

# Burden of the COVID-19 pandemic on older Canadians

By September 16<sup>th</sup>, 2022, people aged 70+ in Canada accounted for

# 82%

of all COVID-19 **deaths** and **50%** of all SARS-CoV-2 related **hospitalizations**<sup>1</sup>.



## Why are older people more vulnerable?



### Frailty and older age

mean a weaker immune system<sup>2</sup>



### Underlying medical conditions

often accumulate with age and increase the risk<sup>3</sup>



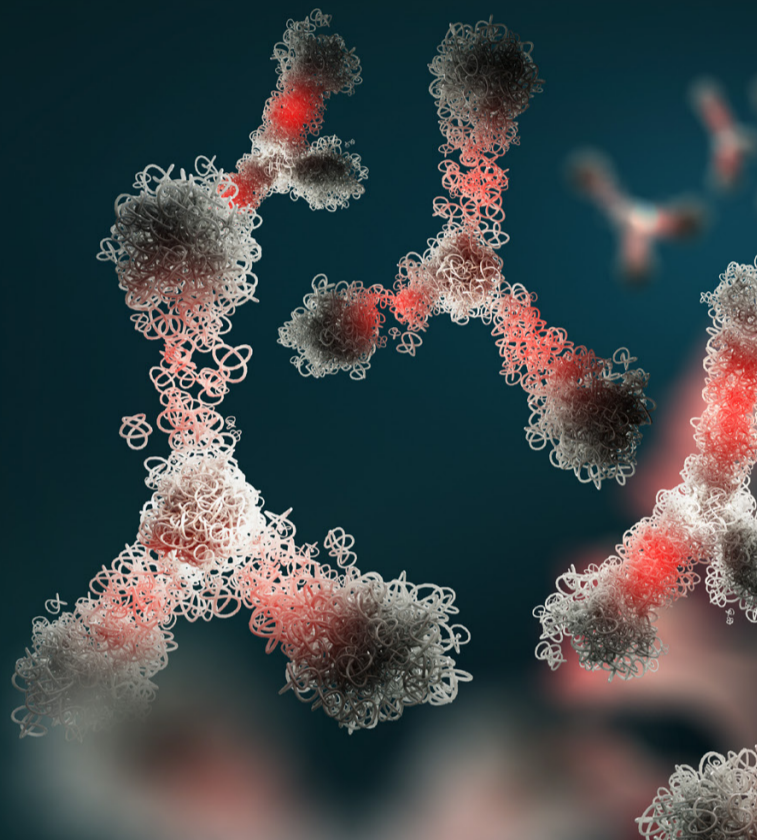
### Communal living in seniors' residences

increases the risk of SARS-CoV-2 outbreaks<sup>4-6</sup>

## Older Canadians need to get all their boosters, as immunity wanes quickly

# 96%

of older adults show **no neutralizing antibodies** 6 months after their third vaccine dose during the Omicron wave<sup>7</sup>.



## Thankfully, continued boosters work well in providing protection



Both mRNA vaccines are very effective, Moderna offers some advantages over Pfizer<sup>8,9,10,11,12</sup>.

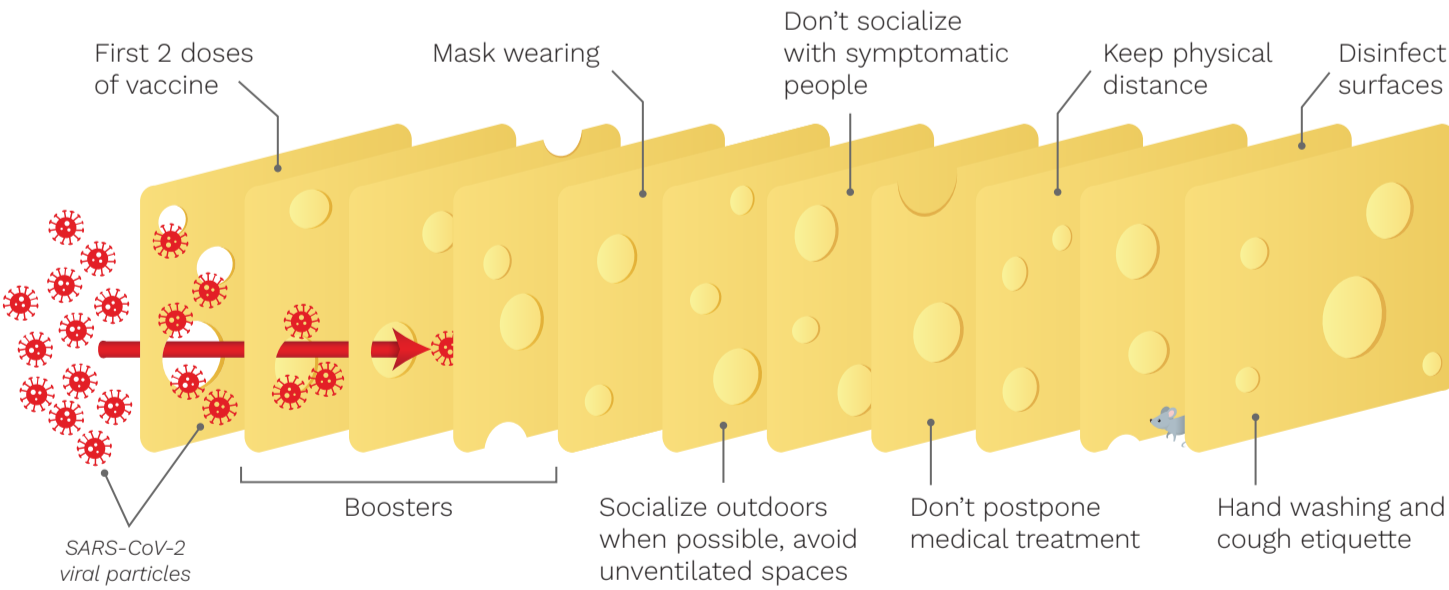
**90%** less risk of **hospitalization** was found in LTC residents without a prior infection who received 3 vaccine doses<sup>9</sup>.

