

Hypertension

A guide for Lewisham General Practice

Key messages

1. Check blood pressure *at every opportunity* (and do a pulse check)
2. Lifestyle changes *are key* to reducing cardiovascular (CV) risk and lowering blood pressure (BP)
3. Check for target organ damage and use a QRISK assessment tool
4. Optimise BP management with lifestyle and medication changes
5. Aim for NICE BP targets and review BP at least annually

Always work within your knowledge and competency

November 2021 (review November 2023, or earlier if indicated)

Treatment of high BP significantly reduces risk of stroke, ischaemic heart disease, heart failure, diabetic complications and all cause mortality¹

- **Risk reduction:** Every 10mmHg reduction in systolic BP reduces risk of major CV events by 20%¹
- **Under-treated:** In Lewisham, **1 in 3** patients under 80 and **1 in 5** patients over 80, with hypertension, have uncontrolled BP
- **Under-diagnosed:** Of the population estimated to have hypertension in Lewisham, **44%** (27,586) remain undiagnosed²
- **Variation:** In Lewisham the achievement of GP practices managing to control their patients' blood pressure varies by 21%²
- **Health Inequalities:** 48% of patients on the hypertension register who have uncontrolled blood pressure are of Black family origin³

In Lewisham, if we reduce the average systolic BP in people with hypertension by 10 mmHg, in one year, we could prevent¹:

50 people from developing **heart failure**

63 people from having a **stroke**

67 people from developing **ischaemic heart disease**

208 deaths

How to measure BP

How to measure BP when considering a diagnosis of hypertension

- Measure blood pressure in both arms, if difference >15 mmHg, repeat measurements
- If difference in readings between arms remains >15 mmHg on the second measurement, measure subsequent blood pressures in the arm with the higher reading (document which arm on EMIS)

When to measure standing + sitting BP?

- In Diabetes Mellitus (DM), suspected postural hypotension, or age ≥ 80yrs
- Measure BP with the patient standing for at least 1 min before measurement - if systolic drop ≥ 20mmHg or symptoms of postural hypotension, **review medication and treat to BP target based on standing BP**

Assessing target organ damage

- **Target organ damage: damage to organs such as the heart, brain, kidneys and eyes.**
- **Examination:** check eyes (fundoscopy), urine dipstick (for blood), CV exam
- **Tests:** full blood count (FBC), renal profile (cholesterol), HbA1c, thyroid function test (TFT), urine albumin creatinine ratio (ACR), and 12 lead ECG
- **Record:** smoking status, physical activity level, alcohol intake, BMI, [waist circumference], family history (use Ardens Template)
- **Corrected eGFR** The latest NICE CKD guideline **does not recommend** adjusting the eGFR in people of Black African or African-Caribbean family origin⁵

Ambulatory BP monitoring (ABPM) and Home BP monitoring (HBPM)

Ambulatory BP monitoring (ABPM)

- Ensure sufficient readings - minimum 14 readings during waking hours
- Use daytime average BP for diagnosis

Home BP monitoring (HBPM)

- Ensure a [validated \(and calibrated\) BP machine is being used](#) and advise to record two BP readings every morning and evening every day for at least 4 days (ideally 7)
- In practice, disregard the first day's readings and take an average of the remaining readings

Assessing Cardiovascular (CV) risk: QRISK2 or QRISK3?

