A comprehensive youth diabetes dataset and interactive portal to boost research and prevention strategies

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Monitoring glucose levels with the OneTouch Ultra 2 kit is a daily routine for many diabetes patients, including youth. In the background, the POND web-portal developed in this study is displayed on the laptop, offering innovative support for diabetes management. Credit: Catherine McDonough and Yan Chak

Li, Icahn School of Medicine at Mount Sinai.

A team from the Icahn School of Medicine at Mount Sinai has developed the most comprehensive epidemiological dataset for youth diabetes and prediabetes research, derived from extensive National Health and Nutrition Examination Survey (NHANES) data collected from 1999 to 2018.

The dataset, revealed through the newly launched Prediabetes/diabetes in youth ONline Dashboard (POND), aims to ignite a new wave of research into the escalating issue of diabetes among young people. The study was published in *JMIR Public Health and Surveillance*.

The newly compiled dataset integrates data on 15,149 youths residing in the United States, aged 12 to 19, covering a range of variables from sociodemographic backgrounds to health statuses, dietary habits, and other lifestyle behaviors relevant to prediabetes and diabetes (preDM/DM). The POND portal invites researchers, health care professionals, and the public to explore these data, facilitating an understanding of factors that may influence youth diabetes risk.

"By providing a detailed view of the risk factors and trends associated with prediabetes and diabetes in our youth, this dataset empowers clinicians and researchers to develop more effective interventions tailored to the needs of this vulnerable population," said Nita Vangeepuram, MD, MPH, Associate Professor of Pediatrics, Population Health Science and Policy, and Environmental Medicine and Climate Science at Icahn Mount Sinai, and clinical expert on the research team.

"The availability of such a comprehensive and accessible dataset is crucial for advancing our understanding of diabetes risk factors in

youths," added Gaurav Pandey, Ph.D., Associate Professor of Genetics and Genomic Sciences, and Artificial Intelligence and Human Health, and co-senior author of the study.

"It allows researchers to apply advanced statistical and machine learning methods to uncover patterns underlying this serious disorder that were previously obscured due to a lack of publicly available comprehensive data."

The development of the dataset and the POND web portal by co-first authors Yan Chak Li, MPhil, and Catherine McDonough, MS, underscores Mount Sinai's commitment to accessible, actionable health data and to transparency of the methodology. By allowing users to interact with and analyze this comprehensive dataset, POND serves as a critical tool in the global fight against youth diabetes.

"Our findings have unveiled both established and novel variables linked to youth preDM/DM, emphasizing the hypothesis-generating value of this dataset and its potential to transform future research and develop targeted prevention strategies," added Bian Liu, Ph.D., Associate Professor of Population Health Science and Policy, and Environmental Medicine and Climate Science, and co-senior author of the study.

"It's our hope that POND will not only foster more detailed studies, but also drive innovations in how we manage and prevent diabetes among younger populations."

The urgency of this research is amplified by the anticipated rise in diabetes diagnoses among young people worldwide, marking a significant public health concern. The research team's efforts to streamline and democratize access to critical health data through POND could lead to breakthroughs in how diabetes is understood and addressed in youth populations.

Provided by The Mount Sinai Hospital

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