Clinical Effectiveness
South East London

Our Healthier South East London
Integrated Care System

NHS

Type 2 Diabetes Mellitus in Adults

A guide for Lambeth General Practice

Key messages

1. Lifestyle changes can prevent/reduce need for medication
2. Offering education to patients at any stage is key to improving management
3. Individualise all targets and goals and undertake all care processes at least annually

Always work within your knowledge and competency

October 2022 (review October 2023, or earlier if indicated)

Why focus on Type 2 Diabetes (T2DM) in Lambeth?

Primary Care can contribute to substantially reducing diabetes complications, major vascular events and improving survival[1].

- **Covid-19:** T2DM is a risk factor for mortality with Covid-19[2]
- **Preventable:** Management of non-diabetic hyperglycaemia and risk factors can reduce the risk of developing T2DM[3]
- **Prevalent:** Diabetes is common. There are almost 19000 adults living with T2DM in Lambeth[4]
- **Under-diagnosed:** According to prevalence data, there are around 4500 adults living with undiagnosed diabetes in Lambeth (prevalence 5.6% vs 7.11% England average)[4]
- **Under-treated:** Only 34% of people with diabetes achieved the triple target* in Lambeth in 2020-21[4]

*HbA1c, BP and Cholesterol within target

Due to health inequalities, Lambeth residents are more at risk of diabetes:

Deprivation

The poorest people in the UK are **2.5 times** more likely to develop diabetes at any age[3].

In Lambeth, around 30% of residents are in the lowest quintile for deprivation, and more than 70% are in the lowest 2 quintiles[5].

Ethnicity

T2DM is up to **6 times** more common in people of South Asian descent and up to **3 times** more common among people of African-Caribbean or Black African descent[3].

In Lambeth, 29.1% of residents are from ethnic minority groups[5].

(England average 13.2%)

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"Real change, enduring change, happens one step at time"
– Ruth Bader Ginsburg, US Supreme Court Justice

"Motivation is what gets you started. Habit is what keeps you going."
– Jim Ryun, Olympic track star

"It is health that is real wealth and not pieces of gold and silver."
– Mahatma Gandhi

"A hero is an ordinary individual who finds the strength to persevere and endure in spite of overwhelming obstacles."
– Christopher Reeve

"I really think a champion is defined not by their wins, but by how they can recover when they fall."
– Serena Williams

Risk Factors and Diagnosis

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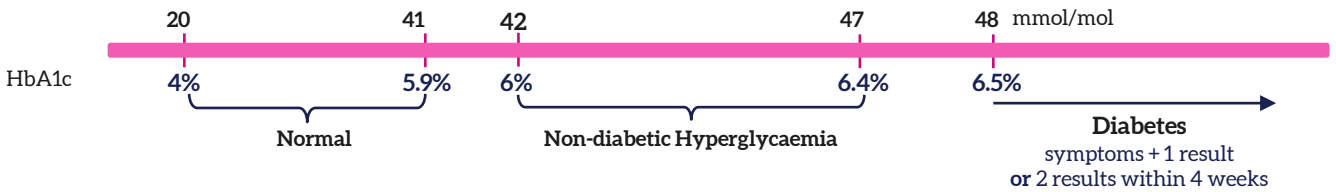
Risk factors for T2DM[3,6]

- Age > 25 and Black African-Caribbean or Asian
- Age > 40 and Caucasian / White European
- Family history
- High blood pressure
- BMI > 25 (>23 in South Asians)
- Waist circumference:
  - > 80cm for all women
  - > 94cm for most men
  - > 90cm for South Asian men
- History of coronary heart disease or stroke
- Serious mental illness
- Polycystic ovarian syndrome and gestational diabetes
- COVID-19 infection may precipitate a diabetes diagnosis

Calculate T2DM risk using a QDiabetes calculator

Diagnosis using HbA1c[7]



Diagnosing diabetes using HbA1c	If initial result is within withing diagnostic range for diabetes, follow the above guidance.
Cautions regarding HbA1c:	Patients with abnormal red blood cell turnover/abnormal haemoglobin type (including haemoglobinopathy, severe anaemia, altered red cell life-span e.g. post-splenectomy, recent blood transfusion). Liaise with local lab regarding an appropriate test
Do NOT use HbA1c to diagnose in:	Type 1 diabetes, T2DM in <30 years, rapid onset of diabetes symptoms, pregnancy, up to 2 months post-partum, end-stage renal disease, acute pancreatic damage, HIV infection or if taking medication linked with hyperglycaemia, e.g. long-term corticosteroids

Principles of care

	Non-diabetic Hyperglycaemia (NDH)	New diagnosis of Diabetes
Support patient understanding	Support patients/carers to reach an understanding of the diagnosis and implications and what they can do to care for themselves Use Diabetes UK Information Prescriptions to support personal care (can be downloaded into EMIS)	
Code correctly	Use Ardens pre-diabetes clinical template	Use Ardens diabetes clinical template
Structured education	Emphasise to patients and carers that structured education is integral to their care.	
	Refer to Healthier You NHS Diabetes Prevention Programme (DXS) if criteria met	Refer / encourage self-refer to Diabetes Book and Learn
Follow-up	Offer **annual review** to patients with NDH/or history of gestational diabetes: HbA1c + Vital 5: BP, BMI, smoking status, mental health and alcohol intake	Agree clear date for next review All patients should in addition have **annual review** with NICE eight care processes **(8CPs)** (see page 4) plus **annual retinal screening**

WORRYING SYMPTOMS?

