COVID-19 vaccinations and immunity in care homes: Emerging evidence from Chile, the UK and Canada

Présenté par / Presented by:
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July 12, 2021

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Amy Hsu, PhD, is an Investigator at the Bruyère Research Institute, faculty in the Department of Family Medicine at the University of Ottawa, and holds a uOttawa Brain and Mind-Bruyère Research Institute Chair in Primary Health Care Dementia Research. Her research focuses on understanding the care needs of older adults across the continuum of long-term care, from home care to the end of life.

Introduction

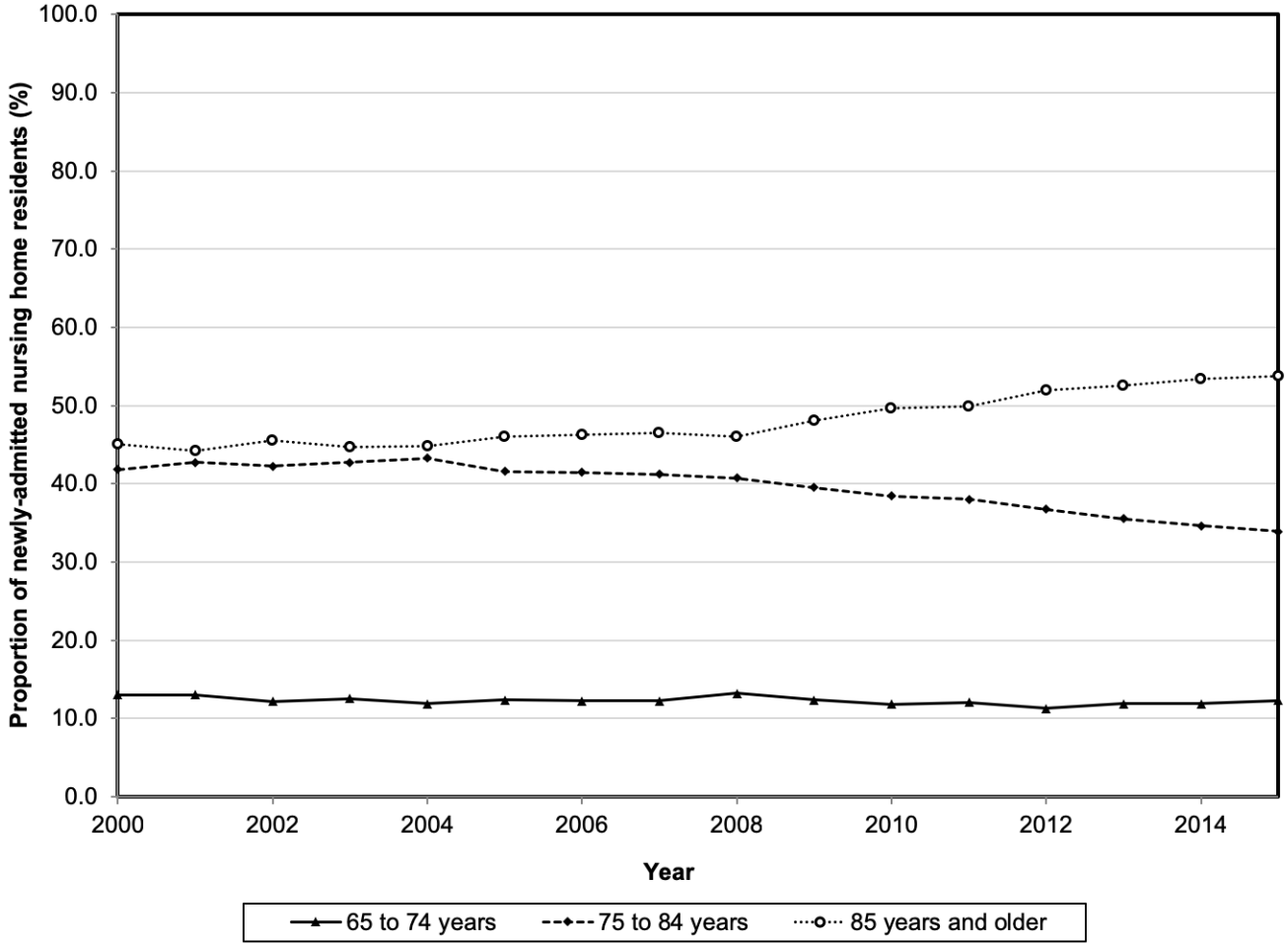
Population in Long-Term Care Homes

Proportion of Canadians aged 80+ living in long-term care homes and residences for senior citizens, by provinces and territories, 2016

	Total population living in long-term care homes and residences for senior citizens, N	Population ≥ 80 years old living in long-term care homes and residences for senior citizens, N	Proportion of residents in long-term care homes and residences for senior citizens who are 80 years of age or older, %
Canada	425,755	313,130	73.5
Newfoundland and Labrador	5,290	3,525	66.6
Prince Edward Island	1,945	1,330	68.4
Nova Scotia	9,800	6,985	71.3
New Brunswick	9,970	6,530	65.5
Québec	146,405	103,385	70.6
Ontario	133,470	101,745	76.2
Manitoba	15,960	11,930	74.7
Saskatchewan	13,350	10,295	77.1
Alberta	41,695	30,680	73.6
British Columbia	47,510	36,560	77.0
Yukon	175	105	60.0
Northwest Territories	135	70	51.9
Nunavut	40	20	50.0

Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016018.

