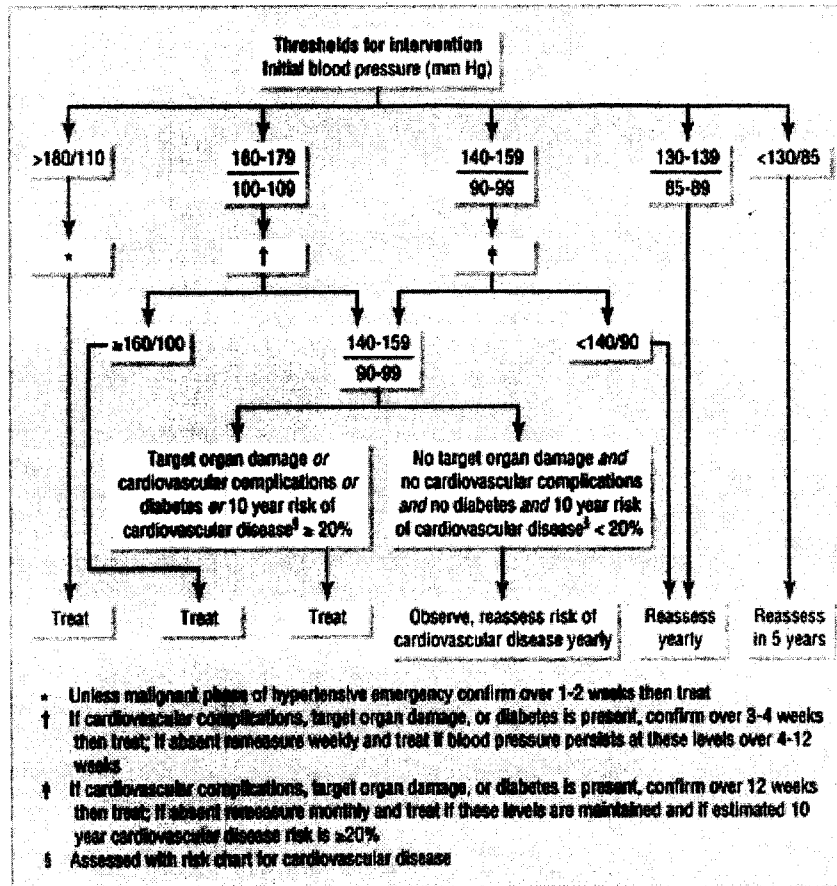
#### Potential indications for the use of ambulatory BP monitoring

1. Unusual variability
2. Possible white coat hypertension
3. Informing equivocal treatment decisions
4. Evaluation of nocturnal hypertension
5. Evaluation of drug resistant hypertension
6. Determining the efficacy of drug treatment over 24 hours
7. Diagnosis and treatment of hypertension in pregnancy
8. Evaluation of symptomatic hypotension

#### Routine investigations

1. Urine strip for protein and blood
2. Serum U and E's
3. Blood glucose-ideally fasted
4. Blood lipid profile- ideally fasted to estimate TG
5. ECG

**Thresholds for intervention with drug treatment (fig 1)**



Treatment targets for drug therapy

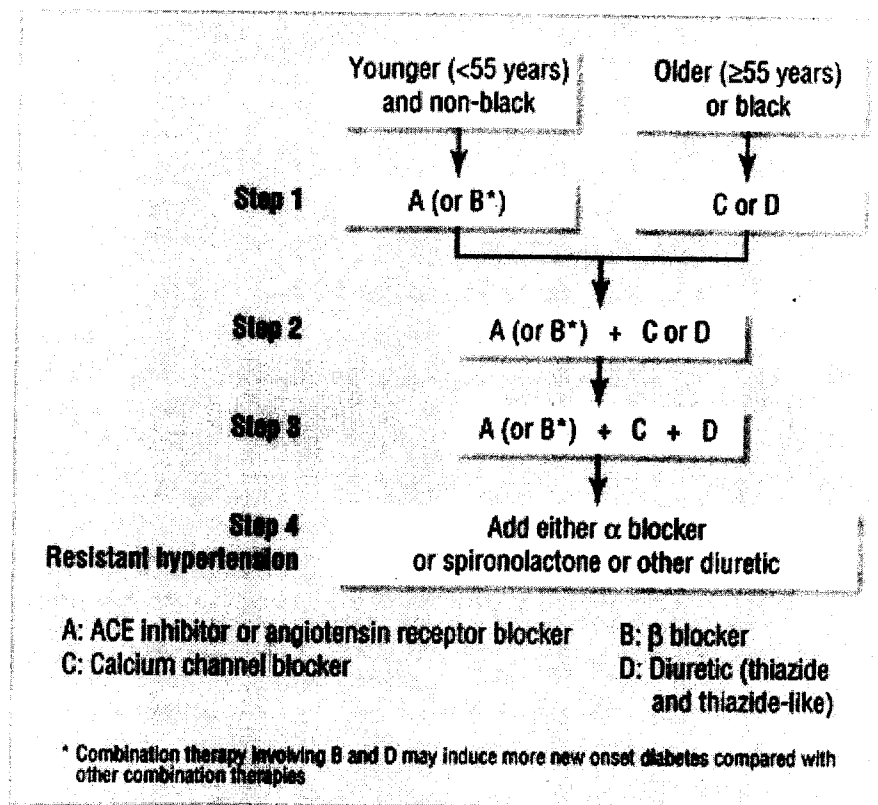
Allow 4 weeks for a drug to take its effect.

