

Hypertension

A guide for Bexley General Practice

Key messages

1. Check blood pressure *at every opportunity* (and do a pulse check)
2. Lifestyle changes are key to reducing CV risk and lowering blood pressure
3. Check for complications and do a QRISK2 or 3
4. Optimise BP management (lifestyle + medication) and aim for NICE BP targets
5. Encourage adherence to lifestyle and medication, review at least annually

Always work within your knowledge and competency

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

Why focus on BP in Bexley?

Hypertension is a risk factor for having worse outcomes from Covid-19.

Treatment of high BP significantly reduces risk of stroke, IHD, heart failure and all cause mortality¹

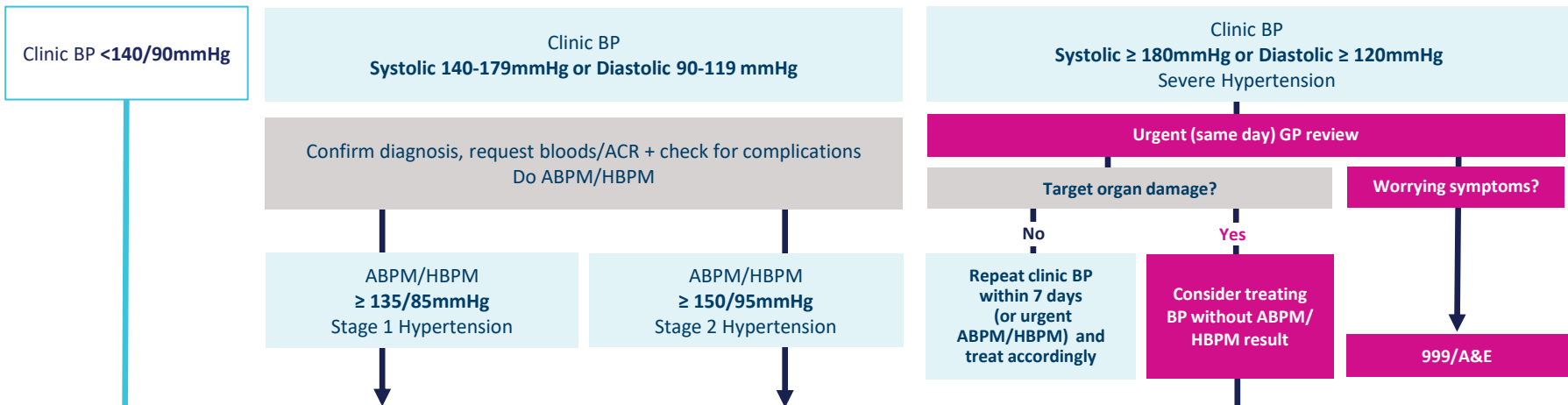
- **Risk reduction:** Every 10 mmHg reduction in systolic BP reduces risk of major CV events by 20%¹
- **Under-treated:** 45% of Bexley patients <80 years, with hypertension, have a BP >140/90mmHg²
- **Under-diagnosed:** 22,650 people remain undiagnosed (prevalence= 13.3% vs. expected= 22.4%)¹

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

- **68** people from having a stroke
- **54** people from developing heart failure
- **95** people from developing IHD
- **173** deaths

Hypertension diagnosis and assessment, including for people with Type 2 diabetes (T2DM)*

Confirm hypertension diagnosis (using ABPM/ HBPM) and stratify CV risk^{3,4}



Offer lifestyle advice

Assess for complications + CV risk (QRISK2 or 3) (QRISK2 or 3 exclusions to use: age >85 yrs, CKD 3-5, existing CVD, lipid disorders)



QRISK2 or 3 (to assess 10-year CV risk)

≤10%
No statin

≥10%
Address modifiable risk factors first, then consider initiating or optimising statin if still >10%

BP every 5 years, or annually if near to 140/90mmHg (use clinical judgement), or if target organ damage/T2DM (see Traffic Light page within SELIMOC hypertension guidance 2021 for primary care)

Get BP under control and add to hypertension register

BP review (recommended at least annually, or more frequently when clinically indicated)
(BP/blood tests/ACR/lifestyle and medication review)

See page 4 for notes on:

- Confirming diagnosis with ABPM/ HBPM
- When to do postural BPs?
- How to assess for complications?
- QRISK2 or 3 & CKD/CKD
- What are worrying symptoms?
- When to refer to a specialist?