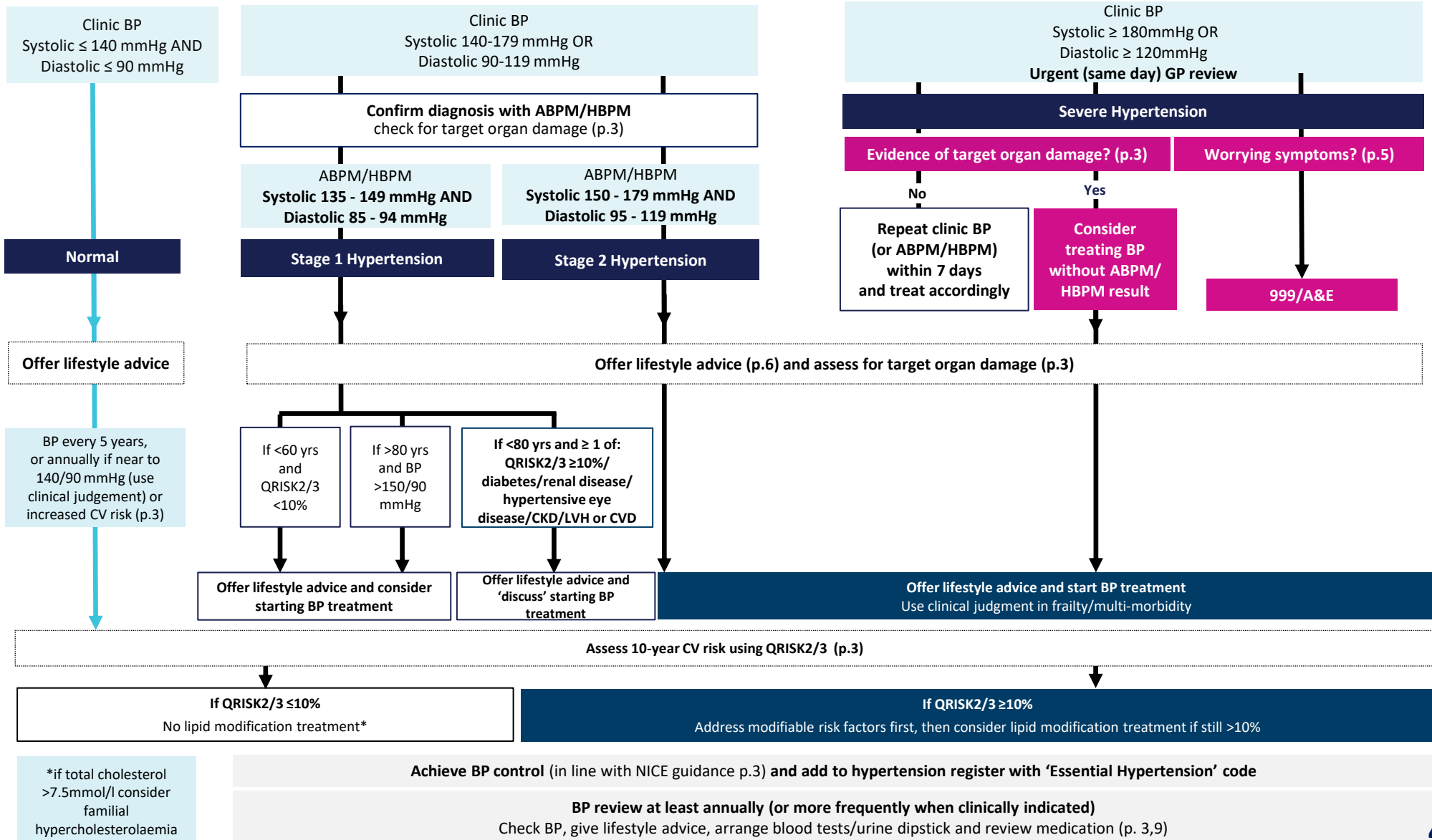
- The QRISK2/3 score estimates the risk of a patient developing CVD over the next 10 years
- Currently a QRISK2 'calculator' is integrated into EMIS, however a link to a more inclusive CV risk score QRISK3 can be found [here](#) (and in the Ardens hypertension template)
- For several conditions QRISK2 will underestimate people's risk e.g. severe mental illness and rheumatological conditions. As the calculated CV risk is an estimate, clinical judgement is required to adjust for factors that the risk calculator does not include
- **QRISK2/3 is not applicable in people who are considered at high risk of CVD:** Type 1DM, CKD 3-5, lipid disorders, existing CVD, previous stroke/TIA or people ≥ 85 years as they should already be on/offered lipid modification therapy (do consider factors that may make treatment inappropriate such as frailty, polypharmacy, life expectancy)
- Follow [SEL ICS guideline on lipid management](#)⁶ on how to action QRISK2/3 scores ≥ 10%