<140/85 mmHg for most patients.

<130/80 mmHg for patients with diabetes, renal or cardiovascular disease.

6 monthly review.

## Choice of antihypertensive drug therapy (fig 2)



### Indications for Specialist Referral

1. Severe or accelerated hypertension  $>220/120$  / impending complications
2. Possible underlying cause
3. Resistant or unusual disease
4. Young age
5. Pregnancy

### Lifestyle measures

1. Maintain normal BMI
2. Reduce salt intake to less than 6g NaCl
3. Limit alcohol to  $<3$ /day for men and  $<2$ /day for women
4. Regular aerobic exercise for  $>30$  minutes a day for at least 3 days a week
5. Consume at least 5 portions of fresh fruit or vegetables a day
6. Reduce the intake of total and saturated fat

## Other medications for hypertensive patients

### Primary prevention

1. Aspirin: 75 mg daily if >50 years, BP controlled to <150/90 and; target organ damage, DM, or 10 year risk of cardiovascular disease >20% (measured using the new Joint British Societies cardiovascular disease risk chart)
2. Statin: use when 10 year cardiovascular risk >20% as above
3. Vitamins: no benefit

### Secondary prevention (including patients with type 2 DM)

1. Aspirin to all
2. Statin to all
3. Vitamins no benefit

**Table 2** Compelling and possible indications, contraindications, and cautions for the major classes of antihypertensive drugs

<b>Class of drug</b>	<b>Compelling indications</b>	<b>Possible indications</b>	<b>Caution</b>	<b>Compelling contraindications</b>
α-blockers	Benign prostatic hypertrophy	—	Postural hypotension, heart failure*	Urinary incontinence
Angiotensin converting enzyme inhibitors	Heart failure Left ventricular dysfunction post-myocardial infarction or established coronary heart disease Type 1 diabetic nephropathy Secondary stroke prevention <sup>†</sup>	Chronic renal disease <sup>†</sup> Type 2 diabetic nephropathy Proteinuric renal disease	Renal impairment <sup>†</sup> Peripheral vascular disease <sup>†</sup>	Pregnancy Renovascular disease <sup>†</sup>
Angiotensin II receptor blockers	Angiotensin converting enzyme inhibitor intolerance Type 2 diabetic nephropathy Hypertension with left ventricular hypertrophy Heart failure in angiotensin converting enzyme intolerant patients, after myocardial infarction	Left ventricular dysfunction after myocardial infarction Intolerance of other antihypertensive drugs Proteinuric renal disease, chronic renal disease <sup>†</sup> Heart failure	Renal impairment <sup>†</sup> Peripheral vascular disease <sup>†</sup>	Pregnancy Renovascular disease <sup>†</sup>
β-blockers	Myocardial infarction, angina	Heart failure**	Heart failure** Peripheral vascular disease, Diabetes (except with coronary heart disease)	Asthma or chronic obstructive pulmonary disease, Heart block
Calcium channel blockers (dihydropyridine)	Elderly patient, isolated systolic hypertension	Angina	—	—

Calcium channel blockers (rate limiting)	Angina	Elderly patient	Combination with $\beta$ blockade	Heart block, heart failure
Thiazides or thiazide-like diuretics	Elderly patient, isolated systolic hypertension, heart failure, secondary stroke prevention	—	—	Gout <sup>††</sup>

\* In heart failure when used as monotherapy.

<sup>†</sup> Angiotensin converting enzyme inhibitors or angiotensin II receptor blockers may be beneficial in chronic renal failure but should only be used with caution, close supervision, and specialist advice when there is established and significant renal impairment.

<sup>‡</sup> Caution with angiotensin converting enzyme inhibitors and angiotensin II receptor blockers in peripheral vascular disease because of association with renovascular disease.

<sup>§</sup> Angiotensin converting enzyme inhibitors and angiotensin II receptor blockers are sometimes used in patients with renovascular disease under specialist supervision.

<sup>¶</sup> In combination with a thiazide or thiazide-like diuretic.

<sup>\*\*</sup>  $\beta$ blockers are used increasingly to treat stable heart failure but may worsen heart failure.

<sup>††</sup> Thiazides or thiazide-like diuretics may sometimes be necessary to control blood pressure in people with a history of gout, ideally used in combination with allopurinol.