Type 2 Diabetes Mellitus in Adults

A guide for Southwark General Practice

Key Messages*

1. Lifestyle: if overweight, agree a weight loss goal of 5–10% of body weight[1]
2. Blood pressure: target BP ≤140/90mmHg (QOF)[2]
3. Cholesterol: statin if QRISK2 or 3 ≥ 10%[3]
4. HbA1c: target ≤ 53mmol/mol (≤7%)[1]

Individualise targets and patient goals

*see page 5 for range of targets across NICE , QOF and co-morbidities

Always work within your knowledge and competency

July 2023 (review July 2024 or earlier if required)

CONTENTS

Why T2DM in Southwark?

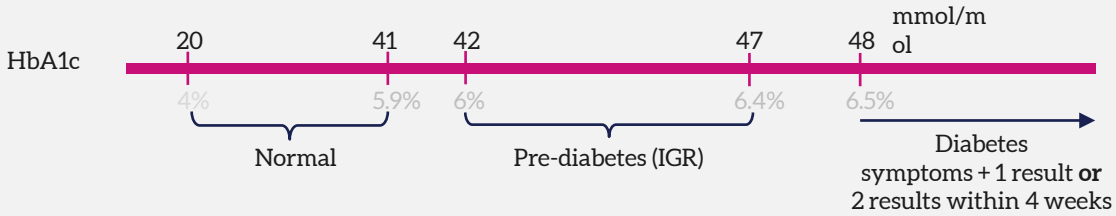
- Weight management may normalise blood sugar levels without the use of drugs.[4]
- Tight blood pressure control substantially reduces diabetes complications and improves survival.[5]
- Cholesterol lowering drugs reduce the risk of major vascular events.[6]
- Even modest improvements in glucose control reduce incidence of complications including foot ulcers, amputations and neuropathy.[7]
- Supporting patients to stop smoking reduces their risk of premature death, heart disease and other complications.[8]
- Primary care management of, and screening for, diabetes are key areas where improved quality of care could contribute to NHS cost savings.[9]

Risk factors for T2DM[10]

- Age > 40 and Caucasian white
- Age > 25 and African - Caribbean or south Asian
- Family history
- High blood pressure
- BMI> 25 especially apple shape
- History of coronary heart disease or stroke
- Serious mental illness
- Polycystic ovarian syndrome and gestational diabetes
- COVID-19 infection may precipitate a diabetes diagnosis[11]

Calculate T2DM risk using a QDiabetes calculator

Diagnosis using HbA1c[12]



If initial result is within the diagnostic range, repeat as soon as possible. HbA1c should be used with caution 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). HbA1C should not be used to diagnose Type 1 diabetes, T2DM in <30 years, symptoms <2 months, 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.[12]

Non-diabetic hyperglycaemia (pre-diabetes)

- Use CES Pre-Diabetes template to ensure accurate coding
- Offer structured education: covering nutritional and physical activity support, with strategies and tools to help make change.

Walking away from diabetes	**Diabetes Prevention Programme**
2 sessions over 1 month On-line/telephone and F2F	13 sessions over 12+ months On-line/telephone and F2F

Federation monthly search – will send offer to patients who have not previously attended or use referral form on DXS.

Annual review: patient with non-diabetic hyperglycaemia and/or history of gestational diabetes. **Include:** HbA1c, Vital 5: BP, BMI, smoking status, mental health and alcohol intake

New Diagnosis of T2DM

- Support patients to reach an understanding of the diagnosis and implications and what they can do to care for themselves
- Use Ardens or CES diabetes clinical template to ensure accurate coding
- Emphasise to patients and carers that structured education is integral to their care and refer or encourage self referral to Structured Education Programme – Diabetes Book and Learn, or advise patients to self refer
- Use Diabetes UK Information Prescriptions to support personal care (can be downloaded into EMIS)
- Agree a clear review date

Considering pregnancy

Refer to Community Diabetes Single Point Referral, Diabetes Pre-conception clinic KCH or GSTT (ERS)

RED FLAGS

New T2DM, >60 years, weight loss - 2WW referral for suspected cancer of pancreas[13]
HbA1c >85mmol/mol +/- weight loss at diagnosis: consider Type 1, ketosis prone, latent autoimmune diabetes in adults (LADA). Seek specialist advice.

