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NHS Waltham Forest CCG Pathway for Hypertension in Adults: Diagnosis and treatment (excluding hypertension in pregnancy)

Offer lifestyle advice and continue to offer it periodically

Measure Clinic BP

Clinic BP <140/90mmHg

Clinic BP <140/90mmHg.
Review 5 yearly & more frequently if close to 140/90mmHg. Review 2 yearly for people with diabetes without previously diagnosed hypertension or renal disease. If evidence of target organ damage, consider alternative diagnosis.

Clinic BP ≥140/90mmHg to <180/120mmHg

Ambulatory BP Monitoring (AMBP) to confirm diagnosis (Home BP monitoring (HBPM) if Ambulatory not suitable / tolerated).

While waiting for diagnosis confirmation, investigate for target organ damage and formal assessment for CV risk.

Clinic BP ≥180/120mmHg

Ambulatory BP Monitoring (AMBP) to confirm diagnosis (Home BP monitoring (HBPM) if Ambulatory not suitable / tolerated)

- Assess for target organ damage ASAP
- Consider starting drug treatment immediately without ABPM/HBPM if target organ damage
- Repeat clinic BP in 7 days if no target organ damage

GP to refer to same day specialist review if:

- Malignant hypertension, with papilloedema/retinal haemorrhage **OR**
- Suspected phaeochromocytoma (e.g. labile or postural hypotension, headache, palpitations, pallor, abdominal pain or diaphoresis), **OR**
- Life-threatening symptoms e.g. chest pain, headache, blurred vision, sweating, haematuria

ABPM or HBPM

ABPM / HBPM <135/85mmHg

ABPM / HBPM Daytime average of >135/85mmHg

ABPM / HBPM Daytime average of >150/95mmH

Use clinical judgement for people with frailty / multimorbidity

Check BP at least every 5 years & more often if clinic BP close to 140/90mmHg.
If evidence of target organ damage, consider alternative causes.

Age > 80 yrs with clinic BP > 150/90mmHg:

- Offer lifestyle advice & consider drug treatment.

Age < 80 yrs with target organ damage, CVD, renal disease, diabetes or 10 yr CVD risk ≥10%:

- Offer lifestyle advice & discuss starting drug treatment.

Age < 60 yrs with 10 yr CVD risk <10%:

- Offer lifestyle advice & consider drug treatment.

Age <40 yrs:

- GP to consider further screening: echo, renal ultrasound, random cortisol. Refer as appropriate depending on investigation findings
- Consider specialist evaluation of secondary causes & assessment long-term benefits & risks of treatment* *

**** If in doubt consider cardiology A&G to discuss need for referral**

- **Offer lifestyle advice and drug treatment – any age**
- **Age < 40 yrs –** GP to consider further screening: echo, renal ultrasound, 9.00am cortisol. Refer as appropriate depending on investigation findings

  Consider specialist evaluation of secondary causes and assessment long-term benefits and risks of treatment

Discuss CVD risk & preferences for treatment, including no treatment. See next page for drug choice, monitoring & BP targets. Offer annual review. Support adherence to treatment

Consider hypertension diagnosis – Arrange BP check with HCA / nurse

Clinic BP.
Ensure patient has empty bladder.
Confirm caffeine intake.
Ascertain activities or stress prior to appointment.

Measure BP in both arms. If difference in readings between arms >15mmHg, repeat.
If difference between arms remains >15mmHg for 2nd measurement, measure subsequent BP in arm with higher reading
If BP is ≥140/90mmHg:
Take 2nd measurement during consultation
If 2nd substantially different from 1st, take 3rd measurement
Record lower of last 2 measurements as

Test to assess for target organ damage:

Albumin creatinine (ACR)
Urine dip check for haematuria
Fundoscopy
Plasma glucose, electrolytes, creatinine, eGFR, serum total cholesterol, HDL cholesterol
12 lead ECG

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Choice of antihypertensive drug, monitoring treatment and BP targets

BP Target < 80 yrs Target clinic BP - Below 140/90mmHg
ABPM/HBPM - Target BP below 135/85mmHg

BP Target > 80yrs Target clinic BP - Below 150/90mmHg
ABPM/HBPM - Target BP below 145/85mmHg

Use clinical judgement re frailty/multimorbidity. **Offer lifestyle advice and continue to offer it periodically.** **Review patient annually.**

Hypertension with type 2 diabetes

Hypertension without type 2 diabetes

Age <55 yrs & **NOT** of black African or Afro-Caribbean family origin

Age 55 yrs or over

Black African or Afro-Caribbean family origin (any age)

Step 1

Step 1
1st Line: ACE- Inhibitor (ACEi)
2nd Line: Angiotensin II receptor blocker (ARB) - for those patients with a persistent dry cough due to ACE-Inhibitors
Before considering next step ensure patient is taking meds. as prescribed & support adherence

