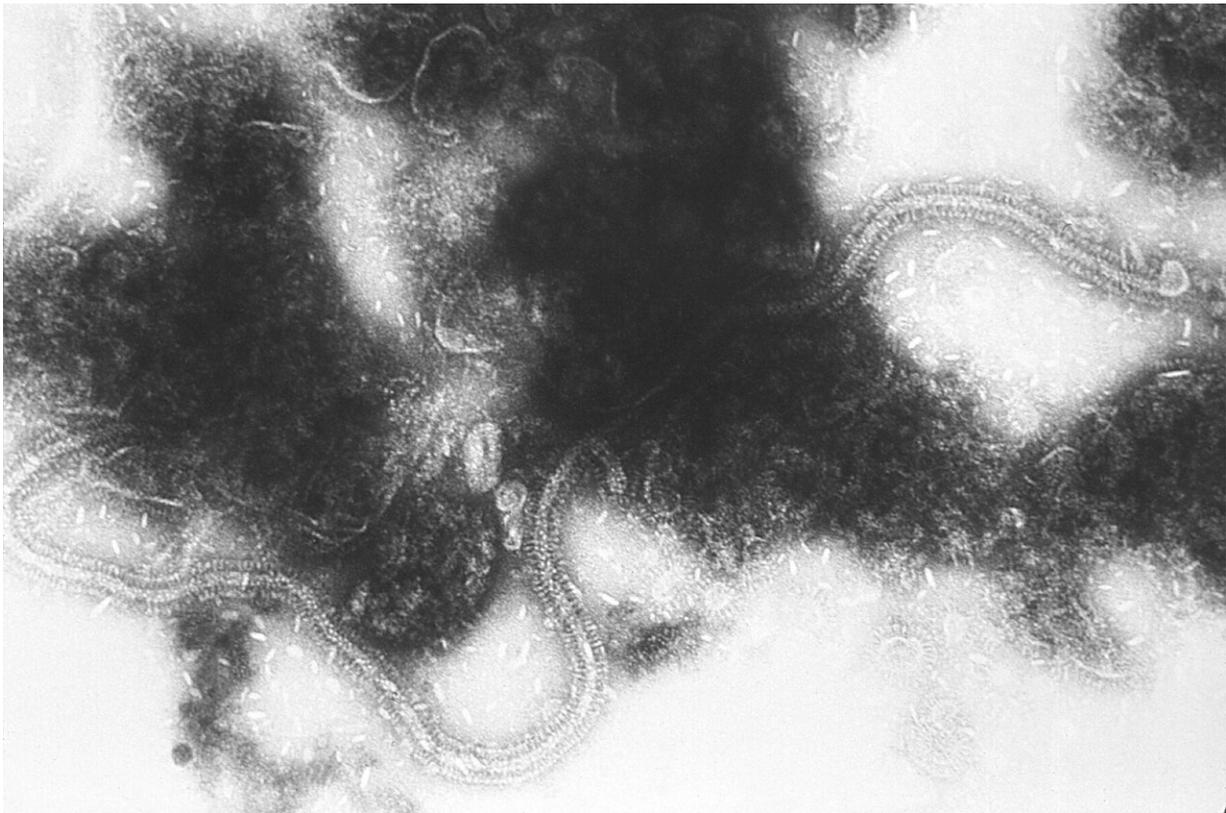


When RSV weighs heavily on the Canadian health-care system

October 4 2023



Transmission electron micrograph of RSV. Credit: CDC/ Dr. Erskine Palmer / Public Domain

Every winter, Canadian pediatric hospitals experience a wave of admissions linked to respiratory syncytial virus (RSV), one of the

leading causes of hospitalization among children. These hospitalizations represent a major burden for the health-care system, and the adoption of preventive measures could certainly alleviate this burden, shows a study carried out by researchers at the Montreal Children's Hospital and BC Children's Hospital Research Institute.

RSV causes [respiratory tract infections](#) such as bronchiolitis and pneumonia. The research, published in *JAMA Network Open*, identifies RSV-related hospitalizations between 2017 and 2022 in 13 Canadian pediatric tertiary care hospitals participating in the Immunization Monitoring Program ACTIVE (IMPACT) of the Canadian Pediatric Society.

These represent over 90 percent of pediatric tertiary care beds in the country. The study also shows the epidemic curve followed by the virus each year, including changes induced by the COVID-19 pandemic.

Nearly half (49.8 percent) of the 11,014 RSV-related hospitalizations recorded during this period were in patients under six months of age. Almost a quarter of all hospitalizations (23.6 percent) resulted in admission to [intensive care](#) and of these, 60.8 percent were in children under six months of age.

"Every year, thousands of children become seriously ill with RSV in Canada. Our results suggest that preventive strategies for infants under six months of age have the potential to substantially decrease the RSV burden in Canadian children," notes Dr. Jesse Papenburg, MD, co-senior author of the study, pediatric infectious diseases specialist at the Montreal Children's Hospital and scientist in the Infectious Diseases and Immunity in Global Health Program at the Research Institute of the McGill University Health Center.

These measures include the potential administration of a long-acting

monoclonal antibody to infants (approved by Health Canada in April 2023), protecting them during their first RSV season.

Vaccination of pregnant women against RSV (currently under review by Health Canada) may also be considered. This would enable [expectant mothers](#) to develop antibodies they could pass on to their babies, who would be protected in the first months of life.

The importance of monitoring

The study also shows that, after a near absence during the 2020-2021 season, RSV-related hospitalizations increased in 2021-2022 (3,170 admissions) compared with the pre-pandemic period (average of 2,522 admissions per year).

Researchers noted an increase in RSV-related hospitalizations starting in summer 2021, particularly in Quebec, Saskatchewan and Alberta. Lower immunity due to the absence of infections in the previous year (likely because of measures to counter the pandemic), combined with children's reengagement in [social activities](#) and relaxation of physical distancing, may explain this increase.

"This research is the first national study to describe RSV hospitalizations in Canadian pediatric hospitals with data from before and during the COVID-19 pandemic. Monitoring RSV [seasonal variations](#) is essential for pediatric health-care capacity planning," says Julie Bettinger, Ph.D., lead epidemiologist for IMPACT, scientist at BC Children's Hospital Research Institute, and professor of pediatric infectious diseases at the University of British Columbia.

For example, in Quebec, a summer 2021 surge in RSV and an abrupt halt in transmission in January 2022 prompted a start and end of the provincial palivizumab program approximately two months earlier than

planned. Palivizumab is an antibody administered to more vulnerable babies because of their prematurity, chronic lung, or congenital heart disease.

"Our results highlight all the importance of both regional and national surveillance for RSV, especially considering that optimal use of monoclonal antibodies and vaccination of pregnant women depends in part on the timing of their administration in relation to virus activity," adds Dr. Papenburg, also assistant professor in the Department of Pediatrics at McGill University.

Case severity and percentage of cases by age, however, remained similar over the five years studied.

More information: Malou Bourdeau et al, Pediatric RSV-Associated Hospitalizations Before and During the COVID-19 Pandemic, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.36863](https://doi.org/10.1001/jamanetworkopen.2023.36863)

Provided by McGill University Health Centre

Citation: When RSV weighs heavily on the Canadian health-care system (2023, October 4) retrieved 28 April 2024 from <https://medicalxpress.com/news/2023-10-rsv-heavily-canadian-health-care.html>

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