1. **New T2DM, >60 years, weight loss:** 2WW referral for suspected cancer of pancreas[8]
2. **If BMI < 22kg/m2 or symptomatic hyperglycaemia:** Consider Type 1 DM, ketosis prone, latent autoimmune diabetes in adults (LADA)[9]. Seek specialist advice as may require Insulin/ SU initiation

T2DM Eight Care Processes (8CP)[10]

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1 Body Mass Index kg/m^2 [11,12]

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Overweight: BMI ≥ 25 Caucasian / White European groups, BMI ≥ 23 Black African, African Caribbean and Asian groups
Agree an initial weight loss target of 5–10% of body weight

2 Blood Pressure[11,13]

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QOF ≤140/90mmHg excludes those with moderate or severe frailty
NICE ≤140/90mmHg if under 80 years; ≤ 150/90mmHg if ≥ 80 years; ≤130/80 mmHg CKD
QOF and NICE 5mmHg lower for Home and Ambulatory BP monitoring readings (HBPM and ABPM)

Undertake all care processes at least annually. Individualise all targets, review dates and monitoring

3 Cholesterol[14]

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Primary prevention: Offer statin if QRISK >10% after addressing modifiable risk factors
Secondary prevention (history of CVD): Offer high dose statin aiming for 40% reduction in non-HDL level

QOF target excludes those with moderate or severe frailty
Women of child-bearing age need contraception during statin treatment and for 1 month afterwards. Discontinue statins 3 months before trying to conceive

4 HbA1c[9,15]

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It takes 3 months from medication dose change to see HbA1c change. Check 3 monthly until target is reached then every 6 months
Target: **≤48mmol/mol** (6.5%) unless taking a drug that could cause adverse low sugars/hypos e.g. gliclazide, insulin
≤53mmol/mol (7%) if on a drug that **could** cause low sugars/hypos
≤75 mmol/mol (9%) if moderate/severe frailty (QOF)
For guidance on HbA1c targets for women with T2DM who are planning a pregnancy/are pregnant , refer to NICE guideline on diabetes in pregnancy.

Individualise HbA1c target especially for those with reduced life expectancy, risk of falls and/or significant co-morbidities

5 Smoking

ASK ADVISE ACT Ensure you are trained to deliver Very Brief Advice (VBA) Very Brief Advice Training Module
If ready to quit refer to Lambeth Specialist Stop Smoking service

6 Renal function and albumin creatinine ratio (ACR)[16,17]

Measure serum creatinine **and** urine ACR; consider CKD if low eGFR* (<60ml/min/1.73m^2) and/or raised ACR (≥ 3 mg/mmol)
Use the One London Diabetic Kidney Disease Risk Stratification to identify those at high risk of diabetic kidney disease progression for patients with eGFR<45ml/min/ 1.73m^2
Ideally early morning urine, if random sample then confirm any ACR between 3-70 mg/mmol with an early morning sample. If ACR ≥70 mg/mmol, repeat not needed
Nephropathy – start an ACEI/ARB even if normotensive

***it is no longer recommended to correct eGFR for ethnicity**

8 Foot Check[18]

Medium risk (neuropathy/absent pulse) refer to Community Podiatry Clinic via DXS

High risk – neuropathy/absent pulse + plus deformity or skin changes in previous ulcer - Urgently refer to Community Podiatry Clinic via DXS

Active ulcer / infection / ischaemia
Urgent KCH/GSTT foot clinic or A&E out of hours

Resource for clinicians: Annual foot review pathway, Diabetes UK

Resource for patients: Diabetes and Looking After Your Feet

+ Vital 5

Includes mental health + alcohol intake

Retinopathy screening within 3 months of diagnosis and at least annually[14]
Should be called automatically once T2DM coded, check happening at annual review

Vaccination
Flu annually and pneumococcal once[3]

BP and Weight Management

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Identify and address all modifiable risk factors → **Individualise targets and goals, especially for those with moderate or severe frailty** → **Check understanding and adherence and set a review date**

Blood pressure[10,12,14]

Diagnosis

Diagnosis	See CESEL Lambeth Hypertension guide **Confirm diagnosis with ABPM or HBPM**
Measuring BP in T2DM	• Measure sitting & standing BP in T2DM • If postural drop (≥20mmHg SBP) review medications and treat to target on standing BP

Which BP target?

NICE	Age <80 yrs ≤140/90mmHg* Age ≥ 80 yrs ≤ 150/90mmHg* CKD if ACR ≥ 70 mg/mmol ≤130/80mmHg*
QOF[15]	≤140/90mmHg* (excludes those with moderate or severe frailty)

*5mmHg lower for HBPM and ABPM readings

Step 1* — **ACEI or ARB****
ramipril/lisinopril or losartan

Step 2* — **ACEI or ARB** + CCB or thiazide-like diuretic**
ramipril/lisinopril or losartan | amlodipine or indapamide (IR)

Step 3* — **ACEI or ARB**+ CCB + thiazide-like diuretic**

If uncontrolled on optimal doses regard as resistant hypertension
Repeat ABPM/HBPM, assess for postural hypotension, discuss adherence

Step 4* — Consider further diuretic with **low-dose spironolactone** if potassium ≤ 4.5mmol/L and good renal function.

