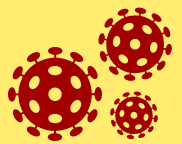


Breakthrough infections: How common are they amongst VCH HCWs and why do they occur?



Great news that as of June 22, 2021, 75% of VCH healthcare workers (HCWs) are fully vaccinated now, as are 93% of medical staff in particular (as of June 30). But vigilance is still needed: fully vaccinated HCWs at VCH have indeed gone on to test positive for SARS-CoV-2, and although they have not necessarily become sick, there is still the risk of transmitting to others who have not been vaccinated or those with immunosuppressive conditions.

Of the 434 VCH HCWs who tested positive between December 15, 2020, and June 22, 2021, two-thirds were unvaccinated or were within 14 days of a first dose; less than a third more than 14 days after a first dose; and only 21 cases (4.8%) occurred more than seven days after a second dose (breakthrough infections), see Table 1. Data from Ontario showed a similar 4.9% of new cases being breakthrough infections as of May 29, 2021.¹

When positive test occurred	Count	Days from last dose to positive test
Unvaccinated (including up to 14 days after the first dose)	291 (67.1%)	--
Partially vaccinated (≥14 days after first dose of vaccine)	122 (28.1%)	Median 53 days (IQR 34-66; Range 14-131) Mean 53.0 days (95% CI 48.6-57.4)
Fully vaccinated (≥7 days after second dose of vaccine)	21 (4.8%)	Median 54 days (IQR 45-85; Range 7-127) Mean 61.6 days (95% CI 48.0-75.1)
TOTAL tested positive (since December 15)	434 (100.0%)	--

Why are these infections occurring?

- No vaccine is 100% effective at preventing infection. The same holds for SARS-CoV-2 vaccines. The available vaccines are more effective for protecting against severe disease and hospitalization than preventing infection.²
- Some SARS-CoV-2 variants may escape neutralization by vaccine-induced immunity.^{3,4}
- Increasing age and immunosuppressive conditions could increase likelihood of a positive test after vaccination.⁵



The bottom line

Even though breakthrough infections **are far less likely to result in severe disease or hospitalization**, they are a reminder of the need for continuing PPE use in clinical care areas. This is most important for medical staff who work among the elderly, immunosuppressed patients, or anyone who may experience severe disease if they become infected.

For additional information:

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3. Hacısuleyman E, Hale C, Saito Y, Blachere NE, Bergh M, Conlon EG, et al. Vaccine Breakthrough Infections with SARS-CoV-2 Variants. *N Engl J Med* [Internet]. 2021 Jun 10 [cited 2021 Jun 19];384(23):2212–8. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMoa2105000>
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6. Goronzy JJ, Weyand CM. Understanding immunosenescence to improve responses to vaccines [Internet]. Vol. 14, *Nature Immunology*. Nature Publishing Group; 2013 [cited 2021 Jun 19]. p. 428–36. Available from: <https://www.nature.com/articles/ni.2588>



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