T2DM Eight Care Processes (8CP)

Individualise all targets, review dates and monitoring

Ensure all care processes undertaken at least annually

1 Body Mass Index kg/m^2 [2, 14]

Page 5

Overweight

BMI ≥ 25 Caucasian white 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

Page 5

QOF[2,15] ≤140/90mmHg excludes moderately or severely frail

NICE[16] ≤140/90mmHg ≥ 80 years ≤ 150/90mmHg

CKD If ACR ≥ 70 mg/mmol, target BP ≤130/80 mmHg

QOF and NICE targets 5mmhg lower for home and ambulatory readings

3 Cholesterol

Page 6

Primary prevention[3]:

Offer statin if QRISK2 or 3 ≥ 10% after trial of lifestyle modification

QOF target excludes those with moderate or severe frailty

4 HbA1c[1,17]

Page 7-8

It takes 3 months from medication dose change to see HbA1c change.

Check 3 monthly until stable, then 6 monthly. 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

Patients with moderate/severe frailty: QOF target ≤75 mmol/mol (9%)

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

Consider using NICE patient decision aid to support discussions

For guidance on HbA1c targets for women with T2DM who are planning a pregnancy/are pregnant , refer to NICE guideline on diabetes in pregnancy.

5 Smoking

Ensure you are trained to deliver Very Brief Advice (VBA)

ASK ADVISE ACT Very Brief Advice Training Module

If ready to quit refer to appropriate local service.

6 + 7 Renal function and albumin creatinine ratio (ACR) [18]

ACR ≥ 3mg/mmol is clinically significant

See: CESEL CKD guide for full details of investigation and managing patients with CKD and DM

8 Foot Check[22]

Medium risk – neuropathy or absent pulse ➢Refer to Podiatry Community Clinic

High risk – neuropathy or absent pulse + plus deformity or skin changes in previous ulcer ➢ Urgently Refer to Podiatry Community Clinic

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

Referral details on Diabetic Foot Pathway for Southwark and Lambeth[23] (DXS)

Resources:

For clinicians: Annual foot review pathway, Diabetes UK

Diabetic foot infection: antimicrobial prescribing. NICE

+

- Retinopathy screening within 3 months of diagnosis and at least annually[1] Patients are called automatically once coded for T2DM, check this is happening at annual review.
- Vital 5: includes mental health and alcohol intake
- Flu annually and pneumococcal immunisation once[10]

National Diabetes Audit: 8CP and the triple target of BP 140/80, HbA1c ≤ 57 mmol/mol (7.5%), cholesterol control QRISK2 or 3 ≥ 10%[20]

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

Weight Management[1,14,24]

ACTIVITY	
For all	Increased physical activity, even in absence of weight loss, brings health benefits
To prevent obesity	45-60 minutes moderate intensity exercise a day
With a history of obesity	60-90 minutes moderate intensity exercise a day to avoid regaining weight

WHEN TO OFFER REFERRAL FOR WEIGHT MANAGEMENT

General advice on healthy weight and lifestyle to all patients with T2DM. Tailor interventions to patients' circumstances and choices. Signpost to local resources. Consider referral at lower BMI for patients from BAME backgrounds.

