

# Diabetes remission in the real world

Diabetes remission is achievable at scale in the real world, according to early results from the NHS Type 2 Diabetes Path to Remission programme published in *Lancet Diabetes & Endocrinology*. Of 7540 people referred to the programme between September 2020 and December 2022, a total of 1740 started the total diet replacement section of the programme before January 2022, and 960 (55%) completed the programme. Mean weight loss for the 1710 who started the programme and had follow-up data available was 9.4 kg (8.3%), with a mean weight loss of 10.3 kg (9.3%) among the 945 who completed the programme. Amongst the 945 who completed the programme and had two HbA<sub>1c</sub> measurements, 32% achieved remission, with mean weight loss of 15.9 kg (14.4%), while overall 27% of those who started the programme achieved remission regardless of whether they completed. Remission rates are lower than in trials such as DiRECT and DIADEM-I, despite similar levels of weight loss. The authors highlight that an additional 17% of participants met the HbA<sub>1c</sub> targets for remission but continued on metformin and may otherwise have achieved remission. These early results confirm that type 2 diabetes remission is indeed possible at scale in the real world, outside of clinical trials.



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The Diabetes Remission Clinical Trial (DiRECT) demonstrated that type 2 diabetes remission is possible in primary care with weight loss of more than 10–15 kg, achieved using an initial 12–20 weeks of total diet replacement for rapid weight loss followed by food reintroduction and ongoing support. In DiRECT, the intervention group achieved 8.8 kg greater weight loss compared with controls receiving usual care, with 46% achieving remission at 1 year and 36% at 2 years.

Based on these findings, in 2020 NHS England set up the Low Calorie Diet Programme, now called the Type 2 Diabetes Path to Remission programme, to explore whether such dietary interventions and support provided by a variety of independent providers is acceptable, achievable and effective in inducing type 2 diabetes remission at scale outside of clinical trials. In this study, Jonathan Valabhji and colleagues report on the early outcomes of the first 7540 people referred to the programme between September 2020 and December 2022.

## The study

The primary outcome was type 2 diabetes remission at 1 year, defined as two HbA<sub>1c</sub>

measurements under 48 mmol/mol (6.5%) recorded at least 3 months apart, with no glucose-lowering medication prescribed from the 3 months prior to the first HbA<sub>1c</sub>, and with the second HbA<sub>1c</sub> recorded 11–15 months after the start of the programme.

Secondary outcomes were:

- Change in body weight (in kg and percent) at 12 months.
- The proportion of participants achieving weight loss of 10% and 15% at 12 months.
- The proportion completing the programme.

Results were analysed for all those who started the total diet replacement (TDR) part of the programme before January 2022 and had no missing data (age, sex, ethnicity, deprivation quintile, duration of diabetes, baseline HbA<sub>1c</sub>, BMI, weight, provider, delivery method), whether or not they completed the 12-month programme, and separately for those with no missing data who fulfilled the criteria for completion (had a weight measurement recorded at 12 months).

At referral, 34% of participants were not taking any glucose-lowering medication, 50% were taking one medication and 16% were taking two or more medications. Of those taking medication,

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61% were taking metformin, 10% SGLT2 inhibitors and 5% DPP-4 inhibitors.

### Results

There were 7540 people referred to the programme between September 2020 and December 2022:

- 5115 attended an initial assessment (68%).
- 4340 (58%) started the TDR part of the programme.

In total, 1710 people had no missing data and started TDR before January 2022, and were able to complete 12 months' follow-up by data collection on 31 December 2022:

- They achieved a mean weight loss of 9.4 kg (8.3%).
- 84% completed the TDR and 79% were still involved at the end of the food reintroduction phase.
- Of the 710 who had two HbA<sub>1c</sub> measurements, 190 (27%) achieved remission, with a mean weight loss of 14.8 kg (13.4%).

Of the 1740 people who started TDR before January 2022, 960 (55%) completed the programme, defined as having a weight recorded at 12 months. Of these, 945 had complete data:

- They achieved a mean weight loss of 10.3 kg (9.3%).
- Of the 450 who had two HbA<sub>1c</sub> measurements, 145 (32%) achieved remission, with a mean weight loss of 15.9 kg (14.4%).

For those achieving remission:

- Mean HbA<sub>1c</sub> reduction was 12 mmol/mol.
- Mean weight reduction was 14.8 kg (13.4%). Weight loss was slightly greater, at 15.9 kg (14.4%), for those who completed the programme.
- 68% lost >10% of baseline weight and 39% lost >15% of baseline weight.

