Care pathway for hypertension

Clinic blood pressure < 140/90 mmHg
(see page 8)
Normotensive

Offer to check blood pressure at least every 5 years (see page 9)

3 Signs of papilloedema or retinal haemorrhage.
4 Labile or postural hypotension, headache, palpitations, pallor and diaphoresis.
5 Ambulatory blood pressure monitoring.
6 Home blood pressure monitoring.
Care pathway for hypertension

1. Clinic blood pressure $\geq 140/90$ mmHg (see page 8)
   - ABPM/HBPM $< 135/85$ mmHg: Normotensive
   - ABPM/HBPM $\geq 135/85$ mmHg: Stage 1 hypertension
     - ABPM/HBPM $\geq 150/95$ mmHg: Stage 2 hypertension
       - If evidence of target organ damage
         - Consider alternative causes for target organ damage (see page 9)
   - Offer to check blood pressure at least every 5 years (see page 9)

$^3$ Signs of papilloedema or retinal haemorrhage.
$^4$ Labile or postural hypotension, headache, palpitations, pallor and diaphoresis.
$^5$ Ambulatory blood pressure monitoring.
$^6$ Home blood pressure monitoring.
### Blood Pressure Thresholds for Diagnosis and Treatment of Hypertension

<table>
<thead>
<tr>
<th>Stage of Hypertension</th>
<th>Office BP (mmHg)</th>
<th>24hr. Daytime ABPM Average</th>
<th>Home ABPM Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 Hypertension</td>
<td>≥140 / 90 but &lt;160/100</td>
<td>≥135/85</td>
<td>≥135/85</td>
</tr>
</tbody>
</table>
Assessing cardiovascular risk and target organ damage

- Use a formal estimation of cardiovascular risk to discuss prognosis and healthcare options with people with hypertension, both for raised blood pressure and other modifiable risk factors\(^9,10\).
- Estimate cardiovascular risk in line with the recommendations on Identification and assessment of CVD risk in ‘Lipid modification’\(^11\).
- Assess target organ damage\(^12\):
  - Test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip.
  - Take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate (eGFR), serum total cholesterol and HDL cholesterol.
  - Examine the fundi for the presence of hypertensive retinopathy.
  - Arrange for a 12-lead electrocardiograph to be performed.
- For people aged under 40 with stage 1 hypertension, consider seeking specialist evaluation of secondary causes of hypertension and a more detailed assessment of target organ damage. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people.
Thresholds for Diagnosis and Treatment of Hypertension

Stage 1 Hypertension

Target organ Damage, CVD, or 10yr CVD risk ≥20%?

YES = Treat

No = Lifestyle and review 1 yr.*

*for people aged <40ys, 10yr CVD risk assessments underestimate lifetime risk – consider referral for exclusion of secondary causes and more detailed assessment of TOD

Stage 2 Hypertension

Treat
Thresholds for Diagnosis and Treatment of Hypertension

**Severe Hypertension**
- Treat
  - do not wait for ABPM confirmation if TOD or CVD

**Accelerated Hypertension**
- Refer Immediately for inpatient specialist care
Blood Pressure Treatment Targets

• Use Clinic BP to monitor BP control;

• Optimal Clinic BP control is <140/90mmHg;

• In people with “white coat effect”, i.e. clinic BP is ≥20/10mmHg more than ABPM or Home average, use Home BP average to monitor treatment – target home BP average of <135/85mmHg;

• Review BP control at least annually once BP treatment is stable.
BP Treatment in the very elderly, i.e. aged over 80yrs

- New evidence suggests that **BP lowering reduces the risk** of stroke, heart failure and death **in people aged over 80yrs**;
- Offer people aged >80yrs same treatment as people aged >55yrs, taking account of co-morbidities;
- **Initiate therapy** in people aged >80yrs **at stage 2 hypertension**;
- Treat to a **target of <150/90mmHg**.
Pharmacological Treatment of Hypertension – Update 2011
Step 1 Treatment Recommendations

• Offer step 1 antihypertensive treatment with an ACE inhibitor or a low cost ARB to people aged under 55 years. If an ACE inhibitor is used and not tolerated, offer an ARB. [new 2011]

• Do not combine an ACE inhibitor with an ARB to treat hypertension. [new 2011]

• Offer step 1 antihypertensive treatment with a CCB to people aged 55 years and older and to Black people of African and Caribbean descent of any age. If a CCB is not suitable, for example because of oedema or intolerance, or if there is evidence of heart failure, or a high risk of heart failure, offer a thiazide-like diuretic. [new 2011]
Why is a CCB Preferred to Diuretic?