BMI ≥ 30kg/m²

Offer referral: **Tier 2**: Southwark Healthy Weight Programme DXS 'Southwark Tier 2 referral form'

BMI ≥ 35kg/m²

Offer referral: **Tier 3**: SEL healthy weight programme
eRS Dietetics, Weight management, SEL Tier 3 Healthy Weight
Include BP, BMI, HbA1c, lipid profile and creatinine

Would consider surgery + BMI ≥35kg/m²
Offer referral: **Tier 4:** Bariatric Service Kings and GSTT ERS - GI and Liver.
Must include details of completed Tier 3 programme for eligibility.
Newly diagnosed: discuss referral to bariatric surgery team patients with BMI 30-34.9kg/m²

See Page 14: local weight management resources

Blood pressure[1,2,16]

Diagnosis
See CESEL Southwark hypertension guide

Targets
QOF[15]: ≤140/90mmHg
(excludes those with moderate or severe frailty)

NICE[16] ≤140/90mmHg
≥ 80 years ≤ 150/90mmHg
CKD if ACR ≥ 70 mg/mmol, ≤120-129/80
QOF and NICE targets 5mmhg lower for both systolic and diastolic for home /ambulatory readings

- Measure standing and sitting BP in patients with T2DM. If a significant postural drop (≥20mmHg SBP) – review medication and treat to target on the standing BP
- Confirm diagnosis with ABPM or HBPM

Home BP readings
- Corresponding HBPM measures are 5mmHg lower than clinic measures
- Ensure accurate BP machine and advise to record two BP readings every morning and evening for 7 days
- Disregard the first days readings and take an average of all other readings
- Sign post patients to British Heart Foundation advice; send as an Accurx link

Consider hypotension if BP ≤90/60mmHg with symptoms and reduce medication accordingly (may limit up titration of doses).

Step 1 ACEI or ARB*
ramipril/lisinopril or losartan

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

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 If good renal function and potassium ≤4.5 mmol/L consider low dose spironolactone
If potassium > 4.5mmol/L and/or reduced renal function, consider alpha blocker (doxazosin) or beta-blocker (atenolol/bisoprolol) and/or seeking specialist advice

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

Drugs to avoid at conception/in pregnancy include:

ACEI/ARB/thiazide or thiazide-like diuretic (increased risk of congenital abnormalities). Use Labetalol if no CI, nifedipine or methyldopa. Can also remain on amlodipine – GSTT Obstetric Medicine advice Target BP ≤ 135/85 mmHg

Refer to Hypertension in Pregnancy clinic (GSTT) ASAP

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

Cholesterol Management [2,3]

Baseline bloods (non-fasting lipid profile, LFTs, HbA1c, thyroid and renal function)
LFTs check within 3 months of starting statin therapy and at 12 months.
Check lipid profile annually
Target reduction of ≥ 40% reduction in non-HDL cholesterol from baseline
Non-HDL cholesterol = Total cholesterol minus HDL cholesterol

Primary Prevention

Offer daily statin if QRISK2 or 3 ≥ 10% after addressing modifiable risk factors
(see page 9 for clinical condition variations between QRISK 2 and 3)
Atorvastatin 20mg – (or maximum tolerated dose) [alternative is rosuvastatin 10mg]
If after 3 months not achieved ≥ 40% reduction in non-HDL cholesterol from baseline, consider up titration of statin **to a maximum dose of**
Atorvastatin 80mg [alternative is rosuvastatin 20mg]
If intolerant to higher dose consider adding ezetimibe 10mg daily. If intolerant to statins (start ezetimbe) and refer to lipid clinic.
If still not achieving ≥ 40% reduction in non-HDL cholesterol, refer to lipid clinic
For patients with cardiovascular disease see secondary prevention e.g. stroke, PVD, CHD

Secondary Prevention

For patients with history of CVD, including MI, angina, stroke/TIA, peripheral vascular disease, abdominal aortic aneurysm:
Ensure patient offered daily, high dose, high intensity statin:
Atorvastatin 40-80mg (or maximum tolerated dose) [alternative is rosuvastatin 20mg]
If after 3 months not achieved ≥ 40% reduction in non-HDL cholesterol from baseline, and on maximum tolerated dose, consider adding ezetimibe 10mg daily
If after 3 months not achieved ≥ 40% reduction in non-HDL cholesterol from baseline- refer lipid clinic
(If no baseline value: consider a target non-HDL cholesterol < 2.5mmol/L or LDL cholesterol <2mmol/L)

see SEL Lipid Management 2021 for more details including: management of intolerance, shared decision making, familial hypercholesterolaemia, management of triglycerides, referral criteria

QOF DM022. The percentage of patients with diabetes aged 40 years and over, with no history of cardiovascular disease and without moderate or severe frailty, who are currently treated with a statin (excluding patients with type 2 diabetes and a CVD risk score of <10% recorded in the preceding 3 years)

Guidance aligns with SEL IMOC Blood Glucose Control Management Pathway for Adults with Type 2 Diabetes

Need Help?