If potassium >4.5mmol/L and/or reduced renal function prescribe **alpha-blocker** (doxazosin) or **beta-blocker** (atenolol/bisoprolol) and/or consider seeking specialist advice

*Optimise medication to most effective tolerated dose and check adherence at each step, before stepping up

**For people of Black African or African-Caribbean origin, use ARB instead of ACEI (increased risk of angioedema with ACEI)

Weight Management[11,14]

Physical Activity

For All	**Increased physical activity, even without weight loss, brings health benefits**
To prevent obesity	40-60 mins moderate intensity exercise / day
With a history of obesity	60-90 mins moderate intensity exercise/day to avoid weight gain

Weight management referral

- General advice on healthy weight and lifestyle to all
- Tailor interventions to patients' circumstances and choices
- Signpost to local and national resources (see page 11)

BMI ≥ 30 with co-morbidity or BMI ≥ 27 for BAME adults	Offer referral: **Tier 2** • Lambeth Early Intervention Prevention Service **LEIPS** • **NHS Digital Weight Management** supports adults living with obesity who also have a diagnosis of diabetes, hypertension or both, to manage their weight via 12 week online programme
BMI ≥ 35	Offer referral: **Tier 3** • SEL Tier 3 Healthy Weight programme • ERS referral using form on DXS • Include BP, BMI, HbA1c, lipid profile and creatinine
BMI ≥ 35 + Would consider bariatric surgery + Tier 3 completed	Offer referral: **Tier 4** • Bariatric Service (KCH or GSTT) via ERS • Include details of Tier 3 programme for eligibility

Lipid Management and Pregnancy

Lipid Management[9,13]

Cardiovascular risk

Management of cardiovascular risk factors is essential to prevent and reduce macrovascular complications of diabetes:

- Perform baseline bloods (non-fasting lipid profile, LFT, TFT, HbA1c, renal profile)
- Record weight, smoking status, BP
- Calculate QRISK except in CKD/albuminuria or familial hypercholesterolaemia
- Offer education and lifestyle interventions to modify CVD risk
- Use shared decision-making to consider risk vs benefit of drug therapy

Primary Prevention

Offer daily **Atorvastatin 20mg OD** (or Rosuvastatin 10mg OD) if **QRISK2 or 3 ≥ 10%** after addressing modifiable risk factors*

(see page 9 for clinical condition variations between QRISK2 and QRISK3)

- Calculate baseline non-HDL level (total cholesterol minus HDL cholesterol)
- Repeat lipids after 3 months **aiming for 40% reduction in non-HDL level**

*caution if considering pregnancy

≥ 40% reduction	Review annually
< 40% reduction	1. Consider up-titration of statin to max dose **Atorvastatin 80mg** (or Rosuvastatin 20mg) 2. If intolerant to higher dose, consider adding ezetimibe 10mg daily. 3. If intolerant to statins, start ezetimbe and refer to lipid clinic.

Secondary Prevention

If history of CVD (MI, angina, stroke/TIA, peripheral vascular disease, abdominal aortic aneurysm):

Offer high dose, high intensity statin: Atorvastatin 40-80mg OD or max tolerated dose (or Rosuvastatin 20mg OD)

- Calculate baseline non-HDL level (total cholesterol minus HDL cholesterol)
- If no baseline value, consider a target non-HDL cholesterol < 2.5mmol/L or LDL cholesterol <2mmol/L)
- Repeat lipids after 3 months aiming for 40% reduction in non-HDL level

≥ 40% reduction	Review annually
< 40% reduction	Ensure on max tolerated dose of statin and consider adding **Ezetimibe 10mg** If still not achieving target after further 3 months refer to lipid clinic

Pregnancy[19]

Considering pregnancy?

1. Advise women with diabetes who are planning a pregnancy to aim to keep their HbA1c level below 48 mmol/mol (6.5%), if this is achievable without causing problematic hypoglycaemia. [2015]
2. Refer Diabetes Pre-conception clinic at KCH or GSTT (via ERS)
3. Start folic acid 5mg daily, 3 months before conceiving
4. Discontinue statins 3 months before trying to conceive
5. Check medications for contraindications (see below)
6. Check HbA1C, renal function, TFT
7. As soon a pregnancy confirmed inform Diabetes pregnancy clinic kch-trdiabetesnurses@nhs.net or gst-tr.diabetesandendocrine@nhs.net

Drugs to avoid at conception/in pregnancy include:

Antihypertensives such as ACEI/ARB/thiazide or thiazide-like diuretic (increased risk of congenital abnormalities).

SGLT-2 inhibitors, GLP-1, Pioglitazone, gliptins, sulfonylurea, statins are all contraindicated in pregnancy[20] (see page 12-13)

NICE Hypertension guidelines:

Stop ACEI/ARB and change medication within 2 working days of notification of pregnancy. Offer alternatives:

- Labetalol if no CI (eg asthma),
- nifedipine
- methyldopa

Can also remain on amlodipine – GSTT Obstetric Medicine advice

Target BP ≤ 135/85 mmHg

Highlight all co-morbidities on antenatal booking form (even if already self-referred) to ensure triage into appropriate clinic and contact diabetes pregnancy team (see above)

Contact Lambeth Diabetes Intermediate Care Team or Lipid Clinic: DXS referral or advice. See SEL Lipid Management 2021 for referral criteria

Guidance aligns with SEL IMOC Lipid Management: Medicines Optimisation Pathways

T2DM Glycaemic Control Management: Overview [1,14,15]

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Identify and address all modifiable risk factors → **Individualise targets and goals, especially for those with moderate or severe frailty** → **Check understanding and adherence and set a review date**

Step 1

On initial diagnosis: person-centred lifestyle advice

1. Think **INSULIN** if **BMI <22 or symptomatically hyperglycaemic** (seek early/urgent advice from diabetes team as early insulin initiation or sulfonylurea therapy may be needed)
2. Refer to structured education programme. (Book and learn)
3. At every contact reinforce lifestyle advice, check medication adherence, review collaborative care plan
4. Agree personalised target, see page 4 and/or NICE patient decision aid.
5. If HbA1c remains ≥ 48 mmol/mol or individually agreed target move to step 2

Step 2

Assess HbA1c, kidney function, cardiovascular risk (QRISK 2 or 3)

Not at high CVD risk
QRISK2 or 3 < 10%

High Risk of CVD
QRISK2 or 3 ≥ 10%

Chronic heart failure (HF) and /or atherosclerotic CVD

Atherosclerotic CVD includes CHD, acute coronary syndrome, history of MI, stable angina, coronary or other revascularisation, ischaemic stroke, TIA, PAD

Offer Metformin

Start 500mg (standard release) daily with/after food and increase by 500mg every 2 weeks until on 1g bd (offer slow release if GI side effects)

If metformin is CI or not tolerated, consider DPP-4i or SU or Pioglitazone.