Which BP target? Aim for NICE BP targets^{4, 7, 8, 9}

Which condition?	Which cohort within the condition?	NICE Clinic BP Target Use clinical judgment in frailty/multi-morbidity Adjust BP target by 5mmHg for ABPM/HBPM	QOF BP Targets ¹⁰ 2021/2022	
Hypertension, including Type 2 Diabetes (but with no CKD)	Age <80yrs	≤140/90mmHg	≤140/90mmHg	*Note QOF Target for Hypertension in T2DM is ≤140/80mmHg
	Age ≥80yrs	≤150/90mmHg	≤150/90mmHg	
Diabetes	Type 2 Diabetes	Same as hypertension if no CKD	≤140/80mmHg	
	Type 1 Diabetes + no albuminuria	≤135/85mmHg		
	Type 1 Diabetes + albuminuria or ≥ 2 features of metabolic syndrome	≤130/80mmHg		
CKD (chronic kidney disease)	ACR <70mg/mmol	≤140/90mmHg	No QOF target	
	ACR ≥70mg/mmol or co-existent Diabetes	≤130/80mmHg		
Ischaemic heart disease (IHD)/ Peripheral arterial disease (PAD) or TIA/Stroke	History of IHD/PAD	≤140/90mmHg	No QOF target for PAD, but for rest based on age i.e. <80yrs ≤140/90mmHg ≥80yrs ≤150/90mmHg	
	History of TIA/Stroke (if with severe bilateral carotid stenosis: systolic BP 140-150mmHg)	≤130/80mmHg		

Note: For people ≥80 years with hypertension and T2DM, CKD, PAD, CVD or TIA/Stroke, individual NICE guidance on these areas offers no age-specific BP targets for this cohort. However, NICE Hypertension guidelines⁴ (as mentioned above) do suggest a target of ≤150/90 mmHg for those ≥80 years with hypertension, **but with frailty/multi-morbidity use clinical judgement**

New NICE guidance: Diagnostic thresholds and treatment targets for BP in people with T2DM are **now the same as hypertension alone**, unless there is co-existent CKD (p.7)



*if total cholesterol >7.5mmol/l consider familial hypercholesterolaemia

Hypertension management⁴

When to refer a patient?

Suspected secondary cause OR patient < 40 years

- **Secondary causes of hypertension in a patient of any age** e.g. [Cushing's syndrome](#), [Conn's Syndrome](#), [obstructive sleep apnoea](#), [scleroderma](#), [lupus](#), [polyarteritis nodosa](#), [retroperitoneal fibrosis](#)
- **If <40 years + BP \geq 140/90mmHg + no evidence of CVD, renal/hypertensive eye disease or diabetes.** The 10-year CV risk can underestimate the lifetime risk of CV events in this cohort¹¹
- **In patients of African or Caribbean family origin**, primary hypertension can present earlier, if in doubt, consider A&G to discuss need for referral

Refer to specialist clinic for investigation

Worrying symptoms

- **Life-threatening symptoms** - new onset confusion, chest pain, heart failure (HF), acute kidney injury (AKI)
- **Accelerated hypertension** - retinal haemorrhage, papilloedema
- **Suspected pheochromocytoma** – labile or postural hypotension, headache, palpitations, pallor (pale skin), abdominal pain, excessive sweating

Immediate: 999 or A&E

Secondary/Tertiary care support

Urgent telephone advice: Consultant connect - Ambulatory Care UHL, Cardiology, Elderly Care UHL, Renal Medicine

Non-urgent advice: eRS 'Advice & Guidance' - Depending on the context: Hypertension clinic (GSTT), CKD clinic (GSTT), Diabetic medicine (GSTT/KCH), Obstetric medicine (GSTT), Pregnancy in Hypertension clinic (GSTT)

Specialist clinics Refer via eRS by searching the following:

- **Resistant hypertension** (on 3/4 meds, one of which is a diuretic) → Hypertension clinic (GSTT) or Cardiology clinic (LGT)
- Hypertension in people **<40 years** → Hypertension clinic (GSTT – see DXS) or if patient prefers to stay local, Cardiology clinic (LGT)
- Hypertension with **suspected secondary cause** → Hypertension clinic (GSTT – see DXS) or if patient prefers to stay local, Cardiology clinic (LGT)
- Hypertension **with renal impairment** → General nephrology (LGT/GSTT/KCH)
- Hypertension **with diabetes** → Diabetic medicine (LGT/GSTT/KCH)

