Hypertension in adults: diagnosis and treatment

Offer lifestyle advice and continue to offer it periodically

Clinic BP

Under 140/90 mmHg
- Check BP at least every 5 years and more often if close to 140/90 mmHg

140/90 to 179/119 mmHg
- Offer ABPM (or HBPM if ABPM is declined or not tolerated)
- Investigate for target organ damage
- Assess cardiovascular risk
- Assess for target organ damage as soon as possible:
  - If target organ damage, consider starting drug treatment immediately without ABPM/HBPM
  - If no target organ damage, confirm diagnosis by:
    - repeating clinic blood pressure measurement within 7 days, or
    - considering monitoring using ABPM/HBPM and ensuring a clinical review within 7 days

Refer for same-day specialist review if:
- retinal haemorrhage or papilloedema (accelerated hypertension) or
- life-threatening symptoms or
- suspected pheochromocytoma

180/120 mmHg or more
- Offer ABPM or HBPM
- Use clinical judgement for people with frailty or multimorbidity
- Offer ABPM or HBPM
- Under 135/85 mmHg
  - Offer ABPM or HBPM
  - If evidence of target organ damage, consider alternative causes

135/85 to 149/94 mmHg (Stage 1)
- Offer lifestyle advice and consider drug treatment
- Age >80 with clinic BP >150/90 mmHg:
  - Offer lifestyle advice and consider drug treatment
- Age <80 with target organ damage, CVD, renal disease, diabetes or 10-year CVD risk ≥10%:
  - Offer lifestyle advice and discuss starting drug treatment
- Age <60 with 10-year CVD risk <10%:
  - Offer lifestyle advice and consider drug treatment
- Age <40:
  - Consider specialist evaluation of secondary causes and assessment long-term benefits and risks of treatment
- Assess for target organ damage as soon as possible:
  - If target organ damage, consider starting drug treatment immediately without ABPM/HBPM
  - If no target organ damage, confirm diagnosis by:
    - repeating clinic blood pressure measurement within 7 days, or
    - considering monitoring using ABPM/HBPM and ensuring a clinical review within 7 days

150/95 mmHg or more (Stage 2)
- Offer lifestyle advice and drug treatment
- Age <40:
  - Consider specialist evaluation of secondary causes and assessment long-term benefits and risks of treatment
- Age ≥40:
  - Offer lifestyle advice and drug treatment
- Age ≥60:
  - Consider specialist evaluation of secondary causes and assessment long-term benefits and risks of treatment

Refer for same-day specialist review if:
- retinal haemorrhage or papilloedema (accelerated hypertension) or
- life-threatening symptoms or
- suspected pheochromocytoma

Use clinical judgement for people with frailty or multimorbidity
- Discuss the person’s CVD risk and preferences for treatment, including no treatment.
- See NICE’s patient decision aid for hypertension
- See next page for choice of drug, monitoring and BP targets.
- • Offer annual review
- • Support adherence to treatment

Under 135/85 mmHg
- Check BP at least every 5 years and more often if clinic BP close to 140/90 mmHg
- If evidence of target organ damage, consider alternative causes

Check BP at least every 5 years and more often if close to 140/90 mmHg

Abbreviations: ABPM, ambulatory blood pressure monitoring; BP, blood pressure; CVD, cardiovascular disease; HBPM, home blood pressure monitoring.

This is a summary of the recommendations on diagnosis and treatment from NICE’s guideline on hypertension in adults. See the original guidance at www.nice.org.uk/guidance/NG136
### Choice of antihypertensive drug

1, monitoring treatment and BP targets

#### Hypertension without type 2 diabetes

- **Step 1**
  - ACEi or ARB<sup>2,3</sup>
  - CCB

- **Step 2**
  - ACEi or ARB<sup>2,3</sup>
  - CCB or thiazide-like diuretic

- **Step 3**
  - ACEi or ARB<sup>2,3</sup> + CCB + thiazide-like diuretic

- **Step 4**
  - Confirm resistant hypertension: confirm elevated BP with ABPM or HBPM, check for postural hypotension and discuss adherence
  - Consider seeking expert advice or adding a:
    - low-dose spironolactone<sup>4</sup> if blood potassium level is ≤4.5 mmol/l
    - alpha-blocker or beta-blocker if blood potassium level is >4.5 mmol/l
  - Seek expert advice if BP is uncontrolled on optimal tolerated doses of 4 drugs

#### Monitoring treatment

Use clinic BP to monitor treatment.

Measure standing and sitting BP in people with:
- type 2 diabetes or
- symptoms of postural hypotension or
- aged 80 and over.

Advise people who want to self-monitor to use HBPM. Provide training and advice.

Consider ABPM or HBPM, in addition to clinic BP, for people with white-coat effect or masked hypertension.

#### BP targets

Reduce and maintain BP to the following targets:

**Age <80 years:**
- Clinic BP <140/90 mmHg
- ABPM/HBPM <135/85 mmHg

**Age ≥80 years:**
- Clinic BP <150/90 mmHg
- ABPM/HBPM <145/85 mmHg

**Postural hypotension:**
- Base target on standing BP

**Frailty or multimorbidity:**
- Use clinical judgement

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<sup>1</sup> For women considering pregnancy or who are pregnant or breastfeeding, see NICE’s guideline on hypertension in pregnancy. For people with chronic kidney disease, see NICE’s guideline on chronic kidney disease. For people with heart failure, see NICE’s guideline on chronic heart failure.

<sup>2</sup> See MHRA drug safety updates on ACE inhibitors and angiotensin-II receptor antagonists: not for use in pregnancy, which states ‘Use in women who are planning pregnancy should be avoided unless absolutely necessary, in which case the potential risks and benefits should be discussed.’ ACE inhibitors and angiotensin II receptor antagonists: use during breastfeeding and clarification: ACE inhibitors and angiotensin II receptor antagonists. See also NICE’s guideline on hypertension in pregnancy.

<sup>3</sup> Consider an ARB, in preference to an ACE inhibitor in adults of African and Caribbean family origin.

<sup>4</sup> At the time of publication (August 2019), not all preparations of spironolactone have a UK marketing authorisation for this indication.

Abbreviations: ABPM, ambulatory blood pressure monitoring; ACEi, ACE inhibitor; ARB, angiotensin-II receptor blocker; BP, blood pressure; CCB, calcium-channel blocker; HBPM, home blood pressure monitoring.