Step 1
Calcium channel blocker (CCB)
If CCB is not tolerated offer thiazide-like diuretic
Before considering next step ensure patient is taking meds. as prescribed & support adherence

Step 2

Step 2
ACEi or ARB, and:
CCB, **OR** Thiazide-like diuretic

Step 2
CCB and:
ACEi or ARB (consider ARB in preference to ACEi for people of black African or Afro-Caribbean origin)**, OR** Thiazide-like diuretic

Before considering Step 3, review medication to ensure optimal tolerated doses and discuss adherence

Step 3

Step 3
ACEi or ARB, and CCB and Thiazide-like diuretic
If BP uncontrolled on optimal tolerated doses of Step 3 regard as resistant hypertension.
Before Step 4, confirm elevated clinic BP with ABPM / HBPM, check for postural hypertension, discuss adherence.

Consider Step 4, OR → **Seeking expert advice via A&G**

Step 4

Step 4

Confirmed Resistant Hypertension
Consider further diuretic therapy with low-dose spironolactone, if blood potassium level ≤4.5mmol/l

Consider alpha or beta blocker if blood potassium level >4.5mmol/l **(do not use beta-blocker for patients with asthma or COPD)**

If BP remains uncontrolled on optimal tolerated doses of 4 drugs– **Seek expert advice from secondary care via Advice & Guidance or Referral**

Target BP

Age <80 yrs
- Clinic BP < 140/90mmHg
- ABPM / HBPM < 135/85mmHg

Age ≥80 yrs
- Clinic BP < 150/90mmHg
- ABPM / HBPM < 145/85mmHg

Postural Hypertension
Base target on standing BP

Frailty or multimorbidity
Use clinical judgement

Do NOT combine an ACE-Inhibitor with an ARB for patients of black of African or Afro-Caribbean family origin (non-diabetic) consider ARB in preference to ACEi

Regard clinic BP that remains > 140/90mmHg after optimal treatment / best tolerated doses of ACE inhibitor or ARB plus CCB plus diuretic **as resistant hypertension**, & consider adding 4th antihypertensive and **/ or seeking expert advice**

Step 2 and 3
If combination of ACE inhibitor or ARB, CCB & thiazide-like diuretic such as Indapamide (1.5mg MR OD, or 2.5mg OD) in preference to conventional thiazide diuretic.
For patients on conventional diuretic with stable, controlled BP, continue with current treatment.

Step 4 Caution
For spironolactone – Use caution in people with reduced eGFR (risk of hyperkalaemia)
For further diuretic therapy – monitor blood sodium & potassium & renal function within 1 month & repeat as required

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NHS Waltham Forest CCG Formulary Medicines for Hypertension in Adults (Use clinical judgement for existing hypertensive patients who have been stabilised on a different drug regime).

	Drug	Starting dose (2)	Titration (2)	Monitoring (2)	Comments / Common Side Effects (2)
ACE Inhibitors	1st line: Ramipril	1.25mg-2.5mg daily	Increase in intervals every 2-4 weeks by 1.25mg-2.5mg to a maximum tolerated dose up to 10mg	**Baseline:** Renal function (Serum creatinine and eGFR) and Electrolytes (Potassium, Sodium) **After initiation:** Review renal profile and electrolytes within 2 weeks of initiation or dose increase NB: If Serum Creatinine increases by >20% or eGFR increases by more than 15% stop the ACE-inhibitor and seek specialist advice. **Annually:** Review renal profile and electrolytes	**Caution:** Do not combine an ACE-inhibitor with ARB **Common side effects:** Dry cough with ACEi- if persistent and intolerable, switch to an ARB **ACE-inhibitor dose should be optimised before adding in other agents**
	2nd line: Lisinopril	10mg daily	Increase by 10mg every 2-4 weeks up to the usual maintenance dose of 20mg daily (Max 80mg daily)		
Angiotensin II blockers	1st line: Candesartan	8mg daily	Increase by 8mg every 4 weeks to the maximum tolerated dose up to 32mg	**Baseline:** Renal function (Serum creatinine and eGFR) and Electrolytes (Potassium, Sodium) **After initiation:** Review renal profile and electrolytes within 2 weeks of initiation or dose increase NB: If Serum Creatinine increases by >20% or eGFR increases by more than 15% stop the ACE-inhibitor and seek specialist advice. **Annually:** Review renal profile and electrolytes	**Caution:** Do not combine an ACE-inhibitor with ARB
	2nd line: Losartan	50mg Daily >75 years old: 25mg daily	Remain on the starting dose for two weeks, then increased if necessary to 100 mg once daily		
Calcium channel blockers	1st line: Amlodipine	5mg daily	Increase after 2-4 weeks to a maximum dose of 10mg.		**Interaction with simvastatin:** switch to atorvastatin **Side effects:** Ankle oedema. Switch to the 2nd line CCB **Treatment cessation:** There is some evidence that sudden withdrawal of calcium-channel blockers may be associated with an exacerbation of myocardial ischaemia.
	2nd line: Felodipine	5mg daily Elderly 2.5mg daily	Increase after 2- 4 weeks if needed to achieve the required effect. Maintenance dose 5-10mg once daily, to be taken in the morning. Doses above 20mg rarely needed		**Caution:** Avoid in pregnancy; toxicity in animal studies; may inhibit labour **Common side effects**: Peripheral oedema and headache Felodipine may also cause significant hypotension with subsequent tachycardia. This may lead to myocardial ischaemia in susceptible patients. **Treatment cessation**: There is some evidence that sudden withdrawal of calcium-channel blockers may be associated with an exacerbation of myocardial ischaemia.
Thiazide-type diuretics	1st Line: Indapamide Indapamide modified release	2.5mg daily 1.5mg daily	Nil titration required Max 2.5mg Nil titration required Max 1.5mg	**Baseline:** Renal function (Serum creatinine and eGFR) and Electrolytes (Potassium, Sodium) **After initiation:** Review renal profile and electrolytes within 2 weeks of initiation or dose increase **Annually:** Review renal profile and electrolytes If a single tablet of indapamide does not achieve the desired blood pressure reduction another antihypertensive may be added.	**Caution:** Co-administration of indapamide with diuretics is not recommended may cause hypokalaemia **Caution:** Indapamide contraindicated in creatinine clearance < 30ml/min **Caution:** Present in breast milk – manufacturer advises avoid.