In addition, 60 participants had two HbA<sub>1c</sub> values <48 mmol/mol but did not meet the criteria for remission. Of these, 50 were still on metformin, yet 25 had an HbA<sub>1c</sub> <42 mmol/mol (6.0%).

Greater weight loss was associated with higher remission rates. Remission was more likely with shorter type 2 diabetes duration (especially if referred at <1 year since diagnosis), lower initial HbA<sub>1c</sub> and lower glucose-lowering medication needs.

These results confirm that type 2 diabetes remission at 12 months can be achieved using TDR followed by supported food reintroduction in large numbers of people in the real world. The study also provided an opportunity to explore inequalities, which was not possible in the randomised controlled trials. Amongst those referred who had the opportunity to commence TDR, younger people, those diagnosed with type 2 diabetes 4–6 years previously, those of mixed ethnicity and those from less deprived backgrounds were more likely to start TDR, whereas men, older people, those with overweight (not obese) BMIs, and those of Black, Asian and other ethnicities were less likely to start TDR.

### Discussion

Since only 68% of those referred to the programme attended an initial assessment and only 58% chose to start the TDR, as anticipated, this style of remission programme does not suit everyone. Although 84% who started the TDR phase completed it, a further 30% withdrew before the end of the programme. An independent evaluation suggests early withdrawal was mainly due to psychological reasons, multiple life events, living with severe depression and other health issues.

Mean weight loss at 12 months in the intervention group was 10 kg in DiRECT and 12 kg in the DIADEM-I (Diabetes Intervention Accentuating Diet and Enhancing Metabolism) study, with 12-month remission rates of 46% in DiRECT and 61% in DIADEM-I. In comparison, the remission rates of 27% (32% in completers) in these early results from the Path to Remission programme were lower than those seen in the clinical trials despite similar degrees of weight loss, so the authors speculated on why this might be. Overall, 17% of participants who had two HbA<sub>1c</sub> measurements <48 mmol/mol continued on metformin therapy and so did not meet the definition of remission, despite 50% of them having an HbA<sub>1c</sub> <42 mmol/mol. The reasons for this are unknown, but if metformin had been stopped prior to the HbA<sub>1c</sub> measurements, some of these people would likely have been in remission. Additionally, in those who withdrew from the programme, their last weight recorded before withdrawal was carried forward, and this may have overestimated weight

loss, which may also partially account for the relatively low remission rate.

### Implications for practice

Since type 2 diabetes remission is now demonstrably achievable, it is important to discuss remission as a treatment goal, particularly with those who are newly diagnosed or in the early years of their type 2 diabetes journey. If you have access to the Path to Remission programme or a similar national or local initiative, refer all those who are interested. If you do not have access to a formal remission programme, speak to your local dietetic team to see how you can work together to support motivated people to safely achieve remission.

The Path to Remission referral guidance reminds primary care teams of the importance of ongoing reviews, monitoring and regular HbA<sub>1c</sub> checks for those achieving remission, and we need to ensure people understand the value of maintaining their weight loss and attending for reviews, as those in remission are less likely to receive all the care processes (Holman et al, 2023). Review of our National Diabetes Audit data will help us identify people whose attendance for care processes has lapsed, whether they are in remission or not.

Even people with intermediate hyperglycaemia (prediabetes) are at increased cardiovascular risk, and new goals of earlier diagnosis

using more sensitive tests and achieving “prediabetes remission” are being proposed in the medical journals (Bergman, 2024; Jumpertz-von Schwartzberg et al, 2024), encouraging those with prediabetes to aim not just to prevent progression to type 2 diabetes but, rather, to use lifestyle changes and weight loss to reach a “normal” HbA<sub>1c</sub> of <42 mmol/mol (<39 mmol/mol in the US).

We live and work in exciting times where type 2 diabetes is no longer necessarily a lifelong, chronic disease and remission is possible. Even short-term remission has health benefits, and weight loss, however it can be achieved, has a positive impact not just because of remission but also due to improvements in glycaemia, other health conditions and quality of life.

Brief discussion of remission, with immediate referral for those who appear motivated, takes a little extra time in a consultation, but it can change lives. Let’s add a prompt in our diabetes template so this becomes our normal practice. ■

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Early findings from the NHS Type 2 Diabetes Path to Remission Programme: A prospective evaluation of real-world implementation

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