BNSSG Guidelines for Investigation and Management of Hypertension in Adults

Developed in partnership between:

NHS Bristol, North Somerset and South Gloucestershire Integrated Care Board

NHS North Bristol NHS Trust

NHS University Hospitals Bristol and Weston NHS Foundation Trust

Healthier Together
Improving health and care in Bristol, North Somerset and South Gloucestershire

Contents

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Approach to Assessment, Investigation and Management of Blood Pressure

Patients with diabetes mellitus

Measure patient BP annually if no background of hypertension or renal disease. For those with a prior diagnosis of hypertension meeting their target BP, consider monitoring BP every 6 months.

Aim for clinic BP <130/80 mmHg (ABPM/HBPM <125/75 mmHg) irrespective of type of DM or urine ACR unless age ≥80/moderate to severe frailty

Hypertension in pregnancy

Please see the Hypertension in pregnancy guidelines in the Obstetrics section.

Access guidelines here.

Measure patient blood pressure (BP)

If >140/90 mmHg repeat twice and take the best reading

If raised, check both arms and if difference >15 mmHg between arms on two measurements, use arm with higher reading to measure subsequent BP (associated with peripheral vascular disease, and linked with increased CVD risk)

NHS community pharmacy hypertension case-finding advanced service

Patients are referred to GP/same day care where appropriate as per the service SOP

Access SOP here.

Clinic BP
<140/90 mmHg and no diabetes mellitus

Offer annual BP screening if

Systolic BP 130-139 mmHg
OR
Diastolic BP 80-89 mmHg

Clinic BP
140-179/90-119 mmHg (or 130-179/80-119 mmHg if diabetes mellitus)

Repeat once again within 1-2 weeks or offer ABPM or HBPM

Clinic BP
SBP ≥180 mmHg OR DBP ≥120 mmHg on 3 readings same day

(Stage 3 hypertension)

Start antihypertensive medications (A&C) immediately and assess response

BP controlled?
Aim to lower to <160/100 mmHg in next 6 hours

Yes

No & ≥180/120 mmHg

Clinic BP
BP ≥180/120 mmHg with EITHER:
1. Papilloedema and/or retinal haemorrhage, **OR**
2. Suspected phaeochromocytoma (labile/postural hypotension, headache, palpitations, pallor and sweating), **OR**
3. Life-threatening signs and symptoms such as new onset confusion, chest pain, heart failure or acute kidney injury

(Accelerated hypertension)

Refer for same day emergency care

Offer lifestyle advice and assess cardiovascular risk
If making lifestyle changes, review BP in 3-6 months

Assessment
- Urine ACR and dipstick
- U&Es incl. K+
- LFTs, HbA1c, TFTs, and Lipid profile
- Fundoscopy
- ECG

Co-morbidities
- Weight
- Sleep apnoea
- Alcohol
- Medications

Consider white-coat hypertension or effect
- ABPM or HBPM may be necessary to diagnose hypertension

10-year cardiovascular risk estimate

Onset <40 years
AND
Clinic BP ≥140/90 mmHg
AND
Daytime ABPM or HBPM ≥135/85 mmHg

Refer to **Hypertension Service** to exclude secondary hypertension + more detailed assessment of target organ damage

Systolic BP 130-139 mmHg
OR
Diastolic BP 80-89 mmHg

Offer annual BP screening

Offer antihypertensive medication if persistent elevation and any of:
- End organ damage
- 10-year CVD risk ≥10%,
- History of pregnancy complications
- Chronic kidney disease
- Diabetes mellitus
- Familial hypercholesterolaemia
- Prior cardiovascular disease

No

Patient age <80 years
Clinic BP 140-159/90-99 mmHg
OR
Daytime ABPM/HBPM 135-149/85-94 mmHg

(Stage 1 hypertension)

Elevated risk?
- End organ damage
- 10-year CVD risk ≥10%
- History of pregnancy complication
- Chronic kidney disease
- Diabetes mellitus
- Familial hypercholesterolaemia
- Cardiovascular disease

Yes

No

Clinic BP ≥150/95 mmHg
OR
Persistent Stage 1 hypertension despite lifestyle change?

