

COVID-19 may result in prolonged infection in immunocompromised children and young adults

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Children and young adults with compromised immune systems, such as those undergoing cancer treatment, may experience a prolonged period of infection with SARS-CoV-2, the virus that causes COVID-19, and the extended duration of infection may increase the incidence of mutations. This case study was conducted by investigators at Children's Hospital Los Angeles and is published in the journal *EBioMedicine*.

Most people are infectious for about 10 days after first showing COVID-19 symptoms. In this study, researchers describe two children and a young adult with acute lymphoblastic leukemia who tested positive for SARS-CoV-2 for months. This is the first report of prolonged infection in a pediatric or young adult population.

"It's significant that these patients continued to have active symptoms and active infections for such a long time," says lead author Jennifer Dien Bard, Ph.D., Director of the Clinical Microbiology

and Virology Laboratory at Children's Hospital Los Angeles. "The large number of pediatric and [adult patients](#) receiving cancer therapy and being actively screened for the virus leads us to conclude that this is a rare occurrence but one that could have public health implications."

SARS-CoV-2 mutates about once or twice a month, according to Dr. Dien Bard. A long period of infection raises concerns about the development of viral mutations. When a virus replicates, it copies its genetic code, but sometimes the virus makes a mistake known as a mutation. Most mutations have no effect on how the virus behaves or on the disease it causes, but some may result in the virus acting differently. For example, the B.1.1.7 SARS-CoV-2 variant, which has 17 mutations, is thought to be more infectious than other virus variants.

Dr. Dien Bard notes there is some evidence to suggest the B.1.1.7 variant may have originated in a person who was immunocompromised and consistently infected with SARS-CoV-2. Yet even in immunocompromised patients, months-long infections are rare.

"We have had many other [immunocompromised patients](#) who have not experienced these prolonged infections, but it's something to be aware of, and hospitals may want to consider changing infection control policies to address this particular special population," says Dr. Dien Bard.

More information: Thao T. Truong et al, Increased viral variants in children and young adults with impaired humoral immunity and persistent SARS-CoV-2 infection: A consecutive case series, *EBioMedicine* (2021). [DOI: 10.1016/j.ebiom.2021.103355](https://doi.org/10.1016/j.ebiom.2021.103355)

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