**86%** less risk of **severe outcomes** during Omicron was found in LTC residents who received 4 vaccine doses<sup>13</sup>.

## How do we best protect our older population then?

### Ensure they have multiple layers of protection!

Because one action is not guaranteed to provide full protection against SARS-CoV-2, a layered approach is needed, especially for older people. The Swiss Cheese Model below shows that even if individual layers have gaps or "holes" in their protection, together, they offer the best way of guarding against infection, hospitalization and death.



Adapted from Ian M. Mackay's *The Swiss Cheese Respiratory Virus Pandemic Defence diagram* (Wikipedia)

[Read the full article](#)

## References

- Public Health Agency of Canada. COVID-19 epidemiology update 2022 [Available from: <https://health-infobase.canada.ca/covid-19/>].
- Andrew MK, Godin J, LeBlanc J, Boivin G, Valiquette L, McGeer A, et al. Older age and frailty are associated with higher mortality but lower ICU admission with COVID-19. *Canadian Geriatrics Journal*. 2022;25(2):183-96.
- Banerjee A, Pesea L, Harris S, Gonzalez-Izquierdo A, Torralba A, Shallcross L, et al. Estimating excess 1-year mortality associated with the COVID-19 pandemic in Ontario, Canada: a population-level cohort study. *Lancet*. 2020;395(10238):1715-25.
- Costa AP, Manis DR, Jones A, Stall NM, Brown KA, Boscari V, et al. Risk factors for outbreaks of SARS-CoV-2 infection at retirement homes in Ontario, Canada: a population-level cohort study. *Canadian Medical Association Journal*. 2021;193(19):E672-E80.
- Stall NM, Jones A, Brown KA, Rochon PA, Costa AP. For-profit long-term care homes and the risk of COVID-19 outbreaks and resident deaths. *CMAJ*. 2020;192(33):E946-e55.
- Brown K, Jones A, Daneman N, Chan A, Schwartz K, Garber G, et al. Association between nursing home crowding and COVID-19 infection and mortality in Ontario, Canada. *medRxiv*. 2020.
- Mwimanzhi FM, Lapointe HR, Cheung PK, Sang Y, Yaseen F, Kalikawa R, et al. Brief Report: Impact of age and SARS-CoV-2 breakthrough infection on humoral immune responses after three doses of COVID-19 mRNA vaccine. *medRxiv*. 2022.
- Breznik JA, Zhang A, Huynh A, Miller MS, Nazy I, Bowdish DM, et al. Antibody responses 3-5 months post-vaccination with mRNA-1273 or BNT163b2 in nursing home residents. *Journal of the American Medical Directors Association*. 2021;22(12):2512-4.
- Breznik JA, Rahim A, Kajaks T, Hagerman M, Bilaver L, Colwill K, et al. Protection from Omicron infection in residents of nursing and retirement homes in Ontario, Canada. *medRxiv*. 2022.
- Abe KT, Hu Q, Mozafarhashjin M, Samson R, Manguiat K, Robinson A, et al. Neutralizing antibody responses to SARS-CoV-2 variants in vaccinated Ontario long-term care home residents and workers. *medRxiv*. 2021.
- Self WH, Tenforde MW, Rhoads JP, Gaglani M, Ginde AA, Douin DJ, et al. Comparative effectiveness of Moderna, Pfizer-BioNTech, and Janssen (Johnson & Johnson) vaccines in preventing COVID-19 hospitalizations among adults without immunocompromising conditions - United States, March-August 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70(38):1337-43.
- Paz-Bailey G, Sternberg M, Kugeler K, Hoots B, Amin AB, Johnson AG, et al. Covid-19 rates by time since vaccination during delta variant predominance. *NEJM Evidence*. 2022;1(3):EVID0a2100057.
- Grewal R, Kitchen SA, Nguyen L, Buchan SA, Wilson SE, Costa AP, et al. Effectiveness of a fourth dose of Covid-19 mRNA vaccine against the omicron variant among long term care residents in Ontario, Canada: test negative design study. *BMJ*. 2022:e071502.

September 30,  
2022



COVID-19 IMMUNITY TASK FORCE  
GROUPE DE TRAVAIL SUR L'IMMUNITÉ FACE À LA COVID-19

Information in this infographic was accurate at the time of original publication. Because information about COVID-19 changes rapidly, we encourage you to visit the websites of the Public Health Agency of Canada (PHAC), Health Canada, the World Health Organization (WHO), and your provincial/territorial and local governments for the latest information.