Available DXS referral forms: 'Lewisham and Greenwich cardiology', 'Nephrology', 'KCH - Renal Kidney Disease', 'Integrated Diabetes Team'

Hypertension and pregnancy: Patients with hypertension should be referred to the obstetric team at their booking hospital, who will liaise with a tertiary hospital as required

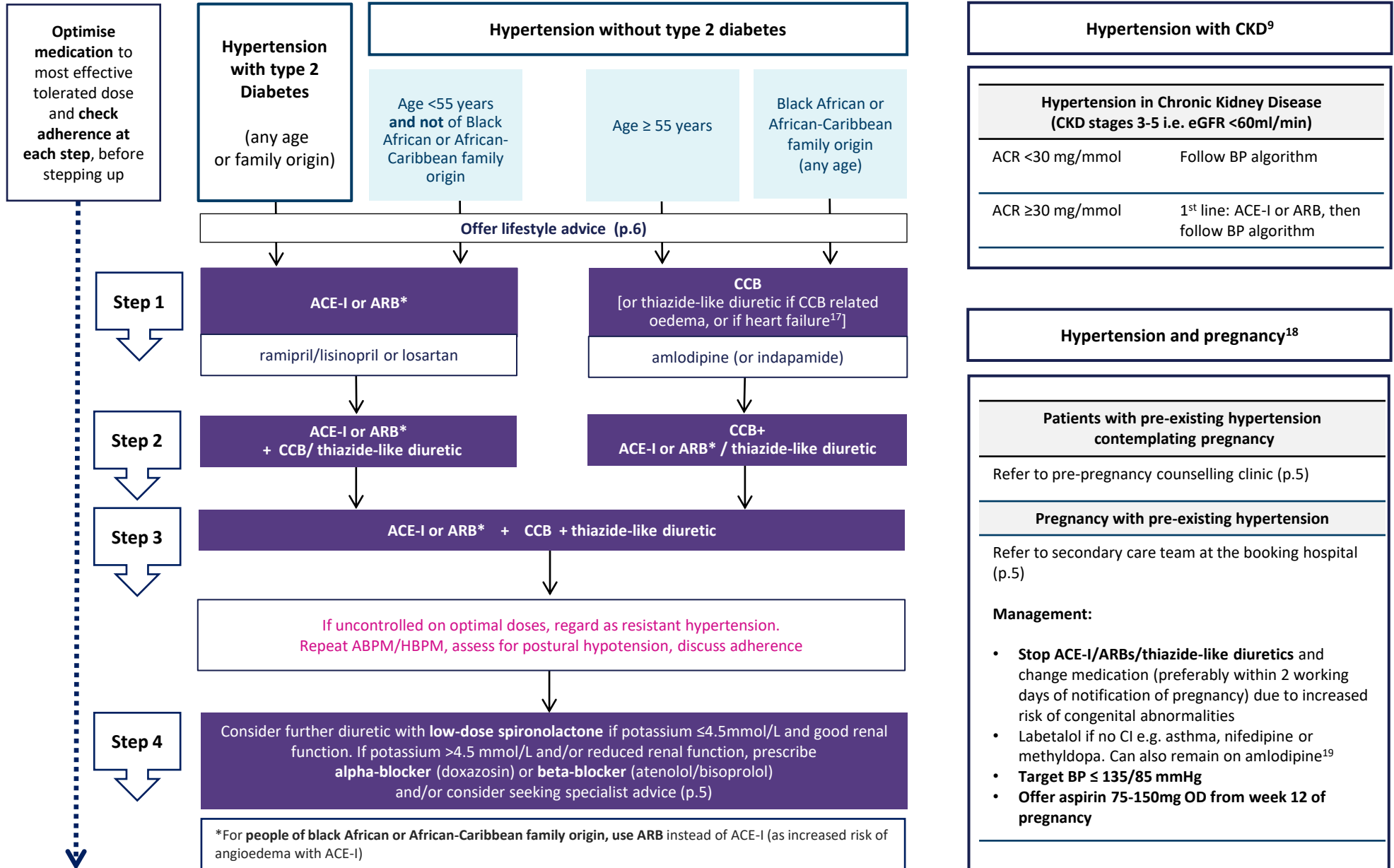
- Hypertension in **patients contemplating pregnancy** → Pre-pregnancy counselling clinic (GSTT)
- Hypertension in **pregnancy** → Cardiology clinic (LGT), [Hypertension in Pregnancy clinic](#) (if booked at GSTT) or Antenatal Hypertension Clinic (if booked at KCH)
- Hypertension for **pregnant women with multiple co-morbidities** → Obstetric Medicine clinic (such patients should consider booking at GSTT or KCH)