See page 5 for evidence on

- Lifestyle advice

*New NICE guidance: T2DM

Diagnostic thresholds and treatment targets for BP in people with T2DM are **now the same as hypertension alone**, unless there is co-existent CKD (see page 5)

Diagnosing hypertension

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 (note this on EMIS)

When to measure standing + sitting BP?

- In DM, postural hypotension (systolic drop \geq 20mmHg from sitting to standing), or age \geq 80yrs
- If significant drop/symptoms of postural hypotension, **review medication and treat to BP target based on standing BP**

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 complications

Look for complications (target organ damage – i.e. check eyes - fundoscopy, dip urine, CV exam) + do a **QRISK2 or 3**

- **Tests:** renal profile, lipids, FBC, HbA1c, TFT, ACR, urinalysis for haematuria + ECG + fundoscopy
- **Record:** smoking status, physical activity level, alcohol intake, BMI, [waist circumference], family history [use Arden's BP EMIS Template]

Corrected eGFR in Black people of African or Caribbean Family origin⁹

Latest NICE CKD guidance (August 2021) **does not recommend** adjusting the estimation of glomerular filtration rate (eGFR) in people of African-Caribbean or African family background

Assessing Cardiovascular (CV) risk: QRISK 2 or 3

- Currently a QRISK2 'calculator' is integrated into EMIS. Practices with Ardens may have access to QRISK3, which is a more inclusive risk score and can also be found online [here](#)
- The calculated CV risk is an estimate. Clinical judgement is required to adjust for factors that the risk calculator does not take into account, but it may help people to make an informed choice on whether to take a statin (and discuss risk reduction using the 'heart-age' calculation)

QRISK2 or 3 & exclusions

- QRISK is not applicable in people considered at high-risk of CVD: Type 1DM, CKD 3-5, existing CVD/previous Stroke/TIA, and people >85 years, as they should already be on/offered lipid management treatment
- For several conditions QRISK2 will underestimate people's risk e.g. severe mental illness and rheumatological conditions (which are taken into account in QRISK3)

When to refer a patient?

Suspect secondary causes OR patient <40 years?

- If you suspect **secondary causes in a patient of any age** e.g. Cushing's, Conn's*
- **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 cohort.³
- 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, HF, AKI
- **Accelerated hypertension** - retinal haemorrhage, papilloedema
- **Suspected pheochromocytoma** - labile or postural hypotension, headache, palpitations, pallor, abdo pain, excessive sweating

Immediate: 999 or A&E

*Other conditions which can cause hypertension include: Connective tissue disorders: scleroderma, systemic lupus erythematosus, polyarteritis nodosa, retroperitoneal fibrosis, obstructive sleep apnoea