	Drug	Starting dose (2)	Titration (2)	Monitoring (2)	Comments / Common Side Effects (2)
	2nd Line: Bendroflumethiazide	2.5mg daily	Nil titration required. Max 2.5mg daily	**Baseline:** Renal function (Serum creatinine and eGFR) and Electrolytes (Potassium, Sodium) **After initiation:** Review renal profile and electrolytes within 2 weeks of initiation or dose increase **Annually:** Review renal profile and electrolytes	
Potassium Sparing diuretic	Spironolactone	25mg daily	Titrate to 50mg daily after 3 weeks if required. Maximum 50mg daily.	**Baseline:** Renal function (Serum creatinine and eGFR) and potassium. Only start if potassium is <4.5mmol/L **After initiation:** Review renal profile and electrolytes within 2 weeks of initiation or dose increase **Annually:** Review renal profile and electrolytes	**Indication:** Resistant hypertension (adjunct) Caution: Can cause hyperkalaemia Do not use spironolactone if eGFR <40
α - blockers	Doxazosin Immediate Release	1mg daily	Starting dose for 1–2 weeks, then increased to 2 mg once daily, then increased if necessary to 4 mg once daily; maximum 16 mg per day.		**Caution:** initial dose postural hypotension Avoid in urinary incontinence Doses >8mg daily need to be taken in BD dosing to reduce BP variation
β - blockers	1st line: Bisoprolol	5mg daily	Increase every 2-4 weeks by 5mg. Max 20mg per day.		**Consider** beta-blockers in younger people and in those with intolerance or contraindication to ACE-inhibitors or ARBs**.** **Caution**: in Type-2 diabetes- symptoms of hypoglycaemia may be masked **Caution:** increase risk of diabetes with beta-blockers prescribed with thiazide diuretics. **Contra-indication**- Asthma, 2nd or 3rd Degree AV block, severe PAD, COPD
	2nd line: Atenolol	25mg daily	Increase after 2-4 weeks to a maximum 50mg daily		

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Hypertension Stages

Stage 1	Clinic BP ranging from 140/90mmHg to 159/99mmHg and subsequent ABPM daytime average or HBPM average BP ranging from 135/85mmHg to 149/94mmHg
Stage 2	Clinic BP ranging from 160/100mmHg or higher, but less than 180/120mmHg and subsequent ABPM daytime average or HBPM average BP ranging from 150/95mmHg or higher
Stage 3	Clinic systolic BP of 180mmHg or higher or clinic diastolic BP of 120mmHg or higher

Information for patients using home BP monitors

NICE Guidance 2019:

When using HBPM to confirm a diagnosis of hypertension, ensure that:

- For each BP recording, 2 consecutive measurements are taken, at least 1 minute apart and with the person seated **and**
- BP is recorded twice daily, ideally in the morning and evening, **and**
- BP recording continues for at least 4 days, ideally 7 days

Discard the measurements taken on the first day and use the average value of all the remaining measurements to confirm a diagnosis of hypertension.

Key:

Blue shaded areas indicate actions for primary care

Green shaded areas indicate actions for secondary care / referral to secondary care or Advice & Guidance

This guidance is to assist GPs in decision making and is not intended to replace clinical judgment.

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