

# COVID may be tied to rise in brain infections in children

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COVID-19 may be linked to a rise in bacterial brain infections in

children, a new study suggests.

When the pandemic hit, doctors at Helen DeVos Children's Hospital of Spectrum Health in Grand Rapids, Mich., saw a worrisome 236% rise in these infections and wondered why.

Although rare, these infections can be mild, needing only antibiotics to clear, or severe, requiring surgery and time in an [intensive care unit](#).

"There's a lot of different reasons why that could be related to COVID, but it also could be unrelated to COVID," said senior author Dr. Rosemary Olivero, a pediatric infectious diseases expert at the hospital. "It could just be a brief trend."

To learn if other children's hospitals were seeing the same surge in [brain abscesses](#) and [other types](#) of [pus-filled buildups](#) in the skull, Olivero's team surveyed 109 hospitals for this [new study](#).

Forty-three percent reported an increase in brain infections during the first two years of the pandemic. In a follow-up with 64 hospitals who expressed interest in providing more information, eight responded. All had seen upticks in brain infections.

But why? Researchers said it's possible bacteria that live in the nose, mouth and throat might travel to the brain as the coronavirus weakens a [person's immune system](#).

"There's a really complicated interplay of the immune system and the bacteria that actually already live in those respiratory spaces," Olivero said, adding that many [common bacterial infections](#) like [pneumonia](#) and sinus infections can follow a viral [infection](#).

"So viral infection often comes first, and then the bacterial infection can

result from that initial viral infection," she said. "Most of these more invasive brain infections that we see actually originate from the sinuses."

But, Olivero said, it's also possible that the rise in brain infections was due to children not receiving normal care or scheduled vaccinations during the pandemic.

Olivero and the U.S. Centers for Disease Control and Prevention are delving deeper to see if they can come up with a definitive explanation.

Parents should be aware that signs of brain infections in children can include a persistent [headache](#) and changes in behavior.

"Headache in [children](#) is common, but a really persistent, new and different type of headache should really alert parents and caregivers that there could be something else going on," Olivero said. "Certainly, abnormal behavior, high fevers without explanation, all of those things we need to, you know, dig a little deeper into."

Of course, the best way to avoid these potential complications is not to get COVID in the first place.

"It's really important to think about all of the different effects of COVID-19 of course, and we want to prevent significant COVID-19 infections in any child or adult, so if you're vaccine eligible, certainly vaccination is incredibly important," Olivero said.

But, she added, other routine preventive care is also key.

"Seeing your doctor for the regular checkups, making sure we're up to date on our routine childhood vaccines is super important," Olivero said.

And, she said, parents should trust their instincts.

"If your child's not acting normally. If there's anything that's concerning to you, your pediatrician is there to help—this is what they do," Olivero urged.

Two pediatric experts not involved with the study weighed in.

Dr. Coleen Cunningham, professor and chair of pediatrics at the University of California, Irvine, said these infections might be linked to COVID-19, but this study can't prove that.

"If you have a virus that disrupts your [nasal mucosa](#), theoretically, it's possible that somehow that could be setting you up for a significant bacterial infection," she said. "But this study has not convinced me that that's the case."

Even so, Cunningham emphasized that kids should be vaccinated against COVID-19.

"I would not yet go out on a limb to say this is a reason to get the COVID vaccine," she said. "I think there's lots of other reasons to get the COVID vaccine. But for parents, I would say this [rise in [brain](#) infections] is not something that they should be particularly worried about."

Dr. Rebecca Fisk, a pediatrician at Lenox Hill Hospital in New York City, agreed that this study doesn't prove that COVID caused these infections.

"I do not expect it to affect [patient care](#), except to say that all pediatricians must continue to evaluate both the well child and the sick child thoroughly with a complete examination, good history obtained from the parents and obtain clinically necessary laboratory and radiologic studies based on this," Fisk said.

The findings were published Aug. 5 in the CDC's *Morbidity and Mortality Weekly Report*.

**More information:** Daliya Khuon et al, Notes from the Field: Increase in Pediatric Intracranial Infections During the COVID-19 Pandemic—Eight Pediatric Hospitals, United States, March 2020–March 2022, *MMWR. Morbidity and Mortality Weekly Report* (2022). [DOI: 10.15585/mmwr.mm7131a4](https://doi.org/10.15585/mmwr.mm7131a4)

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