Lifestyle changes can be more effective than medication on average a standard dose of blood pressure medication reduces systolic blood pressure by approx. 9mmHg¹³
 The NHS's 'Making every contact count' approach, enables the opportunistic delivery of healthy lifestyle information at each consultation. Click [here](#) for training.

Action	Recommendation (Any lifestyle changes will reduce BP, set realistic goals with patients)	Approx. systolic BP reduction
Reduced weight	Maintain healthy body weight	5-20mmHg/10kg loss
Healthy diet	DASH diet: consume a diet rich in fruits, vegetables, low-fat dairy with reduced saturated and total fat. More information here Discourage consumption of excessive caffeine or caffeine-rich products	8-14mmHg
Reduced salt intake	Reduce dietary sodium intake to <6 g per day ⁵ (1 level teaspoon ¹⁴) and it should not be added at the table ¹⁴	2-8mmHg
Increased exercise	Regular aerobic physical activity - 150 min per week of moderate intensity (e.g. brisk walking or cycling), build up from 10 min intervals	4-9mmHg
Reduced alcohol intake	Below or equal to 14 units/week - calculator here ¹⁵	2-4mmHg
Smoking: harm reduction	Stop smoking in one step or reduce gradually with stop smoking services, medication or nicotine replacement therapy BP returns to normal 20 minutes after you stop smoking ¹⁶	Currently no available data

Lewisham Patient Support

- **Social prescribing referral:** Via GP (Elemental) or self-referral. They can provide links with local organisations such as cookery clubs, walking/exercise groups https://sites.elementalsoftware.co.uk/app/WebObjects/SR.woa/cms/ohl_corona_registerstart
- **Lewisham Council diet and exercise advice:** <https://lewisham.gov.uk/myservices/socialcare/health/diet-and-exercise>
- **Lewisham Be Active Pass:** Free or discounted use of Lewisham leisure centres. Self-service machines available at all Lewisham sites if no internet access available <https://lewisham.gov.uk/inmyarea/sport/be-active-discounts>
- **Lewisham Healthy Walks:** <https://www.walkingforhealth.org.uk/walkfinder/lewisham-healthy-walks>
- **Healthwise referral:** Exercise on referral scheme for patients with hypertension - Referral on DXS
- **Weight Watchers and Slimming world/SEL Tier 3 Healthy Weight Programme:** (BMI ≥40, or ≥35 with T2DM) **SEL Tier 4:** (BMI ≥50, or ≥35 with complex health needs) - Referrals on DXS
- **Personal weight management plan for patients (OHL):** <https://onehealthlewisham.co.uk/wp-content/uploads/2021/03/OHL-Weight-Management-Patient-Toolkit.pdf>
- **NHS Better Health: weight, smoking, exercise, alcohol:** [Better Health - NHS \(www.nhs.uk\)](https://www.nhs.uk) **Stop smoking services:** <https://www.smokefreelewisham.co.uk/services/clinics/>
- **British Heart Foundation: How to reduce your Blood Pressure 6 Top Tips** [How to reduce blood pressure | BHF Hypertension and COVID](https://www.bhf.org.uk/informationsupport/heart-matters-magazine/news/coronavirus-and-your-health) <https://www.bhf.org.uk/informationsupport/heart-matters-magazine/news/coronavirus-and-your-health>
- **Online support group:** <https://www.bhf.org.uk/informationsupport/our-online-community>
- **Online programme about hypertension for patients:** <https://healthunlocked.com/programs/high-blood-pressure>
- **BP Patient information leaflets in different languages:** <http://www.bloodpressureuk.org/resources/publications/translated-blood-pressure-information/>