Patient any age
Clinic BP ≥160/100 mmHg
OR
Daytime ABPM/HBPM ≥150/95 mmHg

(Stage 2 hypertension)

Offer antihypertensive medication

Aim for target BP within 3 months

Review BP, CVD risk and medications annually if at target BP

Consider **Hypertension Service** if 3+ antihypertensives and BP >140/90 mmHg

TREATMENT TARGETS (in mmHg)

Patient with:	Clinic BP	ABPM/HBPM
Age <80 years	<130/80	<125/75
Age ≥80 years	<140/90	<135/85
Multiple drug intolerances/moderate to severe frailty	As low as reasonably achievable (≤150/90 acceptable)	

REFERENCES

NICE (2022) Hypertension in adults: diagnosis and management (NG136).

NICE (2023) Cardiovascular disease: risk assessment and reduction, including lipid modification (NG238).

Kreutz R, et al. 2024 European Society of Hypertension clinical practice guidelines for the management of arterial hypertension. Eur J Intern Med. 126:1-15 (Aug 2024).

McEvoy JW, et al. 2024 ESC Guidelines for the management of elevated blood pressure and hypertension. Eur Heart J. (Aug 2024).

Antihypertensive Drug Treatment Pathway

Age <55 years or Type 2 diabetes or Chronic kidney disease/albuminuria

A

e.g. Ramipril 2.5 – 5 mg OD
Strongly consider early dual therapy with CCB in most patients[1]

Clinic BP ≥180/120 mmHg

Age 55+ or Black African or Afro Caribbean origin without Type 2 diabetes or chronic kidney disease/albuminuria

C

e.g. Amlodipine 5 mg OD

Strongly consider early dual therapy with ACEi/ARB in most patients[1]

Not at target

Not at target

A+C

e.g. Ramipril 5 mg OD and Amlodipine 5 mg OD

Combination Therapy Is More Effective Than Max Doses Of Monotherapy

Not at target

Add Indapamide 2.5 mg OD

A+C+D

Ramipril 5 mg OD and Amlodipine 5 mg OD and Indapamide 2.5 mg OD

Not at target

Not at target

Increase ACEi/ARB

↑A+C+D

e.g. Ramipril 10 mg OD and Amlodipine 5 mg OD and Indapamide 2.5 mg OD

Increase CCB

A+↑C+D

e.g. Ramipril 5 mg OD and Amlodipine 10 mg OD and Indapamide 2.5 mg OD

Not at target

Increase all medications to maximal doses

A+C+D

e.g. Ramipril 10 mg OD, Amlodipine 10 mg OD and Indapamide 2.5 mg OD

Not at target

RESISTANT HYPERTENSION

Check concordance – The majority of patients resistant to 3+ drugs are not adherent to their medications

Address lifestyle and drug causes – Excess salt and alcohol, and other drugs incl. NSAIDS, steroids, liquorice; exclude and address sleep apnoea and obesity

Further options for optimisation includes IF –
K+ >4.5 mmol/L : Doxazosin IR 2-4 mg OD, or Bisoprolol 5 mg OD
K+ ≤4.5 mmol/L : Spironolactone 25 mg OD[2]

Consider referral to hypertension clinic if resistant hypertension or multiple drug intolerances

A

ACE inhibitor/Angiotensin II receptor blocker

1st Line – Ramipril/Lisinopril/Perindopril
2nd Line – Losartan/Candesartan if ACEi induced cough

Consider ARB if Black African or Afro Caribbean origin

Avoid ACEi/ARB in women of childbearing potential unless on effective contraception (use beta blocker or CCB if trying to conceive)

Check U+Es before and 1-2 weeks after initiation & dose change

If eGFR decreases by <25%, recheck levels after 1-2 weeks

If eGFR decreases by >25% or creatinine >30%, investigate for secondary causes (renal artery stenosis) and if persists stop the ACEi OR reduce dose to previously tolerated (recheck 5-7 days)