SGLT2 inhibitor monotherapy can be considered if SU and Pioglitazone are not appropriate, and a DPP-4 would otherwise be prescribed.
(In line with NICE TA390 and NICE TA572)

& consider / *& offer*

SGLT2 inhibitor*

canagliflozin, dapagliflozin, empagliflozin are of proven CVD benefit
(ertugliflozin to reduce CVD risk when blood glucose is well controlled is off label)

Start metformin alone to assess tolerability before adding SGLT2 inhibitor or SGLT2 inhibitor alone if metformin contraindicated/not tolerated.

See page 12 - preferred medication and **SEL Guide for Prescribing SGLT2 Inhibitors in T2DM** especially for assessing **DKA risks** and cautions

Recheck HbA1c and QRISK2 or 3 at 3 months

CONTROLLED? — **No** → **Move to Step 3. See next page**

Yes

1. Reinforce lifestyle advice
2. Plan review date

If CVD risk or status changes at ANY point, (if the patient develops QRISK >10% or chronic Heart Failure or CVD), return to step 2 as SGLT2 inhibitor may now be indicated

*If you are adding an SGLT2i to drug treatment which may cause hypos e.g. SU's, consider reducing the dose of any drug that may contribute to hypos, especially if HbA1c is already at the agreed individual target. On initiation educate on symptoms of hypoglycaemia and follow up with a 3 monthly HbA1c

T2DM Glycaemic Control Management: Overview [1,14,15]

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Identify and address all modifiable risk factors → **Individualise targets and goals, especially for those with moderate or severe frailty** → **Check understanding and adherence and set a review date**

Step 3 – 1st Intensification

Add therapy

Informed by clinical judgement and patient preferences

	Metformin	SGLT2 inhibitor (flozins)	Sulfonylureas (SU)	DDP-4 inhibitor – (gliptins)	Pioglitazone (Pio)
			Gliclazide is preferred SU in SEL	1st line sitagliptin linagliptin in severe renal impairment	
Hypoglycaemia risk Hypoglycaemia risk may increase if SGLT2i used with insulin and/or sulfonylurea therapy. Consider reducing dose of sulfonylurea or insulin if clinically indicated	low	low	moderate (higher risk in older and frail patients)	low	low
Weight effect	none	loss	gain	none	gain
Side Effects/Notes For doses, more cautions and side effects see page 11, sick day rules page 10, BNF and/or EMC	GI disturbance Caution in renal impairment	GU infections, hypotension, dehydration, DKA Caution in renal impairment. See **SEL Guide for Prescribing SGLT2 inhibitors in T2DM**	**Hypoglycaemia:** caution in elderly, frail and certain occupations e.g. operating heavy machinery. See SEL Self Monitoring and DVLA guidance	Pancreatitis Caution in renal impairment	Oedema, Heart Failure, Fractures, ↑ Bladder Ca risk
Which SGLT2 inhibitor? See **SEL Guide for Prescribing SGLT2 Inhibitors in T2DM**	**Dual therapy : SGLT2 inhibitor + Metformin** If S/U is contraindicated or not tolerated or person is at significant risk of hypoglycaemia or its consequences, canagliflozin, dapagliflozin, empagliflozin are of proven CVD benefit (ertugliflozin to reduce CVD risk when blood glucose is well controlled is off label)		**Triple therapy:** **SGLT2 inhibitor + metformin+ SU** Canagliflozin, empagliflozin or dapagliflozin	**Triple therapy:** **metformin+ DDP-4 inhibitor + Ertugliflozin** only if not controlled on dual therapy (metformin + DDP-4i)) and SU AND Pio **not** appropriate	**Triple therapy** **SGLT2 inhibitor+ metformin + Pioglitazone** Canagliflozin, empagliflozin

Step 4 – 2nd Intensification

Recheck HbA1c and CVD risks at 3 months

Controlled

If CVD risk or status changes at any point (if the patient develops QRISK >10% or chronic Heart Failure or CVD), return to step 2 as SGLT2 inhibitor may now be indicated

Reinforce lifestyle advice & plan review date

Not controlled

Switch or add treatments from different drug classes up to triple therapy (dual therapy if metformin C/I)

Remains uncontrolled

Consider GLP-1 analogues

If triple therapy with metformin and 2 other drugs not effective, not tolerated or contraindicated. Refer to page 12 for BMI criteria.
See SEL GLP-1 analogue pathway

OR

Consider Insulin based therapy

If HbA1c is >11mmol/mol above individual's target, insulin is preferred option. Refer to accredited clinician for initiation.
See SEL IMOC Insulin safety guidance

Remains uncontrolled

Refer to Specialist Diabetes Team

Type 2 Diabetes review (at least annual)

