

Researchers find no difference in rate of childhood diabetes in Ontario during COVID-19 pandemic

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A new study from ICES and The Hospital for Sick Children (SickKids) finds no overall difference in the relative rate of childhood diabetes in

Ontario during the first 18 months of the COVID-19 pandemic.

Recent studies have raised concerns that COVID-19 infection may increase the risk of diabetes in children. However, the methods and findings of these studies have been called into question, as there is no clear or proven biological explanation for why a COVID-19 infection might cause the onset of diabetes.

To examine the changes in the incidence of diabetes in children during the pandemic, a large population-based study was undertaken in Ontario, Canada. Published in *JAMA Network Open*, the study included 2.7 million children between ages 1 and 18 in 2021 and compared this group to pre-pandemic and early pandemic cohorts. The outcome of interest was a new diabetes diagnosis (type 1 and type 2) between March 2020 and September 2021.

"We found no overall increase in new diabetes diagnoses, but did show that there were fewer cases documented early on in the pandemic," says Dr. Astrid Guttmann, senior author of the study, Chief Science Officer at ICES, and staff pediatrician and Senior Scientist in the Child Health Evaluative Sciences program at SickKids. "This was followed by an increase later in the pandemic, suggesting possible delays in the diagnosis of diabetes and a catch-up effect."

Specific findings include:

- No overall difference in the observed vs. expected rates of new cases of diabetes (relative rate of 1.09, 95% CI 0.91–1.30)
- A decrease in the rate of new-onset diabetes in the first three months (March to May 2020) of the pandemic (15–32% lower)
- An increase in the rate of diabetes diagnoses from February to July 2021 (33–50% higher)

Although the researchers could not differentiate between type 1 and 2 diabetes, 95% of Ontario children and youth with diabetes are diagnosed with type 1 diabetes. Further, the data were collected prior to the emergence of the omicron variant and do not cover the time during which there were high rates of infection in children with variants of concern. Estimates have shown that 3.3% of Ontario children were infected with COVID-19 between November 2020 and April 2021.

Given these limitations, additional long-term, population-based studies are needed to examine any potential direct or indirect association between COVID-19 infection and diabetes.

"Our study is definitely not the final word on this," says Dr. Rayzel Shulman, Adjunct Scientist at ICES, staff physician in the Division of Endocrinology and Scientist in the Child Health Evaluative Sciences program at SickKids. "However, our findings call into question whether a direct association between COVID-19 and new-onset diabetes in children exists."

The study, "Trends in incidence of [diabetes](#) in [children](#) during the COVID-19 [pandemic](#) in Ontario, Canada, March 2020 to September 2021," was published in *JAMA Network Open*.

More information: Trends in incidence of diabetes in children during the COVID-19 pandemic in Ontario, Canada, March 2020 to September 2021, *JAMA Network Open* (2022). jamanetwork.com/journals/jamanetworkopen.2022.23394

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