

Algorithm for the management of young adults with Type 2 Diabetes (18-39 years)

New diagnosis young-onset Type 2 Diabetes (18-39 years)

Diagnosis made in primary care for ongoing management

Aged 18-24 years - Refer to STH diabetes team via eRS

Aged 25 years and over - Offer [lifestyle advice](#) and metformin to support patients reach and maintain [HbA1c target](#) in line with [NG28](#).

Offer referral for weight management programme. See [here](#) for weight loss initiatives including the [NHS Type 2 Diabetes Path to Remission Programme](#) and NHS digital weight management programme. The NHS Type 2 Diabetes Path to Remission Programme is successful in achieving high remission rates.

Offer structured education programme (DESMOND). See [link](#) for referral form.

Offer referral to diabetes specialist dietitians via eRS for patients with complex dietary, medical or psychosocial requirements e.g. disordered eating, multiple health conditions.

Does the patient have;

- hypertension, dyslipidaemia, smoking, or family history (in a first-degree relative) of premature cardiovascular disease or
- Chronic heart failure or established atherosclerotic CVD or CKD

Yes

Follow [NG28](#) guidance 'High risk of CVD pathway'

Note adults below age 40 with type 2 diabetes have an elevated lifetime risk of cardiovascular disease if they have one of the following risk factors; hypertension, dyslipidaemia, smoking, or family history (in a first-degree relative) of premature cardiovascular disease.

If the patient also has a BMI >30kg/m² (or BMI >27.5 kg/m² in patients of South Asian, Chinese, other Asian, Middle Eastern, Black African, or African-Caribbean family background). **Consider GLP1-agonists third line** (after SGLT2-inhibitors), refer to DSN for initiation.

No

Is BMI >30kg/m²

(Or BMI >27.5 kg/m² in patients of South Asian, Chinese, other Asian, Middle Eastern, Black African, or African-Caribbean family background)

No

Follow [NG28](#) guidance, 'Not at high risk of CVD pathway'

Yes

Consider GLP-1 agonist or [SGLT2 inhibitor](#)

Discuss risks and benefits of treatment options, which have evidence of weight loss (SGLT2 inhibitors or GLP-1 agonists) with patients once metformin tolerability is established. Noting GLP-1 agonists have strongest evidence to reduce weight and HbA1c. If, after shared decision making with patients GLP-1 agonists preferred, **refer to DSN for initiation.**

Stop GLP-1 agonist if there has been no reduction of at least 11mmol/mol [1.0%] in HbA1c and/or weight loss of at least 3% of initial body weight in 6 months (NICE guideline, [NG28](#)). Consider stopping GLP-1 agonist if reduction in HbA1c or weight loss is not sustained at subsequent reviews.

Reinforce importance of dietary and lifestyle interventions to aid weight loss.

Have patient's glycaemic targets been reached?

Aim for HbA1c of 53mmol/mol or lower

Yes

Maintain treatment whilst glycaemic control is being achieved (and if on GLP1-agonist weight loss remains 3% below initial body weight).

No

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If glycaemic target is not achieved;
Consider addition of SGLT2 inhibitor for patients on GLP1-agonists (and metformin) if weight loss targets have been achieved **or**;
Consider addition of GLP-1 agonist for patients on SGLT2 inhibitor (and metformin).

Stop GLP-1 agonist if there has been no reduction of at least 11mmol/mol [1.0%] in HbA1c and/or weight loss of at least 3% of initial body weight in 6 months (NICE guideline, [NG28](#)). Consider stopping GLP-1 agonist if reduction in HbA1c or weight loss is not sustained at subsequent reviews.

If glycaemic targets are not reached, consider **intensification of treatment beyond triple therapy** in line with [NG28](#).

Addition of third oral agent sulfonylurea, pioglitazone or DPP-4 inhibitor or initiation of insulin.
Seek specialist advice from STH Diabetes team at this stage.

Box 1: Lifestyle advice

Signpost to [Diabetes UK website](#) and [Healthy Living programme](#). Give advice about diet and activity and assess patients support needs.

Use Sheffield Teaching Hospital diabetes [resources](#) for lifestyle and dietary information.