	Tasks/Activity	Who?	Where?	Tools/Support
Review planning at practice level	**Call/recall planning**: Use searches to help determine who to invite for review first, focusing on the triple target and the 8CP	Admin colleague with clinician support (Pharmacist/Nurse/GP)	In practice or remotely via EMIS	EMIS searches e.g. EZ Analytics, Ardens and UCLP searches Contact Federation or CESEL leads for advice
Pre-patient review	**Contact patient to:** 1. **Arrange bloods (renal function, FBC, lipids, HbA1c) & urine ACR** 2. **Arrange BP measurement** (in practice/machine at home), at least annually 3. **Height and weight:** home measurements for remote reviews	HCA/ Pharmacist/ Nurse	In practice/at home/ at pharmacy	Use E-consult "diabetes review" or AccuRx for pre-review information-gathering. Text/ contact patient to encourage to complete ahead of review BP@Home if available
Patient review	1. **Review patient concerns** 2. **Review BMI, BP trend and Pulse check** 3. **Review investigations**: HbA1c, Cholesterol, renal function, urine ACR 4. **Re-calculate QRISK2 or 3** (if appropriate) for primary prevention, ***If >10% discuss option of adding or substituting an SGLT2i (see page 8)*** 5. **Discuss risk-reduction + life-style**: in context of QRISK, Vital 5 (BMI, smoking, alcohol, diet, activity) & COVID risk 6. **Medication review**: any concerns with a focus on side-effects and adherence. Signpost to community pharmacy for New Medicines Service. Ensure renal function, HbA1c, cholesterol and BP satisfactory and titrate or initiate medications if needed. 7. **Mind + Body**: consider screening for mental health conditions 8. **Foot check examination and advice on foot care** - share link via Accurx Diabetes UK advice on Footcare 9. **Eye check:** Check patient is receiving annual eye check ups 10. **Driving:** Use Driver and Vehicle Licensing Agency (DVLA)'s Assessing fitness to drive: a guide for medical professionals to guide into account self-monitoring of blood glucose levels for adults with type 2 diabetes.	Pharmacist/ Nurse/ GP	Remote or F2F	EMIS templates e.g. Ardens Diabetes template (for correct coding, annual review, medication review & Vital 5 recording) Diabetes Book and Learn for structured education Brief-interventions around lifestyle
	11. **Goal setting/Self-management/Shared decision-making**	Pharmacist/ Nurse/ GP/Social prescriber/ Care navigator, Patient		Self-management resources, see page 14. Diabetes UK Information Prescriptions to support personal care
Follow-up	Review as agreed, e.g. monthly until BP at target, 3 monthly until HbA1C at target	GP/ Pharmacist/ Nurse/HCA		

QRISK

There is a QRISK2 calculator integrated into EMIS. A link to a more inclusive CV risk calculator QRISK3 is in Ardens template and can be found here.

QRISK 2 and 3 are CVD risk estimate calculators only, and therefore clinical judgment must be used. For example, people considered high risk of CVD should already be on/offered lipid management treatment (such as those with type 1 diabetes, CKD 3-5, existing CVD/previous Stroke/TIA, familial hypercholesterolaemia and people aged >85 yr).

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	Further considerations:	
Dietary advice Diabetes UK	•Eat plenty of vegetables •Have sufficient fibre in your diet •Eat fish, especially oily fish (mackerel, salmon, sardines) regularly •Cut down on: •sugary food and drinks •energy dense foods such as crisps, cakes, biscuits and pastries •alcohol •salty, processed foods	Consider doing the CDEP Nutrition learning module to increase your knowledge of diet and T2DM
Goal setting	Support your patients to make SMART goals e.g. **Specific:** 'I want to lose weight' **Measurable:** 'I'll aim to lose 2kg' **Achievable:** 'I attend a Book and Learn course to help me' **Realistic:** 'I'll ask my family to help too' **Timed:** 'I will do this over the next 6 months'	Watch this short patient video on achieving goals Involve Health and Wellbeing Coach
Personalised care	'A one-size-fits-all health and care system simply cannot meet the increasing complexity of people's needs and expectations. Personalised care is based on 'what matters' to people and their individual strengths and needs.' NHS England	Consider learning through the Personalised Care Institute, or encouraging patients to work with a Social Prescribing Link Worker (SPLW) to help take control
Sick day rules[21]	• If available increase glucose monitoring to at least 4 times a day when unwell • Maintain fluid and carbohydrate intake. Sugary fluids if glucose low and sugar-free fluids if glucose high • NEVER stop insulin: change dose of insulin and gliclazide according to glucose readings Patients should seek medical advice if they: • have no access to glucose monitoring and experience symptoms of high glucose – e.g. thirst, polyuria, fatigue • are unable to maintain hydration or take carbohydrates due to vomiting • have persistently high or low glucose despite altering medication doses • other concerns If changing medication doses remember to change them back when better i.e. eating and drinking normally for 2 days	**SADMANS rules** Consider stopping these classes of drugs temporarily during dehydrating illness **S** SGLT-2 inhibitors **A** ACE inhibitors **D** Diuretics **M** Metformin **A** ARBs **N** NSAIDs **S** Sulfonylureas (If eating and drinking normally and blood sugars are high, sulfonylureas should be continued) **Links to send via accuRx:** 1. What to do when you are ill 2. Sick day rules 3. NHS Video library guide to using glucometer

T2DM: Preferred Medication[12,13,14,20]

