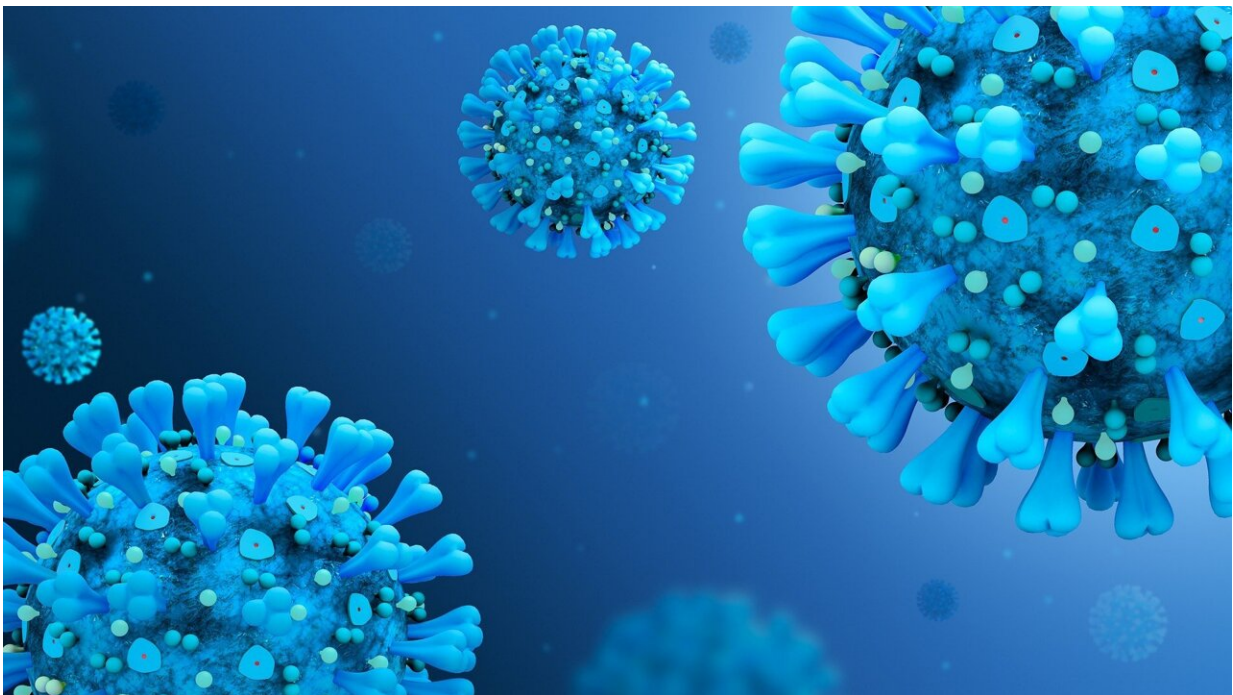


Report: Emergence of the alpha variant did not lead to more severe disease in children admitted to hospital

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Credit: Pixabay/CC0 Public Domain

A new study, published in the journal *Paediatric Research*, provides evidence that the number of school-age children admitted to hospital with coronavirus did not rise significantly in the second wave of the disease when compared with the first wave in the UK as previously

thought, despite changes in variant, relaxation of shielding and return to face-to-face schooling.

Background

Children and young people (CYP) were significantly less affected than adults during the first wave of the COVID-19 pandemic, with regards to case numbers, disease severity, hospital admissions and death.

The reasons for the predominantly mild disease course in CYP are not yet well understood, although several hypotheses have been proposed. Whilst the clinical profile of CYP with symptomatic SARS-CoV-2 infection (COVID-19) shares similarities with other respiratory viruses, the virus also has unusual presentations in the pediatric population.

In the United Kingdom, the SARS-CoV-2 pandemic has been considered as a series of waves with the first wave spanning the beginning of March 2020 to the end of May 2020 (peaking in early April) and the [second wave](#) from the beginning of September 2020 to the end of April 2021 (peaking in early January).

A significant amount of knowledge was gained about the clinical characteristics and outcomes of COVID-19 in CYP during the first wave of the pandemic, however, several external factors changed with the emergence of the second wave. Most UK schools were closed during the first pandemic wave in the spring and summer of 2020, with a few remaining open for children of key workers but were mostly open during the subsequent autumn and winter wave of infection.

This policy reflected the view that the educational, social, health and economic benefits of in-person schooling outweighed the harms associated with school transmission of SARS-CoV-2 at that time. During the first wave, some CYP were identified as extremely clinically

vulnerable and advised to shield from all non-essential contact. This advice was removed in autumn 2020. New variants have emerged, including the [alpha variant](#) first detected in Southeast England in September 2020, becoming the predominant variant throughout the UK by the end of December. The alpha variant contains mutations that permit some immune escape in those who had been previously infected, with increased transmissibility and more severe disease with higher rates of hospitalization and death in adults.

The emergence of the alpha variant in England also led to concerns of increased transmissibility in CYP as they formed a higher proportion of total cases in England when compared to the first pandemic wave. This may have been due to the emergence of the variant coinciding with a period when schools were open and subject to increased testing, but the rest of UK society was in "lockdown."

Whether the alpha variant, dominant in the second wave, causes different symptoms or more severe disease in CYP compared to strains circulating in the first wave had not been analyzed in detail.

Study

A team of researchers from the University of Liverpool, University of Edinburgh, Leiden University and Imperial College London, conducted a study to compare UK pediatric SARS-CoV-2 admissions across the first and second pandemic waves, as part of the International Severe Acute Respiratory and Emerging Infection Consortium -World Health Organization, Clinical Characterization Protocol in the United Kingdom (ISARIC WHO CCP-UK).

Results

The researchers found no evidence of increased severity of COVID-19 admissions amongst CYP in the second vs first wave in the UK, despite changes in variant, relaxation of shielding and return to face-to-face schooling. CYP with no comorbidities made up a significant proportion of those admitted. However, they had shorter length of stays and lower treatment requirements than CYP with comorbidities.

They also found that at least 20% of CYP admitted in this cohort had asymptomatic/incidental SARS-CoV-2 infection, that is they were admitted with COVID-19 rather than because of COVID-19.

Calum Semple OBE, Professor of Outbreak Medicine and Child Health at the University of Liverpool, said: "Our research provides evidence suggesting the emergence of the alpha variant did not lead to more [severe disease](#) in CYP in the UK. With the Delta [variant](#) now dominating in the UK, our study serves an exemplar of both the strengths and limitations of large hospital-based studies in informing immediate public health approaches to emerging new variants.

Dr. Olivia Swann, Clinical Lecturer in Paediatrics at the University of Edinburgh, said: "The key strength of our study is in providing a granularity of individual patient data which allows us to look in detail at clinical presentations and outcomes, identify important sources of bias, and provide comprehensive data over time. The key limitation is that this nuanced approach takes time to perform and is outpaced by the rapid evolution of this pandemic. As a result, initial incomplete data is by necessity used to inform policy, while more accurate information may only be gained in retrospect."

The full report, entitled "Comparison of UK pediatric SARS-CoV-2 admissions across the first and second pandemic waves," has been presented to the UK Government's Scientific Advisory Group for Emergencies (SAGE) to inform CYP vaccination policy in the UK.

More information: Olivia V. Swann et al, Comparison of UK paediatric SARS-CoV-2 admissions across the first and second pandemic waves, *Pediatric Research* (2022). [DOI: 10.1038/s41390-022-02052-5](https://doi.org/10.1038/s41390-022-02052-5)

Provided by University of Liverpool

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