

IMPROVING UNDERSTANDING, PREVENTION, TREATMENT, AND CARE OF PEOPLE LIVING WITH EARLY-ONSET TYPE 2 DIABETES

Diabetes UK welcomes applications for research which seeks to improve understanding, treatment, and care of early-onset type 2 diabetes.

Background

Type 2 diabetes is traditionally thought to occur in middle-age or later life, but there are now increasing presentations of people with type 2 diabetes in childhood (<18 years) and early adulthood (<40 years). This trend is occurring globally, and the UK is no exception – an analysis of English national data revealed that approximately 122,000 adults were living with type 2 diabetes and aged under 40 years and a recent Spotlight National Audit showed that there are approximately 800 children and young people with type 2 diabetes in England and Wales under the care of paediatricians.^{1,2}

Epidemiological studies reveal that the early-onset diagnosis disproportionately affects women, people from minority ethnic groups, and people from socioeconomically deprived areas compared to those diagnosed after the age of 40.³ 80-92% of those with early-onset type 2 diabetes are living with obesity (compared with 56% of older adults), and it remains unclear why some young people living with obesity develop type 2 diabetes whereas others do not.⁴ Genomic studies have demonstrated an association between higher genetic risk and the age of onset of diabetes.^{5,6} Compared to people who develop type 2 diabetes later in life, strategies to prevent type 2 diabetes in childhood and early adulthood requires more study. Some evidence suggests the progression from normoglycaemia to pre-diabetes and from pre-diabetes to type 2 diabetes is accelerated in younger people; therefore, it is not clear which population would benefit from screening and when this should occur.

Compared to people who develop type 2 diabetes later in life, children and young adults (<40 years) with type 2 diabetes appear to have worse outcomes, including: a higher risk of microvascular complications, worse cardiovascular outcomes and greater number of life years lost.⁴ There is evidence that adults with early-onset type 2 diabetes have an unexpectedly large burden of mental illness in young adulthood.⁷ The National Spotlight Audit for Children and Young people with Type 2 Diabetes in 2021 indicated that many children and adolescents with type 2 diabetes do not have the recommended health care checks and that hypertension and hyperlipidaemia often remain untreated, in line with other studies.^{8,9} Similarly, National Diabetes Audit data in adults also show that people diagnosed earlier in life are less likely to receive diabetes care processes and achieve treatment targets as set out in NICE guidelines.³

There are fewer treatment options for children compared to adults with type 2 diabetes; there are fewer drug trials, fewer licenced medications, and children are less likely to receive

behavioural interventions compared to adults.⁸ It is not known what the most effective treatment for children with type 2 diabetes is or what treatment targets should be. Meanwhile, for those in early adulthood, the guidelines for type 2 diabetes are similar to those with later-onset type 2 diabetes, even though younger adults may have different priorities and needs with regards to services.

Education and services originally designed for older age groups may not be suitable for young people and their families who must meet the demands of earlier stages of life, including education and training, developing a career, becoming independent, having busy employment, and moving out of the parental household. Children and young people are also dependent on adult caregivers for their medication, meal planning, financial spending, routine care, and attendance at hospital appointments. Therefore, engaging both the children/young people and their family is crucial to improve health outcomes. Transition to adult services varies between diabetes units, and the optimal age and mode of transition is not known.

The early onset of type 2 diabetes has major implications on menstrual, reproductive, and pregnancy health. Type 2 diabetes and polycystic ovarian syndrome (PCOS) commonly co-exist and share some similar features, yet the underlying links between them are poorly understood. Living with PCOS adds further challenges to the life of a young person living with type 2 diabetes, bringing with it menstrual irregularities, excess hair growth, weight gain, and infertility. The 2020 Pregnancy in Diabetes audit showed that women with pre-existing type 2 diabetes now represent a majority of pregnancies with diabetes.⁹ Women who become pregnant with pre-existing type 2 diabetes have worse pregnancy outcomes, including higher rates of neonatal death, compared to women with type 1 diabetes.¹⁰ Additionally, many type 2 diabetes medications are contraindicated in pregnancy; more evidence is needed to understand risks and benefits of different type 2 diabetes management approaches in people of reproductive age.

Research questions

The study of early-onset type 2 diabetes is in its infancy and although the condition is known to be associated with a high risk for complications at early age, many knowledge gaps remain.

In response, we are seeking applications for studies to address the following research questions:

- How can progression from pre-diabetes to type 2 diabetes be prevented in young people at risk of type 2 diabetes?
- What are effective approaches to educate and engage young people with type 2 diabetes and their families with treatment recommendations?
- What are the needs, views, and experiences of people with early-onset type 2 diabetes with respect to diabetes remission and weight management services?
- What are effective approaches to reduce health inequalities for young patients with type 2 diabetes, including inequalities related to ethnicity and socioeconomic deprivation?
- What is the prevalence of eating disorders, diabetes distress, and depression in early-onset type 2 diabetes and what interventions may be effective in addressing these conditions?
- How does stigma impact people with early-onset type 2 diabetes and how can this be addressed?
- What is the optimal service model to support young adults with type 2 diabetes?
- What interventions can improve pregnancy outcomes in women of child-bearing age with type 2 diabetes at a population, practice, and/or individual level? What are effective approaches to type 2 diabetes management in people who are planning to get pregnant?

Funding

Diabetes UK invites research proposals that address these knowledge gaps in line with our project grant scheme which provides funding of up to £500,000 over five years.

We recognise that early-onset type 2 diabetes is prevalent in certain disadvantaged groups and would welcome proposals that address health inequality in those groups.

Acknowledging this is an understudied area, we are keen to provide seed funding for early-stage research including pilot, feasibility, and qualitative studies, as well as larger project proposals.

Applicants are encouraged to show evidence of substantial patient and public involvement in all stages of the development and delivery of their project, with recognition that early-onset type 2 diabetes disproportionately affects people from minority ethnic groups and those from socioeconomically deprived areas.

Deadline

1 December 2023 17:00 hrs (Committee meets May/June 2024)

How to apply

Apply for a Diabetes UK grant through our online portal and select *“Improving understanding, treatment, and care of early-onset type 2 diabetes”*

For further details please contact the Diabetes UK Research team at research@diabetes.org.uk

Application assessment process

All applications received under this highlight notice will be assessed through the Diabetes UK standard assessment procedure for Project grants and will be considered in competition with all applications submitted.

Applications will be assessed by the scientific panel on the following criteria:

- Potential difference the research will make to the lives of people living with and at risk of diabetes.
- Scientific excellence and potential impact.
- Track record of the applicants.
- Value for money.

Applications will be assessed by the Grants Advisory Panel on the following criteria:

- Relevance to people with diabetes and its potential impact.
- The timescale on which the project could make a difference to people living with and at risk of diabetes.
- The extent of involvement of people with diabetes in the development and the management of the study.

References

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