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	Drug	Starting dose	Daily Range	**Notes** (these are not extensive, please refer to the latest BNF and/or SPC for further information especially titration increments/cautions/contra-indications)
Biguanide	Metformin Latest NICE CKD guidance (August 2021) does **not** recommend adjusting the estimation of glomerular filtration rate (GFR) in people of Black African or African-Caribbean family background	500mg OD	Metformin standard release Start 500mg daily with/after food and increase by 500mg every 2 weeks until on 1g BD or maximum tolerated dose	• Maximum dose standard release: 2-2.5g daily (3g in 3 divided doses in exceptional circumstances) Maximum dose for M/R: 2g once daily with evening meal. • Routine renal function at least annually, 6 monthly for those at risk of renal impairment. • Review dose if eGFR is <45ml/min (also review at 60ml/min if on >2g daily). Stop/avoid if eGFR <30ml/min. • Consider slow-release preparation if standard preparation causes gastrointestinal side effects. • Take with meals to reduce gastrointestinal side effects • Remember sick day rules ☛ p10 • Manufacturer advises patients and carers should be informed to seek urgent medical advice if symptoms of lactic acidosis e.g. dyspnoea, cramps, abdominal pain • Long term use can reduce B12 absorption – if suspicion of B12 deficiency, monitor B12 serum levels
Sulfonylureas	Gliclazide is SEL preferred sulfonylurea	40mg – 80mg daily	160mg-320 mg daily, doses over 160mg divided. Titrate every 2 weeks according to pre-meal blood glucose – 4-6mmol/L or individualised target or against 3 monthly HbA1c.	• Inform patients of risk of adverse events/hypoglycaemia, particularly if renal impairment • Advise patients on how to manage hypoglycaemia • Self monitor according to SEL SMBG guidance and DVLA guidance and consider alternative if Group 2 driver (large lorries and buses) • Consider alternative if BMI >35 • Caution in use in elderly, housebound, frail and in certain occupations e.g. operating heavy machinery • Kidneys: gliclazide – use in caution with eGFR 30-60mL/min due to increased risk of hypoglycaemia. Avoid if eGFR<30mL/min • Liver: AVOID in severe hepatic impairment due to increased risk of hypoglycaemia

GLP-1 analogues	Liraglutide, Dulaglutide, Semaglutide	See SEL information sheet	See SEL information sheet	• If triple therapy with metformin and 2 other oral drugs is not effective, not tolerated or contraindicated, consider triple therapy by switching one drug for a GLP-1 analogue: only prescribe in those who
				  • have a BMI of ≥35 kg/m^2 - (lower in certain ethnic groups) and specific psychological or other medical problems associated with obesity **OR**
				  • have a BMI <35 kg/m^2 and – for whom insulin therapy would have significant occupational implications or – weight loss would benefit other significant obesity related comorbidities.

DDP-4 inhibitors (gliptins)	Sitagliptin 1st line	100mg once daily	Sitagliptin eGFR 30-44 reduce dose to 50mg OD eGFR <30: 25mg OD	• Increased risk of pancreatitis: Dipeptidylpeptidase-4 inhibitors: risk of acute pancreatitis • Patient on dual or triple therapy of DDP4 inhibitors with a SU or dual therapy with insulin may be at risk of dose related hypoglycaemia, therefore dose reduction of SU or insulin may be needed • NB Alogliptin and Saxagliptin are not on SEL formulary. Any initiation should weigh risk of heart failure in patients.
	Linagliptin in severe renal impairment	5mg once daily		
Pioglitazone	Pioglitazone	15-30mg once daily	Adjust according to response up to 45mg daily	• Safety & efficacy should be reviewed every 3-6 months in continued therapy. • Contraindicated in people with heart failure history, uninvestigated macroscopic haematuria, DKA, hepatic impairment or current/history of bladder cancer • Caution: risk factors for heart failure or for those at increased risk of bone fractures, risk factors for bladder cancer, concomitant use with insulin, elderly. • Patient on dual or triple therapy of pioglitazone with an SU or dual therapy with insulin may be at risk of dose related hypoglycaemia, therefore dose reduction of SU or insulin may be needed.

T2DM: Preferred Medication[12,13,14,20]