C

Calcium channel blocker

1st Line – Amlodipine (majority of effect achieved by 5 mg OD dose)
2nd Line – Lercanidipine if troublesome ankle swelling

D

Diuretic

1st Line – Indapamide

Check U+Es before starting, and 1-2 weeks after initiation and ensure Na+ >130 mmol/L – otherwise STOP and recheck, and if improved consider

2nd Line – Bendroflumethiazide (added as first line for use in heart failure – not for routine use in hypertension without HF)

Supplementary Information

1 – Use monotherapy in selected patients with low CVD risk and BP <150/95, high CVD risk and high-normal BP or frail, elderly patients

2 – Use Spironolactone with caution if eGFR <45 mL/min

3 – Consider SGLT2 inhibitor in select cases (heart failure and CKD) as early additional therapy

REFERENCES

NICE (2022) Hypertension in adults: diagnosis and management (NG136). National Institute for Health and Care Excellence.

NICE (2023) Cardiovascular disease: risk assessment and reduction, including lipid modification (NG238). National Institute for Health and Care Excellence.

Kulkarni, S., Faconti, L., Partridge, S. et al. Investigation and management of young-onset hypertension: British and Irish hypertension society position statement. J Hum Hypertens 38, 544–554 (2024).

Kreutz R, et al. 2024 European Society of Hypertension clinical practice guidelines for the management of arterial hypertension. Eur J Intern Med. 126:1-15 (Aug 2024).

Recommended Pathway Prior to Referral to the Hypertension Clinic

Patients who might benefit from referral include the following:

1. Patients with drug intolerant hypertension (uncontrolled BP due to multiple drug intolerances)
2. Patients with drug resistant hypertension (uncontrolled BP despite treatment with optimal doses of 3+ antihypertensive agents)
3. Age <40 years with office BP ≥140/90 mmHg AND ambulatory/home BP of ≥135/85 mmHg
4. Patients with signs or symptoms suggestive of a secondary cause of hypertension

Drug intolerance to A/C/D antihypertensive medications

TRY OTHER MEDICATIONS IN THE SAME CLASS

Consider another antihypertensive in same class unless strong, pharmacologically predictable adverse effect

EXCLUDE HYPERSENSITIVITY OR DOSE-DEPENDENT ADVERSE EFFECTS

If dose-dependent adverse effect, consider reduction in dose and review of symptoms

Intolerance to 3+ classes of antihypertensive medication and clinic BP ≥140/90 mmHg or ABPM/HBPM ≥135/85 mmHg

Resistant hypertension

3+ antihypertensives (including a diuretic) and clinic BP ≥140/90 mmHg or ABPM/HBPM ≥135/85 mmHg

CONFIRM PATIENT IS NOT AT TARGET

Consider carrying out HBPM or ABPM

CHECK CONCORDANCE AND ABSORPTION

Most patients resistant to 3+ drugs are not adherent to their medications

Consider sending ANTIHYPERTENSIVE DRUG SCREEN

Spot plain universal urine container to lab

Consider commencing at the same time of referral;

K+ >4.5 mmol/L: Doxazosin IR 2-4 mg OD, or Bisoprolol 5 mg OD
K+ ≤4.5 mmol/L: Spironolactone 25 mg OD[2]

Young onset hypertension

<40 years with office BP ≥140/90 mmHg or ambulatory/home BP of ≥135/85 mmHg

Or symptoms significantly suggestive of a secondary cause of hypertension

ROUTINE INVESTIGATIONS

Carry out the following for all patients:

1. Bloods – FBC, U&Es, LFTs, TFTs, HbA1c, and lipid profile
2. 12 lead ECG
3. Urine for ACR

IMAGING

The Hypertension clinic investigates for structural causes/target organ effects with a specific MRI protocol however consider:

1. Echocardiography if evidence of target organ effects on ECG
2. Renal USS if evidence of renal disease

REFERENCES

NICE (2022) Hypertension in adults: diagnosis and management (NG136). National Institute for Health and Care Excellence.

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