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Background

SARS-CoV-2 variants have an impact on the outcome of infection in adults, however, their influence on COVID-19 in children is still insufficiently studied.

AIM: to describe the outcome of COVID-19 in children during the original, Alpha, Delta, Omicron BA.1/BA.2 and BA.4/BA.5 variant periods.

Methods

- **Study population:** all Estonian patients aged <19 years with SARS-CoV-2 positivity and/or COVID-19 diagnosis (ICD-10 codes U07.1, U07.2),
- **Time period:** 27/Feb/2020 to 01/Mar/2023.
- **Data source:** the Estonian Health and Welfare Centre's database and University of Tartu sequencing studies.
- **COVID-19 wave definition:** a period when 50% of the genotyped samples belonged to the respective genotype.
- **Outcome measures:** incidence of type I diabetes (T1D), MIS-C, long-COVID, hospital and intensive care.
- This work is part of the **VERDI project** (101045989), funded by the European Union.

<https://verdiproject.org/>

Results

- 145 922 cases of COVID-19 in 127 277 children (51.2% male; median age 10 yo).
- **The main results** (Figure 1):
 - Rate of **COVID-19 hospitalizations** was highest during Omicron BA.1/BA.2 and BA.4/BA.5 periods;
 - **Long-COVID** was more frequent during BA.1/BA.2 period.
- **Incidence of T1D** in Estonian children increased significantly (Figure 2) during 2021 and 2022 in comparison to pre-COVID years.

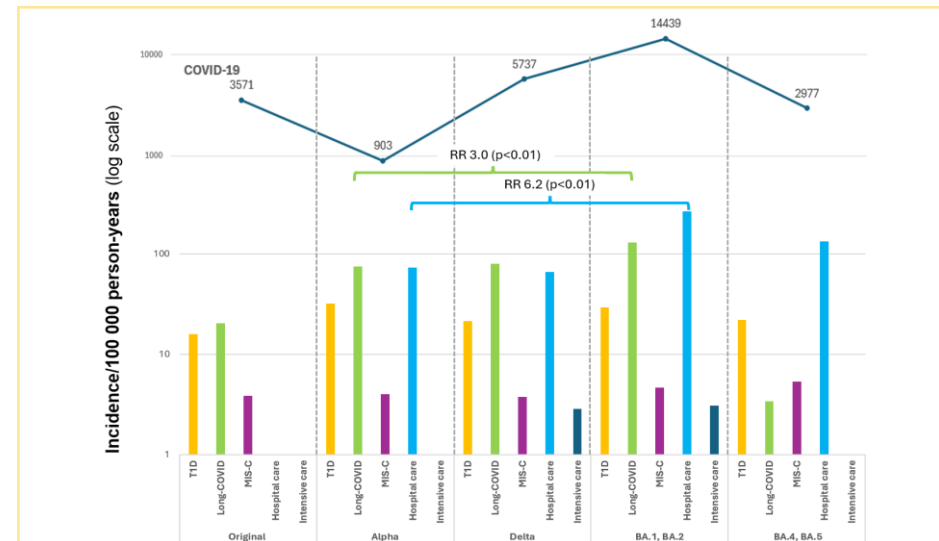


Figure 1. The main outcome measures during 5 SARS-CoV-2 variant periods.

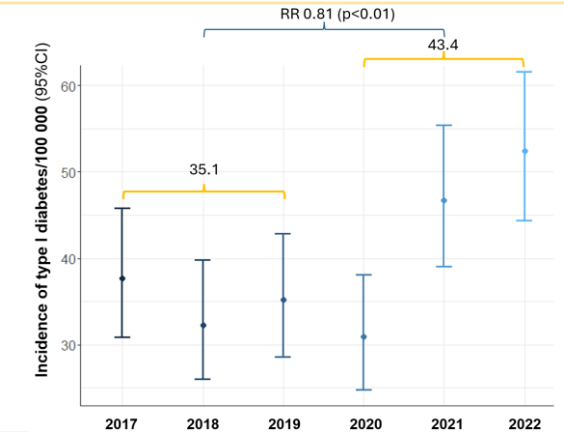


Figure 2. Incidence of T1D in Estonian children (average value of a 3-year period is in yellow).

Conclusion

The outcome of SARS-CoV-2 infections changed during the pandemic: with the increase of the incidence of COVID-19 during BA.1/BA.2 SARS-CoV-2 period, the rate of hospitalizations and incidence of long-COVID cases increased.

The increase in the incidence of newly diagnosed T1D was similarly high in 2021 and 2022.