

# An early look at Omicron

■ Cite as: *CMAJ* 2022 January 17;194:E58. doi: 10.1503/cmaj.1095982

Posted on cmajnews.com on December 16, 2021

**W**ithin a month of the initial detection of the Omicron variant of SARS-CoV-2, cases were confirmed in more than 70 countries including Canada. Preliminary data suggested that Omicron is highly contagious and that SARS-CoV-2 vaccines may be less protective against infection with the strain.

## How transmissible is Omicron?

Early reports from the United Kingdom Health Security Agency suggested that people in close contact with Omicron cases were roughly twice as likely to become infected as those in close contact with Delta cases. Others estimated that Omicron is 25%–50% more transmissible than the Delta variant, which in turn was more contagious than the original strain of SARS-CoV-2.

In South Africa, the U.K. and other countries with robust testing systems, new infections were doubling every two or three days in December — “a rate we have not seen with any previous variant,” according to WHO director-general Tedros Adhanom Ghebreyesus.

Omicron became the dominant strain of SARS-CoV-2 in South Africa within three weeks of its detection and became the dominant strain in the U.K. in mid-December. Meanwhile, Canada’s outbreak has lagged “a few days, maybe a week behind” the U.K., according to chief public health officer Dr. Theresa Tam.

## Does Omicron cause more severe illness?

The risks of serious illness and death posed by Omicron were still unclear at the start of 2022.

On Jan. 4, WHO officials noted a “decoupling” of soaring case numbers and low death rates in some places that

may indicate that the variant causes milder symptoms than previous strains of SARS-CoV-2.

Discovery Health, South Africa’s largest private health insurer, claimed in a December press release that people infected with the Omicron variant had a 26% lower risk of hospitalization than those infected with the Delta strain, but the full details of the analysis were not released or peer-reviewed at that time.

The authors looked at data from only the first three weeks of South Africa’s Omicron wave — a period that some critics argued was too short to make any conclusions given time lags between infection, hospitalizations and deaths. Experts have also noted that the findings may be confounded by South Africa’s young population and high rates of past infection — both factors that might reduce individuals’ risk of severe illness from any strain of SARS-CoV-2.

According to Ghebreyesus, “even if Omicron does cause less severe disease, the sheer number of cases could once again overwhelm unprepared health systems.”

## How effective are vaccines against Omicron?

Omicron has a large number of spike protein mutations that may help it evade protective antibodies from vaccination or past infection.

Early reports from South Africa and the U.K. suggested that SARS-CoV-2 vaccines may be less effective against Omicron than the Delta variant. Notably, nearly three in four early Omicron cases in Denmark were breakthrough infections in people who were fully vaccinated with two doses.

Both AstraZeneca’s and Johnson & Johnson’s SARS-CoV-2 vaccines appear to

generate weaker immune responses to Omicron versus earlier strains.

Meanwhile, lab experiments using serum from people who received two shots of Pfizer or Moderna’s mRNA vaccines have shown 25-fold and 50-fold reductions in levels of neutralizing antibody activity against Omicron, respectively.

The good news: a third shot of either vaccine effectively made up the lost ground, boosting antibody activity levels back to what they were against other strains of SARS-CoV-2.

These findings don’t speak to real-world vaccine effectiveness or other aspects of the immune system, like T cell response, which may offer additional protection against severe illness.

Work is underway on an Omicron-specific vaccine — although the United States’ Dr. Anthony Fauci said that variant-specific vaccines may not be necessary depending on the efficacy of booster shots.

While existing SARS-CoV-2 vaccines are likely to have some effectiveness against Omicron, particularly for severe disease, Ghebreyesus warned that “vaccines alone will not get any country out of this crisis.”

“It’s not vaccines instead of masks, distancing, ventilation or hand hygiene. Do it all. Do it consistently,” he explained.

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