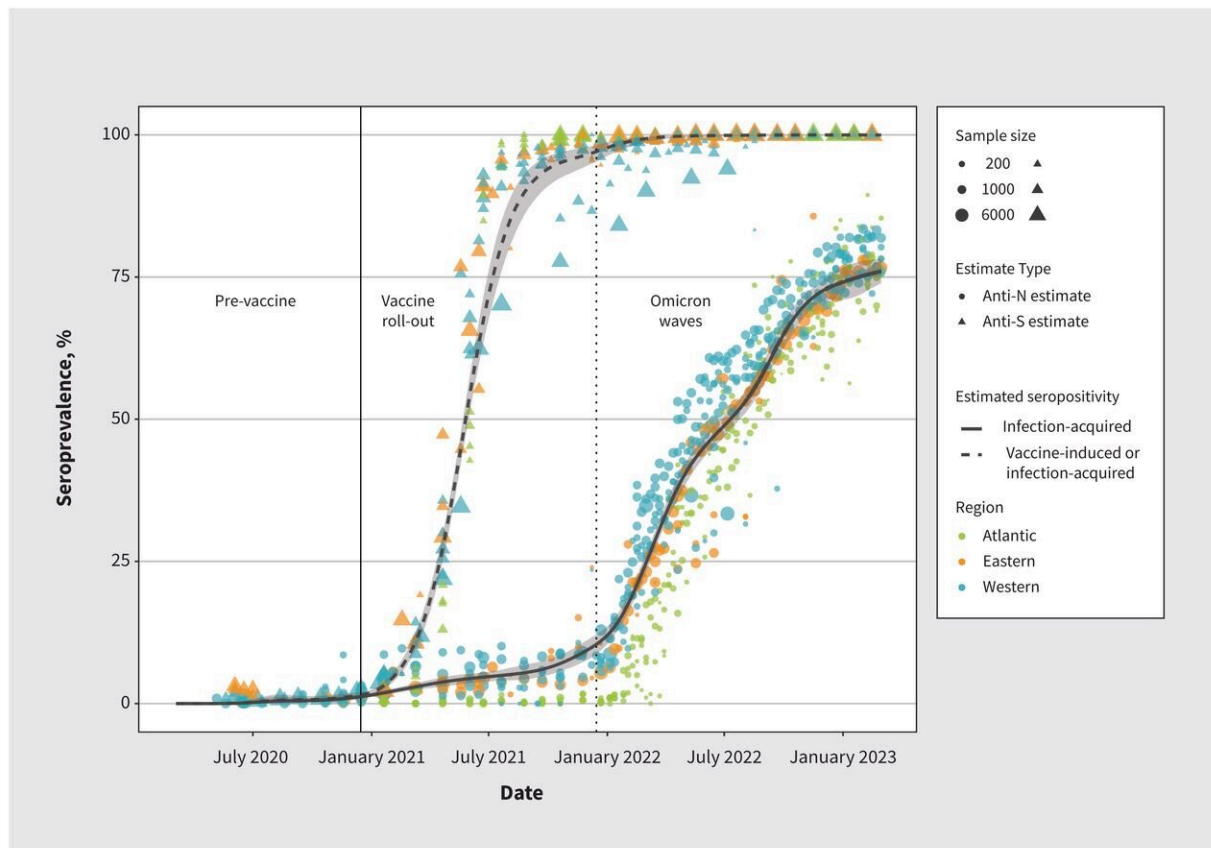


# New study charts exposure to SARS-CoV-2 infection in Canada throughout the pandemic

August 14 2023



SARS-CoV-2 infection–acquired and vaccine–induced seroprevalence in Canada (March 2020 to March 2023). Anti-nucleocapsid (anti-N) and anti-spike (anti-S) seropositivity for all age groups combined, by region. Each point represents a seroprevalence estimate from a project at the midpoint of a sample collection period, including all age groups. Infection-acquired seropositivity was measured as anti-N or anti-S seropositivity before January 2021, but only anti-N seropositivity after December 2020. The solid and dashed black lines represent

the population-weighted mean of the anti-N and anti-S seroprevalence Bayesian model estimates, respectively. The gray bands represent the 95% credible intervals. Atlantic provinces: New Brunswick, Nova Scotia, Newfoundland and Labrador, Prince Edward Island; Eastern Canada: Ontario, Quebec; Western Canada: Manitoba, Saskatchewan, British Columbia, Alberta, the Northwest Territories. Credit: *Canadian Medical Association Journal* (2023). DOI: 10.1503/cmaj.230949

Most people in Canada now have hybrid immunity against SARS-CoV-2 through a mix of infection and vaccination, new research in the *Canadian Medical Association Journal* shows.

Using pan-Canadian blood sample data from a subset of studies backed by the COVID-19 Immunity Task Force (CITF), researchers from the CITF, in collaboration with those from supported studies, estimated changing levels of [seroprevalence](#)—from infection or vaccination, or both—over 3 time periods: prevaccination (March to November 2020), vaccine roll-out (December 2020 to November 2021) and the [omicron](#) waves (December 2021 to March 2023).

In the first 2 phases, seroprevalence from infection was low, with less than 0.3% of the Canadian population showing exposure to the virus in July 2020, reaching 9% in November 2021. With the circulation of the omicron variant, infection-acquired seroprevalence rates changed dramatically.

"Despite high vaccine coverage in Canada, all previous increases in seroprevalence due to infection were dwarfed by the increase caused by the omicron variant. After 6 months of the omicron variant circulating in Canada, infection-acquired seroprevalence had risen to 47% by mid-June 2022, with an average monthly increase of 6.4% per month between December 15, 2021, and July 2022.

That seroprevalence ultimately reached over 75% by March 2023," explains Dr. Bruce Mazer, Associate Scientific Director, Strategy at the CITF, one of the study leads, and Senior Scientist at the Research Institute of the McGill University Health Centre, Montréal, Quebec.

"During omicron, rates of infection-acquired immunity increased faster in younger age groups, with close to 80% seroprevalence in adults under age 25, approximately 75% in ages 25–39 years, 70% in ages 40–59 years, and 60% in those 60 and over by spring 2023," adds study colead Dr. David Buckeridge, Scientific Lead, Data Management & Analysis at the CITF and Professor, School of Population and Global Health, McGill University.

The low infection rates in Canada before omicron were also evident in other high-income countries in Europe and North America.

"[M]any people in Canada have hybrid immunity against SARS-CoV-2, but variations by age and geography and the potential for waning antibody levels suggest that public health policy and clinical decisions will need to be tailored to local patterns of population immunity," the authors conclude.

**More information:** Matthew B. Stanbrook et al, A new policy on the use of artificial intelligence tools for manuscripts submitted to CMAJ, *Canadian Medical Association Journal* (2023). [DOI: 10.1503/cmaj.230949](https://doi.org/10.1503/cmaj.230949)

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