

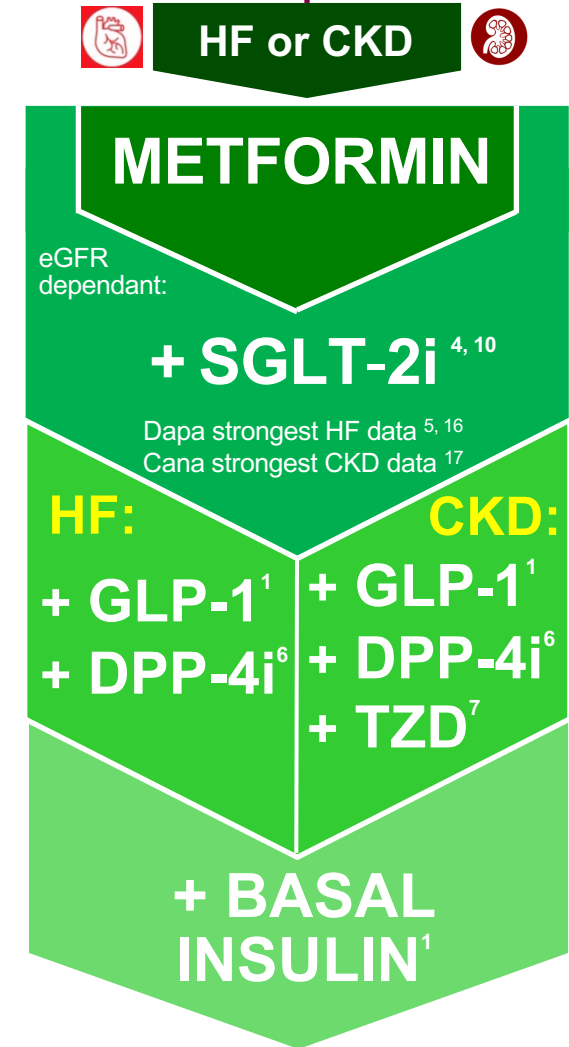
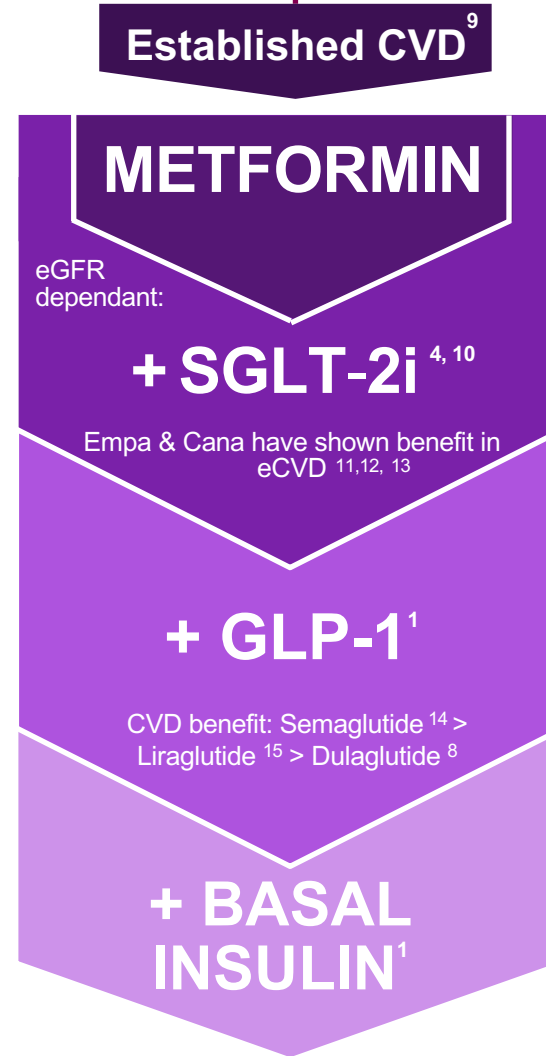