Impact of lifestyle changes on BP⁶

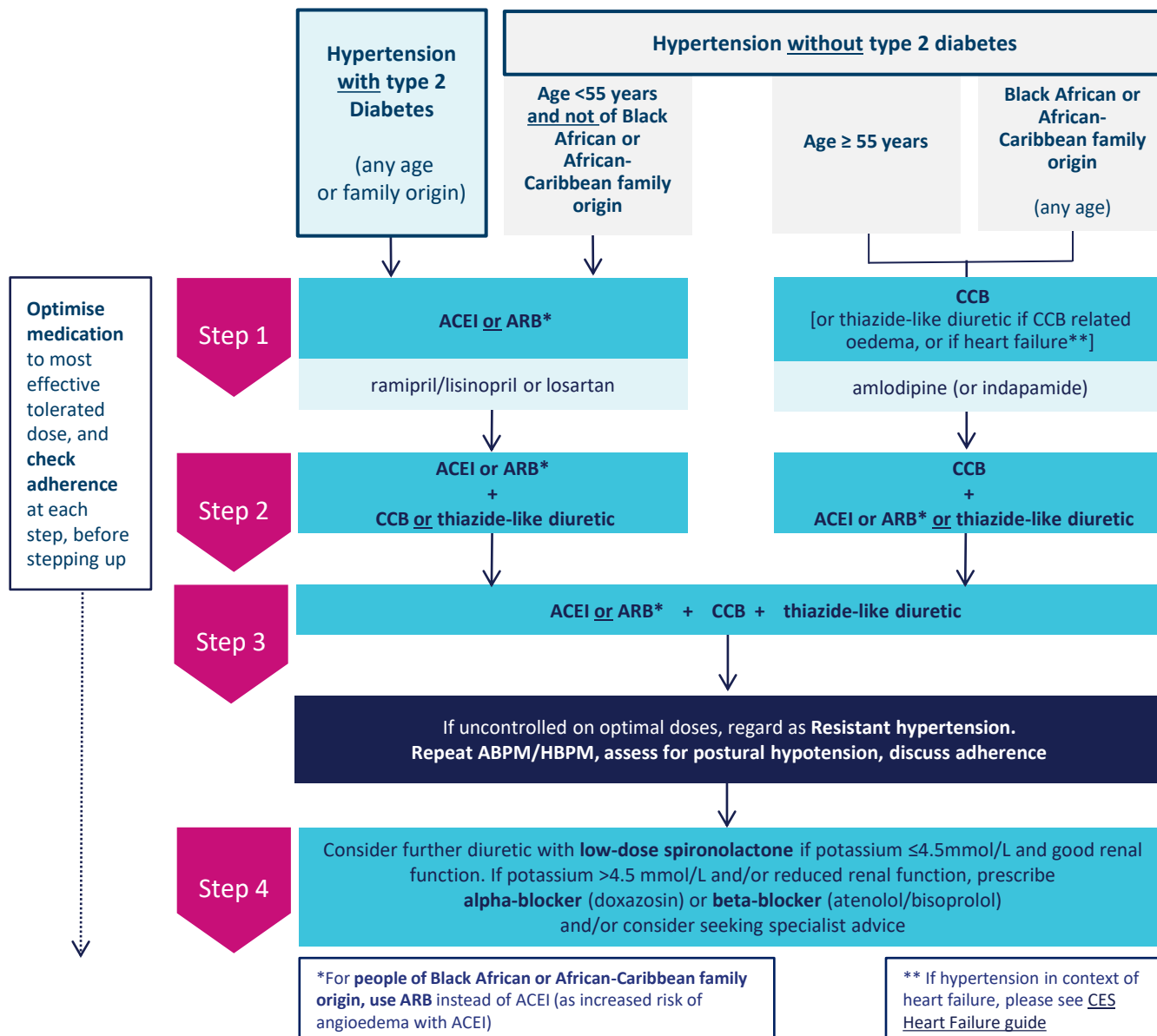
Action	Recommendation	Approx. systolic BP reduction
Reduced weight	Maintain healthy body weight	5-20mmHg/10kg loss
DASH diet	Consume a diet rich in fruits, vegetables, low-fat dairy with reduced saturated and total fat	8-14mmHg
Reduced salt intake	Reduced dietary sodium intake (<1 teaspoon/day)	2-8mmHg
Increased exercise	Regular aerobic physical activity (at least 30 min/day, most days of the week)	4-9mmHg
Reduced alcohol intake	Below or equal to 14 units/week	2-4mmHg

Note: In addition, discourage consumption of excessive caffeine or caffeine-rich products.⁴ Average BP reduction (systolic) from one anti-hypertensive drug= 12.5-15.5mmHg.⁷ The effects of implementing lifestyle modifications are dose and time dependent, and could be greater for some individuals.⁶ In the study used, stress management's impact on BP was variable.⁶