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	Drug	Starting dose	Daily Range	Notes (these are not extensive, please refer to the latest BNF and/or SPC for further information especially titration increments/cautions/contra-indications)	
SGLT2 inhibitors (flozins) See SEL guide for prescribing SGLT2 inhibitors and hepatic impairment dosing	Canagliflozin	100mg once daily	Increase to 300mg daily if tolerated and required for glycaemic control. eGFR 45-59: max 100mg once daily eGFR <45: Not recommend for glycaemic control in T2DM	**Use with CAUTION in the following circumstances** - Body mass index <25kg/m2 (<23kg/m2 in South Asian people) - Person adhering to a ketogenic/low calorie/low carbohydrate diet/intermittent fasting - Recent weight loss - Potential for pregnancy - People at risk of hypotension/hypovolaemia (e.g. elderly) - People diagnosed with or at risk of frailty - Cognitive impairment or use of medicine compliance aids (may imply inadequate understanding required to follow sick day rules and take action to prevent and identify DKA) - On high dose diuretics for heart failure (may need dose adjustment, contact heart failure team for advice) - On long term or recurrent courses of steroids (either IV or oral) - Raised haematocrit - Severe hepatic impairment - Recurrent urinary tract or genital tract infections - Long duration of diabetes (generally over 10 years since diagnosis) - Person with very high HbA1c (HbA1c >86mmol/mol) - Person considered at high risk of acute effects of hyperglycaemia e.g. dehydration due to non-adherence to medication - Past history of active foot disease/foot ulceration - Existing diabetes foot ulcers - Previous lower limb amputation - History of peripheral arterial disease (PAD) - Taking sulfonylureas and/or insulin – increased risk of hypoglycaemia if started on SGLT2 inhibitors if eGFR>45 ml/min - Recurrent problematic hypoglycaemia - Those with risk factors for DKA e.g. low reserve of insulin secreting cells, conditions that restrict food intake or can lead to severe dehydration, a sudden reduction in insulin or increased requirement for insulin due to illness, surgery.	**AVOID in the following circumstances** - Age <18 years - Pregnant, breastfeeding, planning pregnancy, female in their child-bearing years and sexually active without contraception - Person with excess alcohol consumption or intravenous drug user - Hypersensitivity to active substance or excipients - Acutely unwell person (acute medical illness including COVID19, surgery or planned medical procedure) - Active foot disease or acute ischaemic limb event - Inpatient with vascular event who is not stable - Eating disorder - eGFR lower than allowed in the up-to date licensing of the medication being considered (see SPC) - Multiple pre-disposing risks for Fournier's gangrene - Clinical features of significant insulin deficiency e.g. weight loss, symptoms of hyperglycaemia - Organ transplant (unlicensed - discuss with diabetes team) - T1DM or suspected or possible T1DM - Current/past history of DKA including ketone prone T2DM - Any diagnosis or suspicion of latent autoimmune diabetes (LADA), other genetic causes of diabetes, known pancreatic disease or injury - Rapid progression to insulin (within 1 year of diagnosis) - Recent major surgery **Discuss risks and benefits, side effects and sick day rules** Side effects include: Increased risk of urinary tract and genital tract infections, polyuria and polydipsia, thirst, postural dizziness, hypotension, dehydration, hypoglycaemia with insulin or SU. Uncommon but serious: DKA, Fournier's gangrene, lower limb amputation, fracture risk **Ensure adequate understanding of:** - Routine, preventative foot care. - Importance of keeping hydrated and drinking plenty of sugar free fluids. If restricting fluid due to other conditions e.g. heart failure, please contact heart failure team for advice and guidance (unless advised to restrict fluids by healthcare professional due to kidney or heart problems or some other reason) - Minimising risk of DKA by not starting a very low carbohydrate diet or ketogenic diet without discussing with healthcare professional first - Management and prevention of hypoglycaemia
	Dapagliflozin	10mg once daily	eGFR <45: Not recommend for glycaemic control in T2DM		
	Empaglifozin (Initiation not recommended in adults >85yrs)	10mg once daily	eGFR ≥ 60: Increase to 25mg if tolerated and required eGFR 45-59: Initiate with 10mg for those with T2DM and established CVD. For those already taking empagliflozin, continue with 10mg only eGFR 30-44: For insufficiently controlled T2DM: Initiate or continue with 10mg for those with T2DM and established CVD only. Further glycaemic control may be required eGFR <30: Not recommend for glycaemic control in T2DM **For decompensated HFrEF - See SEL guide for prescribing SGLT2 inhibitors**		
	Ertugliflozin (ertugliflozin to reduce CVD risk when blood glucose is well controlled is off label)	5mg once in the morning	Increase to 15mg once daily if tolerated and required for glycaemic control eGFR 45-59: do not initiate, continue 5mg or 15mg for those already taking eGFR <45: Not recommended for glycaemic control in T2DM		

Note: glycaemic benefit will be limited for ALL SGLT2 inhibitors below eGFR of 45ml/min as the glucose lowering efficacy of SGLT2 inhibitor therapy is dependent on renal function. Further glycaemic control may be required

T2DM: Preferred Medication[12,13,14,,20]

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	Drug	Starting dose	Daily Range	Notes (these are not extensive, please refer to the latest BNF for further information especially titration increments/cautions/contra-indications)
ACEI	1st line Ramipril	2.5mg OD (1.25mg OD in frail/elderly patients)	2.5mg-10mg OD	▪ For people of Black African or African-Caribbean family origin, use ARB instead of ACEI (as increased risk of angioedema with ACEI) ▪ Check base line U&Es and 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 titration: if Cr 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 <20% (or eGFR falls by <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 take at night. Dry cough with ACEI, consider switch to ARB ▪ **Caution:** Do not combine ACEI and ARB to treat hypertension ▪ For diabetic nephropathy ARB of choice: losartan and irbesartan
	2nd line Lisinopril	10mg OD	10-80mg OD (maintenance dose 20mg 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	▪ Increase after 2-4 weeks to maximum dose of 10mg OD. ▪ Caution: Interacts with simvastatin – consider switching to atorvastatin. ▪ If amlodipine causes ankle oedema consider using a thiazide-like diuretic instead ▪ CI: unstable angina, aortic stenosis, severe hypotension ▪ 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	▪ Check baseline renal profile, then after 2 weeks, then at least annually. If K < 3.5mmol/L or eGFR <25ml/min, stop indapamide and seek specialist advice.
Aldosterone receptor antagonist (K+ sparing diuretic)	Spironolactone	25mg OD	25mg OD	▪ 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 thereafter ▪ If K>4.5mmol/L should be stopped.
α-B	Doxazosin (IR)	1mg OD	2-16mg OD (or BD dosing when >8mg/day)	▪ 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 as may cause postural hypotension, avoid in elderly as orthostatic hypotension risk
β-B	Atenolol	25mg OD	25-50mg OD	▪ Consider at Step 4 if potassium ≥ 4.5mmol/L. ▪ **Particular caution in T2DM – symptoms of hypoglycaemia may be masked.** ▪ Beta blockers may be considered in younger people and in those with an intolerance/CI to ACEI/ARBs, women of childbearing potential, co-existent anxiety/tachycardia/heart failure. ▪ **CI:** asthma, 2nd/3rd degree AV block, severe PAD ▪ **Caution:** beta blockers can cause bradycardia if combined with certain CCBs e.g. Verapamil/Diltiazem
	Bisoprolol	5-10mg OD	5-20mg OD	
Statin **(See page 6)**	Atorvastatin (alternative is rosuvastatin)	20mg OD	20-80mg OD	▪ Seek specialist advice if eGFR <30ml/min, liver disease, untreated hypothyroidism, heavy drinker ▪ **CI** in pregnancy, breast feeding, avoid or address contraceptive needs women of childbearing age. Advise to stop 3 months before conception. ▪ Multiple drug interactions, check BNF for advice, avoid grapefruit juice ▪ Advise patient to visit GP if they experience unexplained muscle pains ▪ Refer to SEL IMOC Guidelines on Lipid Management