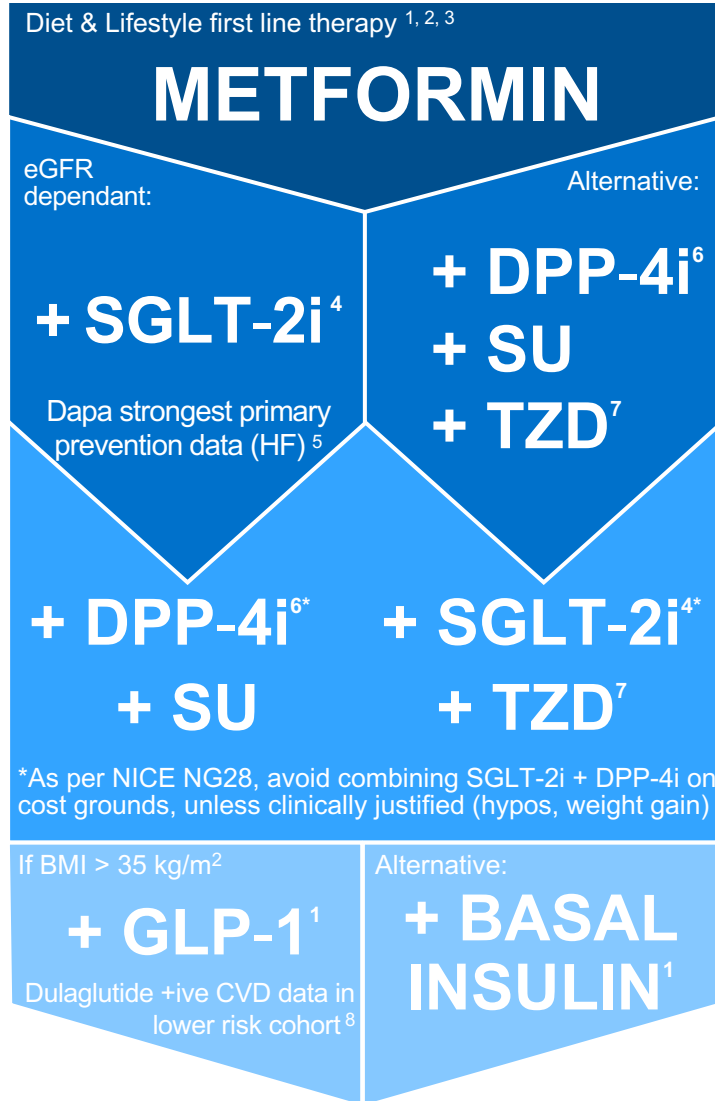
NWL Type 2 Diabetes Management Algorithm

