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Does Omicron hit kids harder? Scientists are trying to find out

Children are making up a larger proportion of patients hospitalized with COVID than in previous infection waves.

Max Kozlov



Children might be more susceptible to COVID because many have not yet been vaccinated.

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As the highly transmissible Omicron coronavirus variant has swept the globe in the past two months, millions of people have been hospitalized. Children have been no

exception, and, in the United States, they have made up a larger proportion of COVID-19 hospitalizations than at any other time of the pandemic.

Such paediatric hospitalizations might seem concerning, but estimates show that **the individual risk of a child with Omicron being hospitalized is, in fact, lower – by one-third to one-half – than it was when the Delta variant was dominant.** And hospitalized children are **not presenting with any more severe illness than they were with other variants,** says Michael Absoud, a specialist in women and children's health at King's College London. Preliminary UK data show that although there has been an increase in the proportion of children hospitalized with COVID-19 has increased during the Omicron wave – especially those under the age of one – **the children have required fewer medical interventions, such as ventilators and supplemental oxygen.**

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These findings mirror the trend in the general population: Omicron seems less likely than Delta to cause hospitalization or death, especially in immunized and younger populations. But scientists are still trying to work out why Omicron has led to disproportionately more hospitalizations in children. In the United States, for example, **children make up about 5% of all COVID-19 hospitalizations – a proportion up to four times higher than that of previous coronavirus waves.**

One potential explanation is that the variant's **extremely high transmissibility,** when coupled with a **lack of built-up immunity** from vaccination or past infection, leaves children more vulnerable to Omicron, compared with adults who have had access to vaccines for months. Most countries have not yet authorized a COVID-19 vaccine for children under the age of 5, and some have not yet offered it to children under 12. Even in the United States, which has authorized COVID-19 vaccinations for 5–11-year-olds, less than one-third of children in that age group have received a jab.

Omicron is less likely to cause severe illness in all age groups. But another possible explanation for the data is that Omicron's multitude of mutations has made the

illness different and perhaps slightly more serious in younger children than in adult populations, says Andrew Pavia, head of the division of paediatric infectious diseases at University of Utah Health in Salt Lake City. As evidence for this theory, Pavia cites early reports hinting that Omicron might not infect lung cells as readily as cells in the upper airways. In general, the lungs are where the coronavirus does much of its damage, and so fewer infected lung cells could mean a less severe illness.

A different infection

But children have relatively small nasal passageways that can easily be blocked, so paediatric upper respiratory infections sometimes warrant extra attention compared with those in adults. Roberta DeBiasi, who heads the division of paediatric infectious diseases at the Children's National Hospital in Washington DC, says that she and her colleagues have noticed an increase in the number of children with 'COVID croup', which is an inflammation of the upper airway that produces a characteristic 'barking' cough. That adds credence to the theory that Omicron might infect children differently from adults.

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But Absoud says hospitals are well equipped to treat children for croup and other symptoms of upper respiratory infection, because viruses such as respiratory syncytial virus send children to hospital with the same symptoms every year.

Even if children generally recover from an acute infection with Omicron, clinicians still worry that they might develop long COVID, in which symptoms persist for months, or a rare but serious condition called multisystem inflammatory system in children (MIS-C). It's too early to assess the effect of Omicron on long COVID symptoms in children, says Absoud, but MIS-C symptoms usually develop two to four weeks after infection.

"We would have started seeing the signal [for MIS-C] by now, and we haven't seen it," he says. That doesn't mean we're in the clear, Absoud adds, because the illness can

take longer to develop. But it is an encouraging sign that there hasn't yet been a wave of children hospitalized for the condition.

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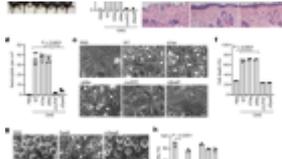
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