Choosing medicines for type 2 diabetes

Prescribing guidance

Choosing treatments

Base the choice of medicine on:

- the person's individual clinical circumstances and their preferences and needs
- the medicine's effectiveness in terms of metabolic response and cardiovascular protection
- the medicine's safety and tolerability
- the person's cardiovascular disease (CVD) risk and status
- which medicine has the lowest cost within its class.

Reviewing and changing treatments

At each point:

- stop medicines that have not worked or are not tolerated
- check adherence and optimise the person's current treatment regimen before thinking about adding or switching medicines (see the NICE guidelines on medicines adherence, medicines optimisation and shared decision making)
- think about whether switching rather than adding medicines could be effective
- check adherence to diet and lifestyle advice.

Rescue therapy

For symptomatic hyperglycaemia, consider insulin or a sulfonylurea, review when blood glucose control has been achieved.

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First-line treatment — Assess HbA1c, cardiovascular risk and kidney function

Not at high CVD risk

Offer
- Metformin

Or if GI disturbance
- Metformin MR

If metformin contraindicated:

Consider
- DPP-4 inhibitor ('gliptin')
- Pioglitazone
- Sulfonylurea

An SGLT2 inhibitor ('flozin') for some people:
- TA 390 Dapagliflozin
- TA 390 Canagliflozin
- TA 390 Empagliflozin
- TA 572 Ertugliflozin

High-risk CVD

Offer
- Metformin

or if GI disturbance
- Metformin MR

and consider adding
- SGLT2 inhibitor ('flozin')

Start metformin alone to assess tolerability before adding an SGLT2 inhibitor

If metformin contraindicated:

Consider
- SGLT2 inhibitor alone

Established CVD

Offer
- Metformin

or if GI disturbance
- Metformin MR

and offer
- SGLT2 inhibitor

If metformin contraindicated:

Offer
- SGLT2 inhibitor alone

Person's HbA1c not controlled below individually agreed threshold, or the person develops CVD or a high risk of CVD

See disease progression

NICE technology appraisals recommend SGLT2 inhibitors as monotherapy options in people:

- who cannot have metformin
- for whom diet and exercise alone do not provide adequate glycaemic control.

The SGLT2 inhibitors are recommended only if a dipeptidyl peptidase-4 (DPP-4) inhibitor would otherwise be prescribed and a sulfonylurea or pioglitazone is not appropriate.

This guideline update (2021) recommends SLGT2 inhibitor use in a wider population than the technology appraisals published before August 2021. See the full guideline for details.

Disease progression

At any point
HBA1c not controlled below individually agreed threshold

Switching or adding treatments

Consider:

DPP-4 inhibitor or Pioglitazone or Sulfonylurea

SGLT2 inhibitors may also be an option in dual therapy:

- TA 288 Dapagliflozin
- TA 366 Empagliflozin
- TA 315 Canagliflozin
- TA 572 Ertugliflozin

Or in triple therapy:

- TA 583 Ertugliflozin
- TA 366 Empagliflozin
- TA 418 Dapagliflozin
- TA 315 Canagliflozin

At any point
Cardiovascular risk or status change

If the person has or develops a high risk of CVD

Switching or adding treatments

Consider
An SGLT2 inhibitor (if not already prescribed)

If the person has or develops congestive heart failure or established atherosclerotic CVD

Switching or adding treatments

Offer
An SGLT2 inhibitor (if not already prescribed)

Insulin therapy

When dual therapy has not continued to control HbA1c to below the person's individually agreed threshold, also consider insulin-based therapy (with or without other antidiabetic drugs).

- TA 418 Dapagliflozin
- TA 315 Canagliflozin

GLP-1 treatments

If triple therapy with metformin and 2 other oral drugs is not effective, not tolerated or contraindicated, consider triple therapy including a glucagon like peptide 1 (GLP-1) mimetic for adults who:

- have a body mass index (BMI) of 35 kg/m^2 or higher (adjust accordingly for people from black, Asian and other minority ethnic groups) and specific psychological or other medical problems associated with obesity or
- have a BMI lower than 35 kg/m^2 and:
  - for whom insulin therapy would have significant occupational implications or
  - weight loss would benefit other significant obesity related comorbidities.

At each point follow the prescribing guidance.

Switch or add treatments from different drug classes up to triple therapy (dual therapy if metformin is contraindicated).

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Option	Form	Contraindications (check individual SPCs)	Renal impairment (check individual SPCs)	Hepatic impairment (check individual SPCs)	Effect on weight	Hypoglycaemia risk	Options and BNF link
DPP-4 inhibitor ('gliptin')	Tablet	Ketoacidosis (check individual SPCs)	Caution if severe Dose adjustment required if moderate to severe	Avoid if severe Caution if moderate	None	Low	Alogliptin Linagliptin Sitagliptin Saxagliptin Vildagliptin
GLP-1	Tablet or injection	Severe gastrointestinal disease, ketoacidosis, diabetic gastroparesis, inflammatory bowel disease (check individual SPCs)	Avoid or use with caution	No warnings	Loss	Low	Dulaglutide Exenatide Liraglutide Lixisenatide Semaglutide
Insulin	Injection	–	Response to hypoglycaemia is impaired. Insulin requirements may decrease, dose reduction may be needed	Insulin requirements may decrease	Gain	High	Insulin treatment summary See individual BNF monographs
Metformin	Tablet	Acute metabolic acidosis	Avoid if eGFR is less than 30 ml/minutes/1.73 m^2	Withdraw if tissue hypoxia likely	None	Low	Metformin
Pioglitazone	Tablet	History of heart failure, previous or active bladder cancer, uninvestigated macroscopic haematuria	No warnings	Avoid	Gain	Low	Pioglitazone See also MHRA warnings on cardiovascular risk and bladder cancer
SGLT2 inhibitor ('flozin')	Tablet	Ketoacidosis	Options and doses may change if eGFR is less than 60 ml/minute/1.73 m^2 (see individual SPCs for more information)	Caution if severe	Loss	Low	Canagliflozin Dapagliflozin Empagliflozin Ertugliflozin See also MHRA warnings on diabetic ketoacidosis and genital infection
Sulfonylurea	Tablet	Ketoacidosis (and see individual SPCs)	Use with care if mild to moderate because of the risk of hypoglycaemia Use the lowest dose that adequately controls blood glucose Avoid where possible if severe	Avoid if severe	Gain	Moderate	Gliclazide Glimepiride Glipizide Tolbutamide

When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

This information is a summary of the recommendations, please consult the guideline for the full recommendations. All supplementary information is taken from the BNF or the SPCs.

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