Does the patient have a CARDIO-RENAL COMORBIDITY?

NO

Diet & Lifestyle first line therapy ^{1, 2, 3}
Sick Day Guidance – see page 3

YES



Initial therapy

Intensifications

Target HbA_{1c}

Intensive diet & lifestyle management for all patients ¹

Diabetes remission is a practical target for primary care ²

Consider enrolment into NWL REWIND Programme for either low calorie total diet replacement or low carb pathway ³

Rescue therapy: Insulin or SU

Rescue based therapy if symptomatic or high HbA_{1c} Review once symptoms resolved +/- target HbA_{1c} achieved ¹

Drug	CKD stage 1 eGFR >90 mL/min	CKD stage 2 eGFR 60-90 mL/min	CKD stage 3a eGFR 45-59 mL/min	CKD stage 3b eGFR 30-44 mL/min	CKD stage 4 eGFR 15-29 mL/min	CKD stage 5 eGFR <15 mL/min	Mild to moderate hepatic impairment	Severe hepatic impairment
Metformin	✓	✓	✓	✓ Max 500mg BD	✗	✗	Specialist initiation only	✗
Gliclazide	✓	✓	✓	✓	Use lowest effective dose	✗	✓	✗
Linagliptin	✓	✓	✓	✓	✓	✓	✓	✓
Sitagliptin	100 mg	100 mg	100mg	50mg	25mg	25mg	✓	✗
Alogliptin	25mg	25mg	25mg	12.5mg	6.25mg	6.25mg	✓	✗
Pioglitazone (TZD)	✓	✓	✓	✓	✓	✓	✗	✗
Dapagliflozin	✓ 10mg	✓ 10mg	✓ Continue 10mg	✗ Initiate 100mg, only if uACR >300mg/g	✗ No new initiation; continue 100mg if uACR >300mg/g	✗ No new initiation; continue 100mg if uACR >300mg/g	✓	✓ 5mg
Canagliflozin	✓ 100-300mg	✓ 100-300mg	✓ 100mg				✓	✗
Empagliflozin	✓ 10-25mg	✓ 10-25mg	✓ Continue 10mg				✓	✗
Ertugliflozin	✓ 5-15mg	✓ 5-15mg	✓ Continue 5-15mg				✓	✗
Liraglutide	✓	✓	✓	✓	✓	✗	✓	✗
Semaglutide	✓	✓	✓	✓	✓	✗	✓	Caution: limited information
Dulaglutide	✓	✓	✓	✓	✓	✗	✓	✓
Insulin	✓	✓	✓	✓	✓	✓	✓	✓

Diminished glycaemic effect of SGLT-2i with eGFR < 45 mL/min, however sustained cardio-renal protection

Sick Day Guidance – to be reiterated to patients at every opportunity

When unwell (acute illness):

Fever, sweats, shaking
Vomiting / diarrhoea
Unable to eat
or drink

Miss out / Omit / Pause:

S – SGLT-2i
A – ACEi
D – Diuretics
M – Metformin
A – ARBs
N – NSAIDs

After 2-3 days:

Feeling better = Restart
paused medicines
Not better = seek medical
attention

Increase blood glucose monitoring during acute illness and check for ketones. If you are using daily insulin or an SUs, you may need to increase (or decrease) the amount taken to maintain appropriate glucose control. Ensure fluid intake to minimise dehydration.

Adapted from Imperial College Healthcare NHS Trust Renal Sick Day Rules

Lifestyle Counselling – to be reiterated to patients at every opportunity

Dietary Guidance

Seek dietitian input. Individualised approach: low fat diet, low Glycaemic Index diet or Mediterranean diet etc. Alternatives include low calorie total diet replacement programmes (NWL REWIND).

Physical Activity

Realistic targets should be set. The benefits of regular exercise should be explained and people should be advised to perform regular aerobic activity. Clinical studies show that walking for 30 minutes every day has cardiovascular benefits.

Weight Management

Weight loss can help the patient achieve Type 2 diabetes remission. Realistic initial weight loss target of 5% to 10% of starting weight. Consider drug therapy, e.g. SGLT-2i or GLP-1. Consider surgical intervention.

Smoking Cessation & Alcohol consumption

Assess patients for smoking status and refer to Smoking Cessation Teams for support. Alcohol may influence blood glucose control (Hyper/Hypo glycaemia respectively).

Medication review

Reassess the person's needs and circumstances at each review (3-6 months) and think about whether to stop any medicines that are not effective. Adjustments for Renal & Hepatic Impairment – see page 2.

GLP-1

Only continue in those with a beneficial metabolic response after **6 months** (reduction of ≥ 11 mmol/mol [1.0%] in HbA1c and weight loss of $\geq 3\%$ of initial body weight).

SGLT-2i

Stop & reassess if complicated by DKA (could be euglycemic).

DPP-4i

Not to be used in conjunction with GLP-1.

TZD

Stop in the event HF, DKA or bladder cancer.

SU

In the event of significant hypos, stop & reassess.

Diabetes Remission Programme



Diabetes remission is a practical target for primary care². Consider enrolment into NWL REWIND Programme for either low calorie total diet replacement or low carb pathway³.