Which BP target? Aim for NICE BP targets^{4, 5, 8, 9}

Which condition?	Which cohort within the condition?	NICE Clinic BP Targets Note: Corresponding targets for ABPM/HBPM are 5mmHg lower than clinic BPs	QOF BP Targets ¹⁴ 2021/2022	
		Use clinical judgment in frailty/multi-morbidity		
Hypertension, including Type 2 Diabetes (T2DM)* but with no CKD	Age <80yrs	≤140/90mmHg	Hypertension only ≤140/90mmHg	*Note QOF Target for Hypertension in T2DM is ≤140/80mmHg
	Age ≥80yrs	≤150/90mmHg	Hypertension only ≤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	ACR <70mg/mmol	≤140/90mmHg	No QOF target	
	ACR ≥70mg/mmol or co-existent Diabetes	≤130/80mmHg		
IHD/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 guidelines (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.



Hypertension in Chronic Kidney Disease ⁹ (CKD stages 3-5 i.e. eGFR <60ml/min)	
ACR <30 mg/mmol	Follow BP algorithm
ACR ≥30 mg/mmol	1 st line: ACEI or ARB, then follow BP algorithm

Women with pre-existing hypertension contemplating pregnancy¹⁰

Refer to specialist **pre-conception counselling** (page 10)

Drugs to avoid at conception/in pregnancy include: ACEI/ARB/thiazide or thiazide-like diuretic (increased risk of congenital abnormalities)

- NICE guidelines:**
Stop ACEI/ARBs and change medication (preferably within 2 working days of notification of pregnancy). Offer alternatives:
- Labetalol if no CI e.g. asthma, nifedipine or methyldopa. Can also remain on amlodipine – GSTT Obstetric Medicine advice
 - Target BP ≤ 135/85 mmHg
 - Offer aspirin 75-150mg OD from week 12 of pregnancy

Refer to **Hypertension in Pregnancy clinic (GSTT) ASAP**

Hypertension: preferred medication ^{3, 4, 11, 12, 13}

	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)
ACEIs	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
	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	<ul style="list-style-type: none"> - 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
	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 (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 (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"> - <u>Please see SEL IMOC guideline on lipid management: medicine optimisation pathways (Sept 2021)</u> - Primary prevention 20mg, secondary prevention 40-80mg (alternative is rosuvastatin)

AKI SICK DAY RULES¹⁵ When patients have any of the following: **Vomiting, diarrhoea, or general dehydration due to intercurrent illness.**, Advice 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)

Hypertension review (at least annual)

Principles of remote monitoring: See additional guide: 'CES LTC during COVID-19 guide' (page 4)

	Tasks/Activity	Who?	Where?	Tools/Support
Review planning at practice level	Call/recall planning: Use Arden's/CE Bexley searches to help determine who to invite for review first e.g. BP >160/100mmHg recorded in the last year vs. those that are well controlled.	Admin colleague with clinician support (GP nurse/GP)	In practice or remotely via EMIS	Arden's/CE Bexley searches
Pre-patient review	Contact patient to: 1. Arrange bloods (renal function, FBC, lipids, HbA1c) & urine ACR 2. Arrange BP measurement + pulse check (in practice/machine at home), at least annually	HCA/GP Nurse	Remote or F2F In practice/at home	AccuRx text messages Consider E-consult which has a BP review page or the Doctaly Assist Hypertension flow on WhatsApp
Patient review	<ol style="list-style-type: none"> Concerns + screen for symptoms/complications related to: <ul style="list-style-type: none"> Hypertension Hypotension (dizziness/nausea/weakness/confusion, BP <90/60mmHg) Review BP trend Review investigations: blood + urine ACR results Re-calculate QRISK2 or 3 (if appropriate) Discuss risk-reduction + lifestyle: in context of QRISK2 or 3 (BMI, smoking, alcohol, diet, activity) & COVID Mind + Body: consider <u>screening for mental health conditions</u> Medication review: concerns, side-effects, compliance, <u>adherence</u>, ensure renal function satisfactory and adjust medications if needed. Note that some drugs/substances can cause hypertension* Self-management/Shared-decision making Follow-up plans: review BP monthly until it is at target 	<p>GP/GP Nurse/GP pharmacist</p> <p>GP/GP Nurse/GP Pharmacist or Social prescriber, Care Navigator & Patient</p> <p>GP/GP Nurse/GP pharmacist/HCA</p>	<p>Remote or F2F</p>	<p>Arden's template (for correct coding, annual review, medication review & Vital 5** recording)</p> <p><u>Brief-interventions</u> around lifestyle</p> <p>Self-management resources - send links via AccuRx: British Heart Foundation resources</p> <ul style="list-style-type: none"> <u>Understanding your BP</u> <u>6 tips for reducing BP</u> <u>BP and COVID-19</u> <u>Online Community</u> for patients <u>Online programme about BP for patients</u>