Hypertension in Chronic Kidney Disease (CKD stages 3-5 i.e. eGFR <60ml/min)

ACR <30 mg/mmol	Follow BP algorithm
ACR ≥30 mg/mmol	1 st line: ACE-I or ARB, then follow BP algorithm

Hypertension and pregnancy¹⁸

Patients with pre-existing hypertension contemplating pregnancy

Refer to pre-pregnancy counselling clinic (p.5)

Pregnancy with pre-existing hypertension

Refer to secondary care team at the booking hospital (p.5)

Management:

- Stop ACE-I/ARBs/thiazide-like diuretics** and change medication (preferably within 2 working days of notification of pregnancy) due to increased risk of congenital abnormalities
- Labetalol if no CI e.g. asthma, nifedipine or methyldopa. Can also remain on amlodipine¹⁹
- Target BP ≤ 135/85 mmHg**
- Offer aspirin 75-150mg OD from week 12 of pregnancy**

Drug Class	Drug	Starting dose	Daily Range	Notes (These are not extensive, please refer to the latest BNF for further information, especially titration increments, cautions and contraindications)
ACEi	1 st Line: Ramipril	2.5mg OD (1.25mg OD in frail/elderly patients)	2.5-10mg OD	<ul style="list-style-type: none"> - For people of Black African or African-Caribbean family origin, use ARB instead of ACEi (as increased risk of angioedema with ACEi) - Check baseline renal profile (Na/K/Cr/eGfr). Hyperkalaemia may occur, therefore close monitoring of serum potassium is required - Re-check renal profile within 2 weeks of initiation, or dose increase and then at least annually - Titrate ACEi/ARB up at 2-4 weekly intervals to achieve optimal BP control - Initiation/Dose titrations: If serum creatinine increases by >20% (or eGFR falls by >15%) – stop ACEi and seek specialist advice. ACEi dose should only be increased if serum creatinine increases by less than 20% (or eGFR falls by less than 15%) after each dose titration, and potassium <5.5mmol - ACEi/ARB dose should be optimised before the addition of a second agent - Side-effects: Symptomatic hypotension can occur on first dosing – suggest to take at night. Dry cough with ACEi, consider switch to ARB - Caution: Do not combine an ACEi and an ARB to treat hypertension - For diabetic nephropathy ARB of choice: losartan and irbesartan³
	2 nd line: Lisinopril	10mg OD	10-80mg OD (usual maintenance dose 20mg OD for hypertension)	
ARBs	Losartan	50mg OD (25mg OD if >75yrs old)	50-100mg OD	
	Candesartan	8mg OD	8mg-32mg OD	
CCBs	Amlodipine	5mg OD	5-10mg OD	<ul style="list-style-type: none"> - Increase after 2-4 weeks to maximum dose of 10mg OD - Caution: Interacts with simvastatin – consider switching to atorvastatin - Step 1: If amlodipine causes ankle oedema, consider using a thiazide-like diuretic instead of a CCB - CI: Unstable angina, aortic stenosis - Side effects include flushing and headaches at initiation; swollen ankles especially at higher doses
Thiazide-like diuretics	Indapamide immediate release (IR)	2.5mg OD	2.5mg OD	<ul style="list-style-type: none"> - Check baseline renal profile, then after 2 weeks, then at least annually. If potassium <3.5mmol/L or eGFR <25ml/min, stop indapamide and seek specialist advice
Aldosterone antagonist	Spironolactone	25mg OD	25mg OD	<ul style="list-style-type: none"> - Step 4: Spironolactone is the preferred diuretic at step 4 (NICE), but is an unlicensed indication in resistant hypertension (BNF) - Consider only if potassium ≤4.5mmol/L (caution in reduced eGFR <30ml/min, as increased risk of hyperkalaemia). Monitor Na/K/renal function within 1 month and repeat 6 monthly thereafter³ - If K>4.5mmol/L should be stopped.
α-B	Doxazosin immediate release (IR)	1mg OD	2-16mg OD (or BD dosing when dose >8mg/day)	<ul style="list-style-type: none"> - Consider at Step 4 if potassium ≥ 4.5mmol/L. Initial dose of 1mg usually increased after 1-2 weeks to 2mg OD - At doses above 8mg/day, consider split dosing from OD to BD to reduce BP variation - Caution: Initial dose postural hypotension, avoid in elderly as orthostatic hypotension risk³
β-B	Atenolol	25mg OD	25-50mg OD	<ul style="list-style-type: none"> - Consider at Step 4 if potassium ≥ 4.5mmol/L. - Beta blockers may be considered in younger people and in those with an intolerance/CI to ACEi or ARBs, women of childbearing potential, co-existent anxiety/tachycardia/heart failure - Particular caution in T2DM: symptoms of hypoglycaemia may be masked - Caution: Increased risk of diabetes when beta-blocker is prescribed with a thiazide diuretic. Beta-blockers can cause bradycardia if combined with certain CCBs e.g., verapamil/diltiazem - CI: Asthma, 2nd/3rd degree AV block, severe PAD
	Bisoprolol	5-10mg OD	5-20mg OD	
Related Drugs				
S	Atorvastatin	20mg OD	20-80mg OD	<ul style="list-style-type: none"> - Please see SEL IMOC guideline on lipid management: medicines optimisation pathways (Sept 2021) - Primary prevention 20mg, secondary prevention 40-80mg (alternative is rosuvastatin)