[For more details, click here](#)

[For full pathways, click here](#)

Given the recent wealth of publications regarding cardiovascular & renal outcome trials in type 2 diabetes, this Type 2 Diabetes Management Algorithm is meant as a quick reference guide as we move away from glucose-centric prescribing, based on current evidence as of August 2020. For more in-depth guidance please refer to full [North West London Diabetes Guidelines](#), the [EASD-ADA Consensus Document](#), or other [inter]national guidelines. [Also see CaReMe multi-association position statement](#).

Lifestyle management should be part of the ongoing discussion with individuals with T2DM at each visit. Increasing physical activity and reducing body weight improves glycaemic control and should be encouraged in all people with T2DM¹. Glycaemic treatment targets should be individualised based on patient preferences and patient characteristics, including frailty and comorbid conditions¹. All drugs can cause side effects, consult BNF or summary of product characteristics for full side effect profile of individual drugs. Always offer advice on sick day guidance for patients on Metformin and/or SGLT-2i¹. Stop SGLT-2is peri-operatively or if restricted food intake or dehydration¹. Patients on insulin treatment should always be advised never to stop or significantly reduce their insulin as part of the sick day response¹. SU & TZD both have low acquisition cost, this should be taken into consideration alongside increased risk of weight gain and hypoglycaemia risk (SU).

Abbreviations:

T2DM; type 2 diabetes mellitus; NWL REWIND; North West London Reducing Weight with Intensive Dietary support, eGFR, estimated glomerular filtration rate; SGLT-2i, sodium-glucose cotransporter-2 inhibitor; DPP-4i, dipeptidyl peptidase 4 inhibitor (gliptin); SU, sulfonylurea; TZD, thiazolidinedione; BMI, body mass index; GLP-1, glucagon-like peptide-1 receptor agonist; +ive, positive; CVD, cardiovascular disease; eCVD, established cardiovascular disease; MI, myocardial infarction; Cana, canagliflozin; Dapa, dapagliflozin; Empa, empagliflozin; HF, heart failure; CKD, chronic kidney disease; HbA_{1c}, hemoglobin A1C; BD, twice daily; ACEi, Angiotensin-converting enzyme inhibitors; ARB, Angiotensin II receptor blocker; NSAID, Non-steroidal anti-inflammatory drug; DKA, diabetic ketoacidosis.

References:

1. For further guidance please refer to full [North West London Diabetes Guidelines](#) - <http://tiny.cc/p4egfz>
2. DiRECT; Lancet 2018; 391: 541–51 [https://doi.org/10.1016/S0140-6736\(17\)33102-1](https://doi.org/10.1016/S0140-6736(17)33102-1)
3. NWL REWIND Programme (**R**educing **W**eight with **I**ntensive **D**ietary support) [For more details, click here](#) [For full pathways, click here](#).
4. When prescribing an SGLT-2i, consider risk of volume depletion, euglycemia DKA in insulin deficient cohorts and lower limb amputation (class warning, but only observed in Cana and Eurtu). Caution in frail patients and always follow sick day rules. For more information, refer to full [North West London Diabetes Guidelines](#)
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6. Saxagliptin to be avoided in patients with heart failure. SAVOR; N Engl J Med. 2013 Oct 3;369(14):1317-26. doi: <https://doi.org/10.1056/NEJMoa1307684>
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9. Patients with established atherosclerotic cardiovascular disease having had an ischemic event (e.g myocardial infarction or stroke)
10. Consider initiating Met + SGLT-2i rather than stepwise. This is in line with Position Statement by Primary Care Diabetes Europe; S. Seidu, et al., A disease state approach to the pharmacological management of Type 2 diabetes in primary care: A position statement by Primary Care Diabetes Europe, Prim. Care Diab. (2020), <https://doi.org/10.1016/j.pcd.2020.05.004>. Alternatively, the European Society of Cardiology (ESC) diabetes guideline states that SGLT-2i could be considered as first line ahead of metformin in patients with eCVD, HF or CKD - European Heart Journal (2019) 00, 169; doi: <https://doi.org/10.1093/eurheartj/ehz486>
11. EMPA-REG; N Engl J Med 2015; 373:2117-2128; DOI: <https://doi.org/10.1056/NEJMoa1504720>
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