This stage is key to building a strong, therapeutic relationship. **Consider;**

- Weight and diabetes stigma to avoid blaming or shaming. Visit <https://www.dstigmatize.org/stigma/>
- The impact of your words on the person with diabetes. [Language and Diabetes guide](#)
- Setting SMART goals (specific, measurable, achievable, relevant, time specific) to build confidence, enhancing motivation
- Diabetes, contraception and planning a pregnancy: [Information for patients](#)
- [GLP-1 patient information leaflet](#): Getting the most out of your diabetes treatment

Box 2: Check risks for diabetic ketoacidosis (DKA) before starting treatment with an SGLT2 inhibitor

- Alcohol intake above recommended UK threshold
- Previous episode of DKA
- Unwell with intercurrent illness
- Very low carbohydrate or ketogenic diet (Not appropriate to prescribe SGLT2i if on [NHS Type 2 Diabetes Path to Remission Programme](#))

Sick day rules:

Ensure patients are counselled on how to manage episodes of intercurrent illness. See [NICE Sick day rules](#)

Managing CVD risk

- For lipid management refer to [Lipid Modification for the primary prevention of CVD in Younger Adults with Type 2 Diabetes guideline](#)
- For diagnosis and management of hypertension, refer to [NICE guidance NG136: Hypertension in adults](#)
- For smoking cessation – refer to [NHS Stop Smoking Service - Yorkshire Smokefree](#)

Glossary

BMI- body mass index, **HF**- heart failure, **CKD**- chronic kidney disease, **ASCVD** - atherosclerotic cardiovascular disease, **CVD**- cardiovascular disease, **DSN**- diabetes specialist nurse, **DKA**- diabetic ketoacidosis, **HbA1c**– Haemoglobin A1c

Guideline for the management of young adults with Type 2 Diabetes (18-39 years)

Background

Young-onset type 2 diabetes (T2D) is defined as diabetes onset below the age of 40. It is an aggressive condition with a greater risk of major morbidity and early mortality. The burden of this young subpopulation is increasing, as a result of an increase in obesity. The National Diabetes Audit report shows that T2D is now the predominant phenotype in young adults with diabetes aged between 18-39 (type 2 vs type 1 diabetes, 60% vs 40%) in the UK^{1,2}. This observation is reflected in the young type 2 diabetes population in Sheffield. (Type 2 diabetes vs Type 1 diabetes, 57% vs 43%). This is data obtained from GP clinical systems across the South Yorkshire Integrated Care Board, Sheffield October 2022.

Young-onset T2D is an adverse biological phenotype compared to the older-onset cohort. There is a higher prevalence of obesity, a greater decline in pancreatic function, a higher cardiovascular risk leading to a greater loss in life expectancy.³ There is also a significant burden of mental health issues including depression and diabetes distress.⁴ Despite these adverse clinical features, there is not an established guideline to support the management of this young type 2 diabetes population.

Rationale

The majority of young-onset T2D patients are diagnosed and managed in primary care. With the increasing prevalence of this young population in Sheffield, this guideline has been produced to support reduction of future complications at an economically productive age. This rationale is in line with the key finds from the [National Diabetes Audit \(NDA\)](#) who have produced the first young people with type 2 diabetes report.

Aim

This guideline is designed to address the clinical and biological needs of the young-onset T2D population, including the increasing prevalence of obesity and the need for aggressive glycaemic control and reduction of cardiovascular risk factors. It considers co-morbidities and the impact of a young-onset T2D diagnosis on patient's mental health. This Algorithm aims to support clinicians and prescribers in managing young onset type 2 diabetes to improve health outcomes. The updated [NICE guideline NG28: Type 2 diabetes management in adults](#) (June 2022) does not currently address the clinical heterogeneity of this population. This guideline will address this gap in diabetes management of young-onset type 2 diabetes and pave the way in diabetes care in the UK.

References

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- 4) Dibato J, Montvida O, Ling J et al. Temporal trends in the prevalence and incidence of depression and the interplay of comorbidities in patients with young- and usual-onset type 2 diabetes from the USA and the UK. *Diabetologia* (2022)
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