Hypertension
NICE CG127; 2011

This guideline covers the management of hypertension in adults in primary care. It includes new recommendations on diagnosis, antihypertensive drug treatment and treatment monitoring. It replaces NICE CG34; 2006.

Definitions of hypertension
Stage 1: clinic BP ≥140/90mmHg and ABPM or HBPM daytime average ≥135/85mmHg.
Stage 2: clinic BP ≥160/100mmHg and ABPM or HBPM daytime average ≥150/95mmHg.
Severe: clinic systolic BP ≥180mmHg or clinic diastolic BP ≥110mmHg.

Care pathway – see full guideline

Diagnosis
Measuring blood pressure in the clinic
- Measure BP in both arms.
- If the difference in readings between arms is >20mmHg, repeat.
- On the second measurement if the difference in readings is >20mmHg, measure subsequent BP readings in the arm with the higher reading.
- If clinic BP is ≥140/90mmHg:
  - take a second measurement during the consultation,
  - if the second measurement is substantially different from the first, take a third measurement,
  - record the lower of the last two measurements as clinic BP.

Confirming the diagnosis
- If clinic BP is ≥140/90mmHg – use ABPM to confirm diagnosis of hypertension (see Box 1).
- If ABPM is not tolerated – use HBPM (see Box 1).
- Carry out investigations for target organ damage and assess CV risk – see full guideline.
- In patients with severe hypertension:
  - Do NOT wait for results of ABPM or HBPM,
  - start antihypertensive treatment immediately.

If hypertension is NOT diagnosed
- Measure BP every 5 years or more frequently if BP is close to 140/90mmHg.
- If there is evidence of target organ damage such as left ventricular hypertrophy, albuminuria or proteinuria:
  - investigate alternative causes of the target organ damage.

Postural hypotension – see full guideline.

Box 1.

ABPM or HBPM monitoring

ABPM
- The guidance recommends using ABPM to confirm the diagnosis of hypertension.
- ABPM provides a detailed reading of systolic and diastolic BP over a 24 hour period.
- The patient wears a BP cuff of appropriate size around the arm. This is attached to an automated device that inflates the cuff at regular intervals during the day and night and records the BP each time.
- Ensure at least two measurements per hour are taken during waking hours e.g. between 8am and 10pm.
- To confirm a diagnosis of hypertension, use the average value of at least 14 measurements.
- If ABPM is not tolerated; use HBPM.

HBPM
- Ensure for each BP recording, two consecutive measurements are taken:
  - at least 1 minute apart,
  - with the person seated.
- Record BP twice daily, in the morning and evening.
- Continue for at least 4 days, ideally for 7 days.
- Discard measurements taken on the first day an ABPM or HBPM monitoring device is initiated to provide support and promote lifestyle change.

CV risk assessment – see full guideline
- Use a formal CV risk assessment to discuss prognosis and management options.
- Assess CV risk in line with NICE CG67; Lipid modification

Specialist referral
- Refer the same day if:
  - accelerated hypertension i.e. BP >180/110mmHg with signs of papilloedema and/or retinal haemorrhage, or suspected phaeochromocytoma.
- Consider referral in people with signs/symptoms suggesting a secondary cause of hypertension.

Treatment and management

Lifestyle interventions
- Offer advice about:
  - diet and exercise,
  - alcohol and caffeine consumption,
  - reducing salt intake,
  - stopping smoking,
- initiatives to provide support and promote lifestyle change.

Do NOT give calcium, magnesium or potassium supplements to reduce BP

Definitions of terms
BP
blood pressure
ABPM
ambulatory blood pressure monitoring
HBPM
home blood pressure monitoring
ACEI
angiotensin-converting enzyme inhibitor
ARB
angiotensin receptor blocker
CCB
calcium-channel blocker
MI
myocardial infarction
CV
cardiovascular

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Definition of terms
- BP
- ABPM
- HBPM
- ACEI
- ARB
- CCB
- MI
- CV

www.bhsoc.org/blood_pressure_list.stm

A list of validated BP monitoring devices is available on the British Hypertension Society’s website:

