

NIH Launches Large Study to Tackle Type 2 Diabetes in Young People

Effort aims to identify risk factors for youth-onset diabetes to improve prevention and treatment.

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The National Institutes of Health has launched a nationwide consortium to address the dramatic rise in youth diagnosed with type 2 diabetes over the past two decades, a trend that is expected to continue. The effort aims to advance understanding of the biologic, social, and environmental drivers of youth-onset type 2 diabetes, with the goals of determining which children are at highest risk for developing the disease and how to better prevent, screen for, and manage type 2 diabetes in young people.

“Our children who are overweight or have obesity are at risk, but we don’t know how best to identify the children who will progress to type 2 diabetes,” said Rose Gubitosi-Klug, MD, PhD, study lead, and chief of pediatric endocrinology at Case Western Reserve University/Rainbow Babies and Children’s Hospital, Cleveland. “This study will bring us closer to our goal of prevention of type 2 diabetes in future generations of youth.”

The observational study is funded by the NIH’s National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and builds on previous NIDDK-funded research indicating that youth-onset type 2 diabetes is more challenging to treat and progresses more aggressively compared to adult-onset type 2 diabetes. In youth with type 2 diabetes, good blood glucose control is harder to achieve, and the ability of the pancreas to secrete insulin declines much more rapidly. Many young people with type 2 diabetes also don’t respond well to metformin, the drug most commonly used as the first-line treatment for diabetes in adults. In addition, youth-onset type 2 diabetes is associated with earlier development of diabetes-related complications, such as damage to the eyes, kidneys, and nerves.

“These factors all create a picture of a disease that is much more aggressive in youth than in adults, but we don’t understand what drives these differences,” said Barbara Linder, MD, PhD, NIDDK program director who is overseeing the study. “Consequently, young people are developing devastating complications of the disease during what should be the most productive years of their life.”

The study will aim to identify unique drivers of youth-onset type 2 diabetes distinguishing it from the disease in adults, which will help clinicians better understand which children will develop the

disease and guide more effective, targeted prevention and intervention strategies.

Study sites across the country will recruit 3,600 participants, ages 9 to 14, who are considered at risk for developing type 2 diabetes. They must have started puberty, have overweight or obesity, and have high-normal to above-normal hemoglobin A1c (HbA1c) levels but not high enough for a diagnosis of diabetes. The participants will reflect the U.S. population of youth with type 2 diabetes, including people from diverse racial and ethnic, socioeconomically disadvantaged, and underserved rural populations.

The research team is also seeking extensive input from youth, young adults, and parents with lived experience of type 2 diabetes on both study design and conduct, including how to best recruit and retain participants, how frequently participants should be seen during the study, what questionnaires should be used to collect data, and more.

In addition to looking at biological factors, the study team will gather comprehensive data from participants and their families to understand what social and environmental factors may be adversely contributing to health disparities and poor outcomes among youth with type 2 diabetes. Research has suggested that these social determinants of health—the conditions in which people are born, grow, work, live, and age—have a powerful influence on shaping health outcomes. For example, people without access to healthy food and safe places to engage in physical activity may be more likely to develop obesity, which is associated with type 2 diabetes.

“Most children we currently consider ‘at-risk’ for developing type 2 diabetes will not actually do so, so we need to better understand what factors define who is at risk and would benefit from targeted prevention strategies,” said Dr. Linder. “These efforts are critical to lessen the immense burden, not just on young people and their families, but also the U.S. healthcare system, arising from the growing numbers of youth living with this disease and its debilitating complications.”

For more information about the study, known as DISCOVERY of Risk Factors for Type 2 Diabetes in Youth, please visit discovery.bsc.gwu.edu.

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