Resources:

Patient resources

- Patients with pre-diabetes can **self-register** with the NHS Diabetes Prevention Programme
- **Lambeth GP Food Co-op** build food growing gardens in NHS surgeries & patients participate in food growing groups
- **Diabetes Book and Learn:** NHS south London Diabetes Education Booking Service
- **HEAL-D** diabetes education and support programme for adults of African and Caribbean heritage
- **The Diabetes UK Lambeth and Southwark Group:** support and information for everyone with diabetes and their carers
- Diabetes UK: **Patient information leaflets in different languages**
- Lambeth health and wellbeing **information and support** (smoking, healthy eating and physical activity)
- NHS Better Health **free tools and support** to kickstart your health (weight, smoking, activity, alcohol)
- Physical activity for older people with **Silverfit**
- Local activity finders: **getactive** and **gomammoth**
- Walking for health: **Lambeth Community Health Walking Scheme**
- Lowering your blood pressure with **DASH diet**
- Diabetes UK **Diabetes and looking after your feet**
- Discounted prices at Lambeth Leisure Centres **REAL Plus Leisure Card**

Professional resources

Healthier You NHS Diabetes Prevention, see referral pathway via DXS

- **Cambridge Diabetes Education Programme,** comprehensive, competence based learning. Free for all Lambeth clinicians REGISTRATION KEY CODE: **DIABETESLAMBETH**
- **Diabetes in Healthcare** Diabetes UK free on line learning for health professionals
- **RCGP Diabetes Hub**
- **Personalised Care Institute**
- **Primary Care Diabetes Society**
- **RCGP Quality Improvement Toolkit for Diabetes Care**
- Annual **foot review** Diabetes UK

Lambeth Clinical Support

Urgent telephone advice- Consultant connect: Diabetes at GSTT/KCH by telephone or via App
Virtual diabetes clinics- These are available for practices via Lambeth DICT (see below)
Lambeth Diabetes Intermediate Care team (DICT)
Referral criteria on form (see DXS). Can also contact via email: lamccg.diabetes@nhs.net

Specialist clinics- Request **advice and guidance** or referral to specialist clinics via eRS to: Diabetes medicine (GSTT/KCH), Pre-conception counselling clinic (GSTT/KCH), Diabetes Pregnancy clinic (GSTT /KCH), CKD clinic (GSTT/KCH)]

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Abbreviations:

2WW – Two week wait referral
α-B – Alpha blocker
A&E – Accident and Emergency
ABPM – Ambulatory blood pressure monitoring
ACEI– Angiotensin converting enzyme inhibitor
ACR – Albumin-creatinine ratio
ALT – Alanine aminotransferase
APL – Active Patient Link tools
ARB – Angiotensin receptor blocker
AST – Aspartate aminotransferase
BAME – Black, Asian and Minority Ethnic
β-B – Beta blocker
BD – Twice daily (dosing)
BM- Blood monitoring
BMI – Body mass index
BNF - British National Formulary
BP – Blood Pressure
CDEP – Cambridge diabetes Education Programme
CES – Clinical Effectiveness Southwark
CCB – Calcium channel blocker
CI – contra-indication
CK – Creatinine Kinase
CKD – Chronic Kidney Disease
Cr – Creatinine
CVD – Cardiovascular disease
DASH – Dietary approaches to stop hypertension
DESMOND – Diabetes Education and Self-Management for Ongoing and Diagnosed
DDP – Diabetes Prevention Programme
DPP-4i – Dipeptidylpeptidase-4 inhibitor
DVLA – Driver and Vehicle Licensing Agency
DXS – Point-of-care tool for EMIS Web
ECG – Electrocardiogram
eGFR – Estimated glomerular filtration rate
ERS – Electronic Referral System
F2F – Face to face
FBC – Full blood count
GLP-1 – Glucagon-like peptide -1
GSTT – Guy's and St. Thomas' Hospital
GI – Gastro-intestinal
IGR – Impaired Glucose Regulation
IR – Immediate release
K – Potassium
KCH – King's College Hospital
HbA1c – Haemoglobin A1c %
HBPM– Home blood pressure monitoring
HDL – High-density lipoprotein
IGR – Impaired glucose regulation
IHD – Ischaemic Heart Disease
IR – Immediate release
LFT – Liver function tests
LADA – Latent autoimmune diabetes in adults
LDL – Low-density lipoprotein
MI – Myocardial infarction
NDA – National Diabetes Audit
NICE – The National Institute for Health and Care Excellence
NSAID – Non steroidal anti-inflammatory
OD – Once daily (dosing)
PAD – Peripheral Arterial Disease
PCOS – Polycystic Ovarian Syndrome
PHM – Population health management (contract)
PLT – Protected Learning Time
PMS – Primary medical services (contract)
QOF – Quality and outcomes framework (contract)
QRISK2 – a prediction algorithm for CVD. EMIS currently using QRISK2 (although QRISK3 released in 2017)
RCGP – Royal College of General Practitioners
Renal profile – this includes serum sodium/potassium/creatinine/eGFR
SELAPC – South East London Area Prescribing Committee
SEL – South East London
SBP – Systolic blood pressure
SGLT-2 inhibitor – Sodium-glucose Cotransporter-2 inhibitor
SPC – Summary of product characteristics
SPLW – Social Prescribing Link Worker
T2DM – Type 2 Diabetes Mellitus
TIA – Transient ischaemic attack
TFT – Thyroid function blood tests

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October 2022 (to be reviewed October 2023)