• CCB (usually amlodipine) was the most cost-effective treatment option for treating hypertension unless the patient had heart failure or was at high risk of developing heart failure – i.e. older patient ≥75yrs;

• CCB is metabolically neutral – easy to use;

• CCB is best at reducing blood pressure variability and BP variability is an independent predictor of clinical outcomes - especially stroke;

• At step 2, the combination of A + C was superior to A + D at preventing clinical outcomes.
Treatment Recommendations – Choice of Diuretic

• Which diuretic?

• If a diuretic is required, choose a thiazide-like diuretic, such as chlortalidone (12.5 mg–25.0 mg once daily) or indapamide (1.5 mg SR, or 2.5 mg once daily) in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide. [new 2011]
Why Change the Diuretic?

- No need to change diuretic in people stable on treatment and in whom BP is controlled;

- Evidence review found no evidence in clinical outcome trials of benefits with bendroflumethiazide 2.5mg daily;

- Most recent trials showing benefits with lower dose diuretics have used thiazide-like diuretics, eg. Indapamide or chlortalidone.
Step 2 Treatment Recommendations

If step 2 antihypertensive treatment is required, offer a CCB in combination with either an ACE Inhibitor or an ARB. If a CCB is not suitable, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of heart failure, offer a thiazide-like diuretic [new 2011]
Step 3 Treatment Recommendations

If treatment with three drugs is required, the combination of ACE inhibitor or an ARB, a CCB and a thiazide-like diuretic should be used. [2006]
Step 4 Treatment Recommendations

RESISTANT HYPERTENSION

Regard clinic blood pressure that remains higher than 140/90 mmHg with the optimal or best tolerated doses of an ACE inhibitor or angiotensin-II receptor blocker plus a calcium channel blocker plus a diuretic as resistant hypertension and consider adding a fourth antihypertensive drug and/or seeking expert advice. [new 2011]
Step 4 Treatment Recommendations

RESISTANT HYPERTENSION

• For treatment of resistant hypertension at step 4, consider further diuretic therapy with low-dose spironolactone (25 mg once daily) if blood potassium levels are lower than 4.5 mmol/l. Caution is required in patients with impaired renal function who are at higher risk of developing hyperkalaemia. If blood potassium levels are higher than 4.5 mmol/l, consider therapy with a higher-dose thiazide-like diuretic treatment. [new 2011]

• When using further diuretic therapy for resistant hypertension at step 4, monitor blood sodium and potassium and renal function within 1 month and repeat as required thereafter. [new 2011]
Step 4 Treatment Recommendations

RESISTANT HYPERTENSION

• If further diuretic therapy for resistant hypertension at step 4 is not tolerated, contraindicated or ineffective, consider an alpha- or beta-blocker. [new 2011]

• If blood pressure remains uncontrolled with the optimal or maximum tolerated doses of four drugs, seek expert advice if it has not yet been obtained. [new 2011]
Antihypertensive Drug Treatment

**Aged <55yrs**
- Step 1: A

**Aged ≥55yrs or Black AC**
- Step 1: C*

**Step 2**
- A + C*

**Step 3**
- A + C* + D

**Step 4** (Resistant Hypertension)
- A + C* + D + Further Diuretic^+
  Consider specialist Advice

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A = ACEi or ARB
C = CCB
D = Thiazide-like diuretic

C* = CCB preferred but D is an alternative in people intolerant of C or at high risk of heart failure

Further Diuretic:
Consider low dose spironolactone or higher dose thiazide