Hypertension in Adults: Drug Treatment Pathway - not to be used in pregnant women or people with type 1 diabetes

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. For adults with Type 1 Diabetes see NICE guideline NG17

Points to consider

Same day referral to secondary care e.g. Accelerated hypertension or suspected phaeochromocytoma **(see link)**

Routine referral to secondary care: Suspected secondary hypertension or <40yrs old with hypertension

Use an ARB in preference to an ACEi. Exceptions are:

- Heart failure: use Ramipril 1st line but if ACEi not tolerated use Candesartan or Valsartan
- Post MI: use Ramipril 1st line but if ACEi not tolerated use Losartan

Do not combine an ACEi with an ARB to treat hypertension.

Do not change patients to Indapamide if BP is well controlled on Bendroflumethiazide or Hydrochlorothiazide. (see Hydrochlorothiazide MHRA alert)

Compromised renal function: Consider using irbesartan instead of losartan or candesartan

Ankle swelling: Switching to lercanidipine can be considered if patient develops ankle oedema on amlodipine. Establish that symptoms are not transient or related to another aetiology e.g. heart failure. See swollen ankle advice. Σ

Target BP See separate targets for CKD chronic kidney disease	**AGE** Use clinical judgement in frailty and multimorbidity.	
	< 80 years old	**> 80 years old**
Clinic BP mm/Hg	**<140/90**	**<150/90**
ABPM/HBPM mm/Hg	**<135/85**	**<145/85**

Postural hypotension: A drop of 20mmHg in systolic BP within 1-3 minutes of standing.
For patients with postural hypotension, use standing BP to achieve target

Hypertension in CKD (eGFR < 60ml/min)

ACR < 30mg/mmol, follow BP algorithm

ACR ≥ 30mg/mmol, 1st line: ACEi or ARB, then follow algorithm

Step 1 plus Lifestyle advice

Step 2 review adherence & reinforce lifestyle advice

Step 3 review adherence & reinforce lifestyle advice

Step 4 Confirm resistant hypertension: Review adherence, confirm elevated BP with ABPM or HBPM, reinforce lifestyle advice.

Hypertension WITH Type 2 Diabetes or CKD (ACR ≥ 30mg/mmol)

Hypertension WITHOUT type 2 Diabetes

Age <55 and not of black African or African-Caribbean family origin

Any adult of Black African, or African Caribbean family origin

Age 55 or over

Losartan or **Candesartan** + Lifestyle advice

Amlodipine* + Lifestyle advice

Add **Amlodipine*** or **Indapamide IR**

Add **Losartan/Candesartan** or **Indapamide IR**

Losartan/Candesartan + Amlodipine + Indapamide IR

Fourth Line Hypertension therapy

Consider specialist advice or add:

Spironolactone 25mg daily If blood potassium is ≤ 4.5mmol/l **OR**

Doxazosin IR or **Bisoprolol/Atenolol** If blood potassium is > 4.5mmol/l. Bisoprolol & atenolol are cardio-selective, cost-effective and are the most widely beta-blockers for hypertension.

Seek specialist advice if BP is uncontrolled on OPTIMAL TOLERATED doses of 4 drugs

Prevent inappropriate secondary care referrals; address Obesity, adherence & prescribe to Step 4

Best Practice: Review BP 2-4weeks post initiation and dose change. If BP not to target, increase dose or add another antihypertensive from a different class. Consider co-morbidities and patient tolerability when choosing antihypertensives e.g. indapamide with gout .

SEE PAGE 2 FOR MANAGEMENT

Hypertension in Adults: Drug Management - not to be used in pregnant women or people with type 1 diabetes

Always use clinical judgement on an individual basis especially for people with frailty and multimorbidity.

Offer lifestyle advice and recheck adherence at each review. Encourage healthy eating One you Surrey (fruit and vegetables, less saturated fats), Regular exercise 30 mins/day. Caffeine moderation. Reduce salt intake. Smoking cessation. Alcohol moderation. Weight management/ Weight Loss (ideal BMI 18.5-24.9) **Click the links for full patient resources**

Use in conjunction with Drug Treatment Pathway **Minimum annual BP review and support with adherence to treatment. Minimum monthly BP and adherence reviews after initiation or dose change.**

Antihypertensive Drug Choice

- **ARB/ACEi (ARBs are 1st line over ACEi where clinically equivalent) initiate at step 1 preferred ARBs Losartan/ Candesartan)**
- Check baseline renal function. 7-14 days after initiation and at each dose titration check creatinine (increase by <20%) renal function (CrCl falls by <15%, K+ <5.5mmol/L).
- Annually- check eGFR/ serum creatinine once BP stabilised.
- Aim for maximum doses, if tolerated and BP, creatinine, and electrolytes normal, e.g. Losartan 100mg daily, Ramipril 10mg daily.