AKI SICK DAY RULES²³ When patients have any of the following: **vomiting, diarrhoea, or general dehydration** due to intercurrent illness. Advise to **STOP** taking the medicines listed below (restart after feeling well/after 24-48hrs of eating and drinking normally): ACE Inhibitors, ARBs, Diuretics, Metformin, NSAIDs, Sulfonylureas, SGLT2 inhibitors (e.g. Empagliflozin)

This guidance is aligned to SEL IMOC Hypertension 2021 guidance for Primary Care

The following tasks may be done by practices administrators, social prescribers, care co-ordinators, HCAs, nurses, pharmacists, physicians associates or GPs – depending on practice pathways and staff availability

Tasks		Tools/Support
1. Maintaining the hypertension register (prevalence improvement)	Unknown blood pressure: Identify patients with no blood pressure measurement in the past 5 years (not on the hypertension register)	<ul style="list-style-type: none"> EMIS searches e.g. QOF/Ardens
	Uncoded hypertension: Identify patients with a blood pressure $\geq 140/90$ mmHg who do not have an 'Essential Hypertension' code	
	How to get BP readings	<ul style="list-style-type: none"> During consultations Practice blood pressure pod HBPM: AccuRx florey, eConsult hypertension review Secondary care sources: Cerner BP report,²⁴ Portal Cerner, clinic letters
2. Call/Recall	Prioritise high risk patients (e.g. BP > 160/100mmHg, patients of Black African/Caribbean origin)	<ul style="list-style-type: none"> EMIS searches e.g. Ardens AccuRx/ AccuRx Florey eConsult hypertension review MJog Patient letters Telephone call
	Pre-patient review <ul style="list-style-type: none"> Arrange bloods (renal function, lipids, HbA1c and consider FBC as abnormalities may affect HbA1c interpretation) Arrange BP measurement and pulse check (in practice/machine at home) Book appointment for annual review 	
3. QOF BP review (at least annually)	<ul style="list-style-type: none"> History: patient concerns + screen for worrying symptoms/target organ damage related to <ul style="list-style-type: none"> Hypertension (p.3,5) Hypotension (dizziness, nausea, weakness, confusion, systolic BP <90, diastolic BP <60) Review investigations: BP and blood results. Urine dipstick to check for proteinuria, if present consider urine ACR. Re-calculate QRISK2/3 (if appropriate) Discuss risk-reduction and offer lifestyle advice: BMI, smoking, alcohol, diet, activity & COVID Mind and body: consider screening for mental health conditions Medication review: concerns, side-effects, compliance, adherence,²⁵ and adjust medications if renal impairment Note that some drugs/substances can cause hypertension: <ul style="list-style-type: none"> Combined oral contraceptives, corticosteroids, NSAIDs, sympathomimetics, venlafaxine, cyclosporine, liquorice (present in some herbal medicines) Alcohol, substances of abuse including cocaine Refer to secondary care if worrying symptoms or target organ damage from hypertension 	In practice consultations <ul style="list-style-type: none"> F2F or remote consultation using Ardens hypertension template Structured medication review with pharmacist Out of practice consultations <ul style="list-style-type: none"> Home visiting team GPEA Secondary care Remote consultations <ul style="list-style-type: none"> Remote BP monitoring using 'Doctaly Assist'
	Follow-up <ul style="list-style-type: none"> Review BP monthly until it is at target If uncontrolled on optimal doses → repeat ABPM/HBPM, assess for postural hypotension, discuss adherence If resistant hypertension referral to secondary care 	As above, prioritise high risk patients using EMIS searches e.g. Ardens