*Drugs/other substances that can cause hypertension, include⁴

- combined oral contraceptives, corticosteroids, NSAIDs, sympathomimetics
- venlafaxine
- cyclosporine

- liquorice (present in some herbal medicines)
- alcohol, substances of abuse including cocaine

**Vital 5: Hypertension, smoking, BMI, alcohol intake and mental health.

Patient resources

- **Blood pressure information for patients (translated) and 'Loving your heart: a South Asian guide to controlling your BP'**
- **Bexley Healthy Eating, Healthy Preventions:** <https://www.bexley.gov.uk/about-council/jobs-and-careers/employee-well-being/healthy-eating-healthy-preventions>
- **Bexley Get Help Managing Your Weight:** <https://www.bexley.gov.uk/health-and-wellbeing/get-help-managing-your-weight>
- **London Borough of Bexley Adult Weight Management Service Referral form** (search 'weight management' on DXS)
- **British Heart Foundation: Preventing Heart Disease (resources for patients):** <https://www.bhf.org.uk/heart-health/preventing-heart-disease>
- **British Heart Foundation: How to reduce your blood pressure 6 top tips (see page 8 for more):** <https://www.bhf.org.uk/information-support/heart-matters-magazine/research/blood-pressure/blood-pressure-tips#:~:text=Unless%20your%20doctor%20tells%20you,should%20be%20below%20130%20%2F%2080>
- **Bexley Stop Smoking:** <http://www.smokefreebexley.co.uk/home>

Shared resources

NICE has produced a document on shared decision making in the context of hypertension and it can be found at:

<https://www.nice.org.uk/about/nice-communities/nice-and-the-public/making-decisions-about-your-care>

Bexley Clinical Support

Urgent telephone advice - Consultant connect: Cardiology GSTT/LGT on the Consultant Connect app

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

Community hypertension clinics (combined with lipids) led by GSTT pharmacists - referral by completing referral form on DXS. Search 'hypertension referral'. Once completed e-mail to gst-tr.KHPCCommunityCVD@nhs.net. Contact may be in form of virtual, telephone or F2F.

Specialist clinics - Refer via eRS to: Obstetrics>'Maternal medicine' for Pre-conception counselling clinic (GSTT), Pregnancy in Hypertension clinic (GSTT), or more general Obstetric Medicine clinic (GSTT) – for pregnant women with multiple co-morbidities, [CKD clinic (GSTT/KCH), Diabetic medicine (GSTT/KCH)]