- **CCB (initiate at step 1/2/3, 1st line Amlodipine)**
- If BP remains above target, increase dose after 2-4 weeks as tolerated.
- If not tolerated, for example because of oedema, offer a thiazide-like diuretic.
- Side effects: swollen ankles at higher doses, flushing and headaches at initiation.

- **Thiazide-like Diuretics (initiate at step 2/3, 1st line Indapamide IR)**
- Check baseline renal function, before initiation, and after 7-14 days.
- Ineffective when eGFR <30ml/min, contraindicated in people with severe renal impairment.
- If K^+ <3.5mmol/L, stop medication do not initiate.
- Reports of photosensitivity reactions.

- **Spironolactone (initiate at step 4, resistant hypertension dose 25mg daily if K^+ <4.5mmol/L)**
- Serum creatinine, eGFR, electrolytes at baseline, then monthly for a further 2 months, then every 3 months for 1 year, then every 6 months thereafter (ensure K+≤4.5mmol/L at initiation and stop therapy if K+ >5.5 mmol/L).
- Unlicensed indication and use with caution in patients eGFR<30ml/min due to increased risk of hyperkalaemia.
- Full hypertensive effect takes 4-12 weeks.

- **Alpha-blockers (initiate at step 4, patients with resistant hypertension and K^+ >4.5mmol/L)**
- Consider risk of postural hypotension and dizziness especially in the frail and elderly. Avoid in elderly as orthostatic hypotension risk.
- Monitor hepatic function, do not use if Child-Pugh class C, no dose adjustment if renal function altered.
- Considered as additional therapy for resistant hypertension.
- Start conservatively at Doxazosin 1mg daily.

- **Beta-blockers (initiate at step 4, patients with resistant hypertension and K^+ >4.5mmol/L, Atenolol or Bisoprolol)**
- Introduce at a low dose and increase to achieve BP control (high doses rarely necessary).
- Monitor HR to prevent bradycardia (sinus rhythm resting HR > 60bpm, AF rate control to resting HR 80-90bpm).
- Do not stop abruptly due to risk of masked angina (IHD patients).
- For patients with asthma, bronchospasm, or a history of obstructive airways disease, cardio-selective betablockers may be used with caution as per the individual drug SPC.

Ways to improve and sustain medication adherence

- Adopt a collaborative approach via shared decision making, to discuss the benefits and risks of starting treatment. Use the patient decision aid to support your patients to take ownership of their treatment and make informed health decisions.
- Discuss potential side-effects and provide advice on how to mitigate occurrence. Addressing side-effects at initiation is key to support onward adherence to treatment.
  - Provide timelines for transient side effects. E.g., 2-3 weeks for swollen ankles related to CCB.[Σ]
  - Discuss side-effects which may be sensitive in nature to alleviate anxiety and promote open conversations:
    - Erectile dysfunction with diuretics e.g., Indapamide.
    - Constipation/diarrhoea with CCB e.g., Amlodipine.
    - Gynecomastia in men with Spironolactone.
  - Postural hypotension mitigation: Prescribe antihypertensives at bedtime, especially for frail and elderly patients. Avoid getting up too quickly from a seated or lying position.
- Establish what works for the patient. Recognise that patients may have altered sleeping patterns and taking medication at night-time is not the same as taking it at bedtime.
- Simplify drug regimens to once-daily dosing, where possible, to fit with patient's lifestyle.
- Discuss patient's physical barriers, e.g., swallowing difficulties and how to help with adherence.
- Refer patients to the Community Pharmacist for the New Medicines Service when initiating any antihypertensive.

Key: BP (blood pressure) ABPM (ambulatory BP monitoring) ACEi (angiotensin converting enzyme inhibitor) ARB (angiotensin-II receptor blocker) CCB (calcium-channel blocker) HBPM (home BP monitoring) IR (Immediate release). Helen Garrood and the CVD Medicines Group March 2024 Surrey Heartlands ICS. Hypertension in Adults: Drug treatment pathway based on NICE NG136