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Acknowledgements

CESEL guides are co-developed by SEL primary care clinicians and SEL experts (see below) and are localised to include borough specific pathways and resources. The guides go through a formal approval process including SEL Integrated Medicines Optimisation Committee (IMOC) for the medicines content, a local borough-based primary care group, CESEL steering group with representation from SELCCG and PCNs and a borough-based Medicines Management Teams (MMT). CESEL would like to thank all our colleagues who participated and fed-back during the consultation process, especially Rachna Chowla, Lewisham Primary Care Operations Group, Lewisham PCNs, Lewisham MMT, SEL CVD working group, IMOC and secondary care colleagues.

Approval: November 2021

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Abbreviations and definitions

α-B – Alpha-blocker	FBC – Full blood count
ABPM – Ambulatory blood pressure monitoring	GSTT – Guy’s & St Thomas’ NHS Trust
ACEI– Angiotensin converting enzyme inhibitor	HF – Heart failure
ACR – Albumin-creatinine ratio. Ideally first-void morning urine sample.	K – Serum potassium
AKI – Acute kidney injury	KCH – King’s College Hospital NHS Trust
ARB- Angiotensin II receptor blocker	HbA1c – Haemoglobin A1c
AccurX – Secure healthcare communication tool that allows interactions between a GP surgery and its patients	HBPM – Home blood pressure monitoring
Ardens – clinical decision support tool embedded in EMIS that provides templates for long term conditions management	IHD – Ischaemic heart disease
β-B – Beta-blocker	IR – Immediate release
BD – Twice daily dosing	LGT – Lewisham and Greenwich NHS Trust
BMI – Body mass index	LVH – Left ventricular hypertrophy
BP – Blood pressure	MJog – Mobile messaging app which provides secure communication of health information between a GP surgery and its patients
CCB – Calcium channel blocker	Na – Serum sodium
CI - Contraindication	NSAID – Non-steroidal anti-inflammatory drug
CKD – Chronic kidney disease	OD – Once daily dosing
Cr – Serum creatinine	PAD – Peripheral arterial disease
CV - Cardiovascular	Pod – This is a touchscreen computer connected to a BP monitor that patients can use without clinical supervision
CVD – Cardiovascular disease	QOF – Quality and outcomes framework (contract)
DASH diet – Dietary approaches to stop hypertension diet	QRISK- an algorithm that predicts 10-year CVD risk. EMIS is currently using QRISK2 (although QRISK3 was released in 2017)
DXS – Point-of-care tool for EMIS Web	Renal profile – this includes serum sodium/potassium/creatinine/eGFR
ECG – Electrocardiogram (12-lead)	SELAPC – South East London Area Prescribing Committee
eConsult – Digital triage and remote consultation solution	TFT – Thyroid function blood tests
eGFR – Estimated glomerular filtration rate	TIA-Transient ischaemic attack
eRS – Electronic referral system	T2DM – Type-2 diabetes
	UHL – University Hospital Lewisham

CESEL Lewisham – ‘Owned by all’

Making the right thing to do
the easy thing to do.