Community Hypertension and Lipid Clinic: DXS referral or email for advice gst-tr.KHPCommunityCVD@nhs.net see SEL Lipid Management 2021 for criteria

T2DM Glycaemic Control Management: Overview[1,17,18]

Step 1

On initial diagnosis: person centered lifestyle advice

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

Step 2

Target : personalised target

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

Not at high CVD risk
QRISK2 or 3 < 10%

High Risk of CVD
QRISK 2 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)

and consider

and 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 11 and **SEL Guide for Prescribing SGLT2 Inhibitors in T2DM** especially for assessing **DKA risks** and cautions

Recheck HbA1c and QRISK 2 or 3 at 3 months

If CVD risk or status changes at any point, return to step 2 to as SGLT2 inhibitor may now be indicated

Controlled

Reinforce lifestyle advice

Plan review date

Not Controlled

Move to Step 3

See the next page for details

T2DM Glycaemic Control Management: Overview[1,17,18]

Step 3

1st intensification
Target: personalised target

Add therapy

Informed by clinical judgment 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 antidiabetic drugs are 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-4inhibitor + 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

Recheck HbA1c and CVD risks at 3 months

If CVD risk or status changes at any point (if the patient develops a QRISK 2 or 3 >10% or chronic Heart failure or CVD), return to step 2 to consider/offer SGLT2 inhibitor

Step 4

2nd Intensification
Target: personalised target

Controlled
Reiterate 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)

If still not controlled

Consider GLP-1 analogues

When triple therapy with metformin and 2 other drugs not effective, not tolerated or contraindicated. Refer to page 11 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.
SEL IMOC Insulin safety guidance

Remains uncontrolled?

Refer to Specialist Diabetes Team

T2DM REVIEW (at least once a year)

	Tasks/Activity	Who?	Where?	Tools/Support
Review planning	**Call/recall planning:** Use CES searches to help decide who to prioritise for review	Admin colleague with clinician support: GP/nurse/pharmacist		CES, Ardens and UCLP searches available on your EMIS system, ask Federation or CE leads for advice
Pre-patient review	**Contact patient for:** 1. **Bloods:** renal function, FBC, lipids, HbA1c & urine ACR 2. **BP measurement:** in practice or home monitoring 3. **Weight and height:** home measurements especially for remote reviews	HCA/GP Nurse/pharmacist	Remote or F2F	Accurx and E-consult have diabetes review for pre-review information gathering - text/contact patient to encourage to complete ahead of review.
Patient review	• **Ask the patient their concerns, expectations, and questions** • **Review trend for BMI and BP** • **Review investigations:** urine ACR, renal function, HbA1c, cholesterol • **Re-calculate QRISK2 or 3** for primary prevention • **Discuss risk-reduction + life-style**: in context of QRISK2 or 3, Vital 5 and COVID risk • **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 adjust medications if needed. • **Re-calculate QRISK2 or 3** for primary prevention. **If >10% discuss option of adding or substituting an SGLT2i.** If you are adding an SGLT2i to drug treatment which may cause hypo's 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 3monthly HbA1c • **Foot check examination and advice on foot care** - share link via Accurx Diabetes UK advice on Footcare • **Eye check:** Check patient is receiving annual eye check ups • **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[25].	GP/GP Nurse/pharmacist	Remote or F2F	Use clinical templates: CES T2DM template or Ardens Diabetes (ensures correct coding, annual review, medication review & Vital5) Sign post to Diabetes Book and Learn for structured education
	• **Goal setting** • **Self management** • **Referral/signposting to community resources** (see page 11)	GP/GP nurse/pharmacist or social prescribing link worker & Patient		Self-management resources - send links via AccuRx. Diabetes UK Information Prescriptions to support personal care
	• **Follow-up plans:** agreed with patient e.g. review BP monthly until it is at target, HbA1c every 3 months until at target and then 6 monthly	GP/GP Nurse/pharmacist		

