

Kawasaki disease rates dropped during COVID-19 pandemic

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Jane Burns, MD, is director of the Kawasaki Disease Research Center at UC San Diego School of Medicine. Credit: UC San Diego Health Sciences

Researchers at University of California San Diego School of Medicine, Scripps Institution of Oceanography and Rady Children's Hospital-San

Diego teamed with partners across the United States to track rates of Kawasaki disease (KD) before and during the COVID-19 pandemic.

The study, publishing June 17, 2022 in *JAMA Network Open*, found that KD cases fell by 28 percent in 2020 and remained low during the peak pandemic period. The drop was associated with school closures, masking mandates, decreased ambient air pollution and reduced circulation of respiratory viruses. KD cases rebounded in the spring of 2021, coinciding with the lifting of masking mandates and the return of in-person schooling.

KD is the most common acquired heart disease in children. When untreated, one-fourth of patients develop coronary artery aneurysms that can lead to heart attacks, congestive heart failure or sudden death. Pediatric symptoms include fever, rash, bloodshot eyes and redness of the mouth, throat, hands and feet. While KD affects less than 6,000 children in the U.S. each year, the incidence rate in San Diego County has been on the rise.

The disease continues to puzzle pediatricians, as [its exact trigger\(s\)](#) and mode of entry into the body have yet to be identified. Unlike COVID-19, KD is not contagious. However, the discovery that precautions against coronavirus were effective in reducing KD suggests its trigger(s) are similarly inhaled into the upper respiratory tract. The authors said this finding, once verified, could have a major impact on KD research and prevention.

"The pandemic provided an incredible natural experiment that we were poised to take advantage of," said senior author Jane C. Burns, MD, director of the Kawasaki Disease Research Center at UC San Diego School of Medicine and pediatrician at Rady Children's Hospital-San Diego.

When the pandemic began, UC San Diego was leading a multi-site clinical trial monitoring national KD cases between 2018 and 2020. Burns' team combined this effort with additional data from San Diego to track KD incidence as the pandemic progressed.

"It's a really interesting story," said first author Jennifer A. Burney, Ph.D., associate professor of environmental science at UC San Diego School of Global Policy and Strategy. "We saw a huge decline in numbers, but unlike other respiratory illnesses during the shelter-in-place period, it didn't disappear entirely, and the dynamics were not the same for all subsets of patients."

Rates of KD are typically higher in male and Asian children, and these groups saw especially large drops in cases during the pandemic.

Another group that saw a disproportionate decrease was children ages one through five. This was notable when compared to infants, who saw no significant change in KD rates during this time period. According to Burns, the reason is likely because infant behavior was not as significantly impacted by the pandemic while typical activities and exposures for [older children](#) changed more dramatically in 2020.

The patterns suggest that social behavior affects exposure to the agent(s) that trigger KD, and are consistent with a respiratory portal of entry.

"Kawasaki disease may be caused by a virus, a pollutant, a microbial aerosol or all of the above," said Burns. "The fact that the [pandemic](#) affected each age group differently supports the idea that there are multiple triggers of KD, and different children develop the disease after exposure to different ones."

More information: *JAMA Network Open* (2022). [DOI: 10.1001/jamanetworkopen.2022.17436](https://doi.org/10.1001/jamanetworkopen.2022.17436)

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