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Pharmacological treatment

Table 1: Choice of antihypertensive

<table>
<thead>
<tr>
<th>Step</th>
<th>Age &lt; 55 years</th>
<th>Age &gt; 55 years and black people of African/Caribbean descent of any age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>A + C</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>A + C + D</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>A + C + D + additional diuretic or alpha-blocker or beta-blocker.</td>
<td>Consider seeking specialist advice</td>
</tr>
</tbody>
</table>

A = ACE inhibitor or low cost ARB
C = calcium-channel blocker
D = thiazide-like diuretic

Step 1
- Give antihypertensive drug treatment to all people < 80 years old with stage 1 hypertension and one or more of:
  - target organ damage,
  - established CV disease,
  - renal disease,
  - diabetes,
  - 10-year CV risk ≥20%.
- Give antihypertensive drug treatment to people of any age with stage 2 hypertension.
- For people < 55 years give an ACEI or low cost ARB. If an ACEI is prescribed and not tolerated – give a low cost ARB.
- For people aged > 55 years and black people of African or Caribbean descent of any age give a CCB. If a CCB is unsuitable due to oedema or intolerance, or with/at high risk of heart failure give a thiazide-like diuretic.
- Refer people < 40 years with stage 1 hypertension and no evidence of target organ damage, CV or renal disease or diabetes for specialist evaluation.

Step 2
- If BP not controlled at step 1; give a CCB with an ACEI/ARB.
- For black people of African or Caribbean descent; give an ACEI and ARB.
- For people < 55 years give an ACEI or low cost ARB. If an ACEI is prescribed and not tolerated – give a low cost ARB.
- If a diuretic is started or changed, give:
  - indapamide* 1.5mg modified-release once daily or 2.5mg once daily.
- For people already taking bendroflumethiazide or hydrochlorothiazide whose BP is stable; continue treatment.
- Use spironolactone* with caution in patients with a reduced eGFR due to the increased risk of hyperkalaemia.

Calcium channel blocker
- CCBs are now the preferred treatment option at step 2 as they are cost effective.

Beta-blockers
- Beta-blockers are not recommended but can be used in step 1 for:
  - younger people when an ACEI or ARB is contraindicated or not tolerated or,
  - there is evidence of increased sympathetic drive or,
  - in women of child-bearing potential.
- If a patient on a beta-blocker needs a second drug, add a CCB rather than a thiazide-like diuretic to reduce the risk of developing diabetes.

Prescribing
- Give patients with isolated systolic hypertension (systolic BP ≥160mmHg) the same treatment as patients with both raised systolic and diastolic BP.
- For patients > 80 years give the same treatment as patients aged ≥55 years. Take account of any comorbidity and concurrent drugs.
- Prescribe:
  - drugs taken once a day if possible,
  - generic drugs where appropriate, to minimise cost.

ACEI and ARB
- If an ACEI is not tolerated, give a low cost ARB.
- Do NOT combine an ACEI with an ARB.

Diuretics
- Bendroflumethiazide or hydrochlorothiazide are no longer the recommended thiazide-like diuretics for hypertension.
- If a diuretic is started or changed, give:
  - chlortalidone* 12.5 to 25mg once daily,
  - indapamide* 1.5mg modified-release once daily or 2.5mg once daily.
- For people already taking bendroflumethiazide or hydrochlorothiazide whose BP is stable; continue treatment.
- Use spironolactone* with caution in patients with a reduced eGFR due to the increased risk of hyperkalaemia.

Monitoring
- Use clinic BP to monitor response to treatment.
- For people with ‘white coat’ hypertension, use ABPM or HBPM with clinic BP measurements to monitor response to treatment.
- For patients receiving further diuretic therapy, monitor serum sodium, potassium and renal function.

Blood pressure targets

Clinic BP
- Aged < 80 years: aim for BP <140/90mmHg.
- Aged > 80 years: aim for BP <150/90mmHg.

ABPM or HBPM
- Aged < 80 years: aim for average BP <135/85mmHg.
- Aged > 80 years: aim for average BP <145/85mmHg.

NICE Pathway

A ‘NICE Pathway’ is available to support this guideline. This is an online tool that brings together guidance in an electronic flowchart and allows users to see all NICE guidance on a specific condition across a care pathway:

NICE Pathway: Hypertension