QRISK 2 or 3

Currently a QRISK2 'calculator' is integrated into EMIS, however a link to a more inclusive CV risk score QRISK3 can be found here .
For several conditions QRISK2 will underestimate people's risk e.g. severe mental illness and rheumatological conditions.

QRISK 2/3 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).

DIABETES REVIEW

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

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 of their T2DM management.

SICK DAY RULES [27,28]

- 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

SADMANS rules
Consider stopping these classes of drugs temporarily during dehydrating illness

S	SGLT2 inhibitors	**M**	Metformin
A	ACE inhibitors	**A**	ARBs
D	Diuretics	**N**	NSAIDs
		S	Sulfonylureas (If eating and drinking normally and blood sugars are high sulfonylureas should be continued)

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.

Patient Information Leaflet: Type 2 Diabetes: What to do when you are ill (TREND)

London Clinical Network Guidance Sick day rules: how to manage Type 2 diabetes if you become unwell with coronavirus and what to do with your medication

NHS Video library guide to using glucometer

(send links via Accurx)

T2DM: Preferred Medication[1,3,16,17,18,29]

	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		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[1,3,16,17,18, 29]

Clinical Effectiveness South East London

	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 Note glycaemic benefit will be limited for all SGLT2 inhibitor 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	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		

T2DM: Preferred Medication[1,3,16,28]

Clinical Effectiveness South East London

	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

Educational Resources

Cambridge Diabetes Education Programme, comprehensive, competence based learning.
Free for all Southwark clinicians www.cdep.org.uk
REGISTRATION KEY CODE: SOUCCGCDEP

Diabetes in Healthcare Diabetes UK free on line learning for health professionals

RCGP Diabetes Hub

Personalised Care Institute

Primary Care Diabetes Society

Southwark Healthy Weight training for professionals

Patient Resources

Healthy weight advice and support in Southwark
Southwark Sport and Leisure
Southwark Wellbeing Hub Directory for community resources
Health Lifestyle Hub – access via NHS Health Checks
Diabetes Book and Learn: NHS south London Diabetes Education Booking Service.
The Diabetes UK Lambeth and Southwark Group support and information for everyone with diabetes and their carers.
Diabetes UK website
Health and Care patient information videos on range of diabetes topics
HEAL-D | Lifestyle for diabetes in African & Caribbean communities

Southwark clinical support

Community diabetes clinic- Referral criteria on form (see DXS). Can also provide T2DM drug related advice via email: gst-TR.southwark-diabetes@nhs.net

Phone: 02030498863

Urgent telephone advice- Consultant connect: (your practice will have been given its own specific telephone number)

Non-urgent 'Advice & Guidance'- vie ERS

T2DM and COVID-19

See SEL resources

Quality Improvement Resource

The Quality Improvement Toolkit for Diabetes Care

Acknowledgements

CESEL guides are developed by SEL primary care clinicians 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 medicines content, CESEL Steering Group with representation from SELCCG and PCNs, and borough based Medicines Management Teams (MMT).

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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
DPP – 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
EMC – Electronic Medicines Compendium
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
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
SPC- Summaries of Product Characteristics
SGLT2i - Sodium Glucose Co-transporter 2 (SGLT2) inhibitors
SPLW – Social Prescribing Link Worker
SU - Sulfonylurea
T2DM – Type 2 Diabetes Mellitus
TIA – Transient ischaemic attack
TFT – Thyroid function blood tests

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July 2023 (review July 2024 or earlier if required)