References

- 1 British Heart Foundation: How can we do better? NHS Bexley CCG (updated 2018, source data QOF 2016/17, accessed 2017)
- 2 CESEL data analysis (EMIS practices data search) July 2021
- 3 South East London Integrated Medicines Optimisation Committee (SEL IMOC) Hypertension guidance for primary care (April 2021)
- 4 NICE Guideline NG136 Hypertension in adults: Diagnosis and Management, published Aug 2019, (accessed Jan 2021)
- 5 NICE Guideline NG17 Type 1 Diabetes in adults: Diagnosis and Management, published Aug 2015, updated Dec 2020, (accessed Jan 2021)
- 6 Simces, ZL, Ross SE & Rabkin, SW, 2012, Diagnosis of hypertension and lifestyle modifications for its management, BCMJ Vol 58(8): 392- 398
- 7 Wu J, Kraja AT, Oberman A, Lewis CE, Ellison RC, Arnett DK, Heiss G, Lalouel JM, Turner ST, Hunt SC, Province MA. A summary of the effects of antihypertensive medications on measured blood pressure. American Journal of Hypertension. 2005 Jul 1;18(7):935-42
- 8 Stroke and TIA, Clinical Knowledge Summaries (NICE), last updated March 2017, (accessed Jan 2021)
- 9 NICE Clinical Guideline NG203 Chronic Kidney Disease: assessment and management, published 25 August 2021, accessed (Sept 2021)
- 10 NICE Clinical guideline NG133 Hypertension in pregnancy: diagnosis and management, published date: June 2019
- 11 British National Formulary, last updated Jan 2021
- 12 SE London Integrated Medicines Optimisation Committee (SELIMOC): Lipid management: medicines optimisation pathways (updated Sept 2021, accessed Oct 2021)
- 13 Consultation correspondence – Southwark CCG’s Medicine’s Optimisation Team, CVD community clinic Pharmacists, GSTT Cardiology Team, GSTT Obstetric Medicine Team, Bexley MMT, SEL CVD working group
- 14 2021/22 GMS contract for Quality and Outcomes Framework
- 15 Acute kidney injury (AKI): use of medicines in people with or at increased risk of AKI www.nice.org.uk/advice/KTT17/chapter/Evidence-context

Acknowledgements

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Guide developed by Clinical Effectiveness South East London: Bexley leads

Contact CESEL at selccg.clinicaleffectiveness@nhs.net and/or visit https://selondonccg.nhs.uk/covid_19/clinical-effectiveness-sel/

Abbreviations

α -B – Alpha-blocker	GSTT – Guy’s & St Thomas’ NHS Trust
ABPM – Ambulatory blood pressure monitoring	HF – Heart failure
ACEI – Angiotensin converting enzyme inhibitor	K – Serum potassium
ACR – Albumin-creatinine ratio	KCH – King’s College Hospital NHS Trust
A&G – Advice & Guidance	HbA1c – Haemoglobin A1c
AKI – Acute kidney injury	HBPM – Home blood pressure monitoring
ARB – Angiotensin II receptor blocker	IHD – Ischaemic heart disease
β -B – Beta-blocker	IR – Immediate release
BD – Twice daily dosing	LVH – Left ventricular hypertrophy
BMI – Body mass index	Na – Serum sodium
BP – Blood pressure	NSAID – Non-steroidal anti-inflammatory drug
CCB – Calcium channel blocker	OD – Once daily (dosing)
CI – Contraindication	PAD – Peripheral arterial disease
CKD – Chronic kidney disease	QOF – Quality and outcomes framework (contract)
Cr – Serum creatinine	QRISK2 or 3- an algorithm that predicts 10-year CVD risk. QRISK 3 available on Arden’s or https://www.qrisk.org/three/
CV – Cardiovascular	Renal profile – this includes serum sodium/potassium/creatinine/eGFR
CVD – Cardiovascular disease	S- Statin
DASH diet – Dietary approaches to stop hypertension diet	SELAPC – South East London Area Prescribing Committee
DXS – Point-of-care tool for EMIS Web	TFT – Thyroid function blood tests
ECG – Electrocardiogram (12-lead)	TIA-Transient ischaemic attack
eGFR – Estimated glomerular filtration rate	T2DM – Type-2 diabetes
eRS – Electronic referral system	
FBC – Full blood count	

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