Population in Long-Term Care Homes



Source: Ng R, Lane N, Tanuseputro P, Mojaverian N, Talarico R, Wodchis WP, Bronskill SE, Hsu AT. *Increasing Complexity of New Nursing Home Residents in Ontario, Canada: A Serial Cross-Sectional Study*. J Am Geriatr Soc. 2020;68(6):1293-1300. doi: 10.1111/jgs.16394.

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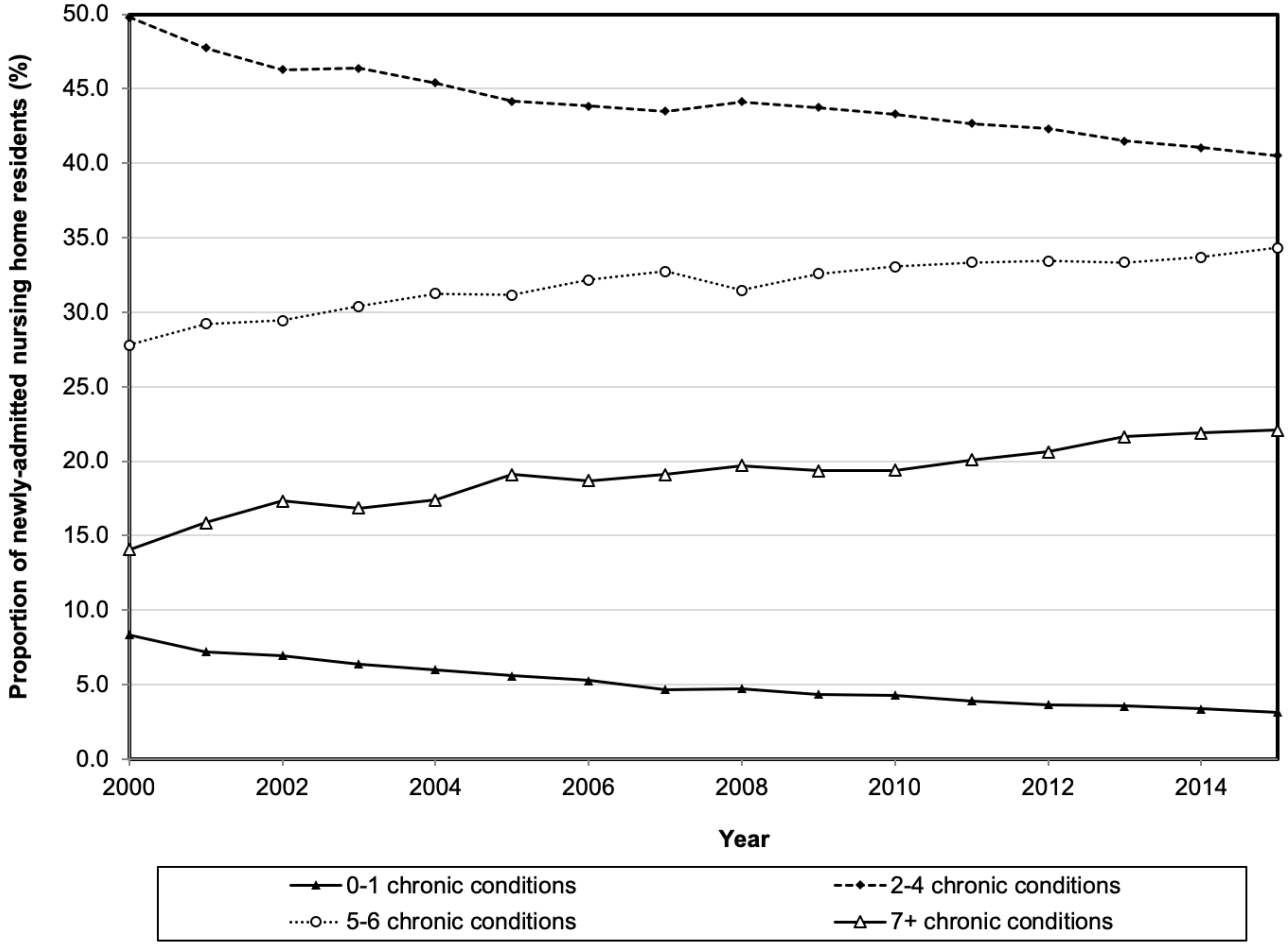
Population in Long-Term Care Homes



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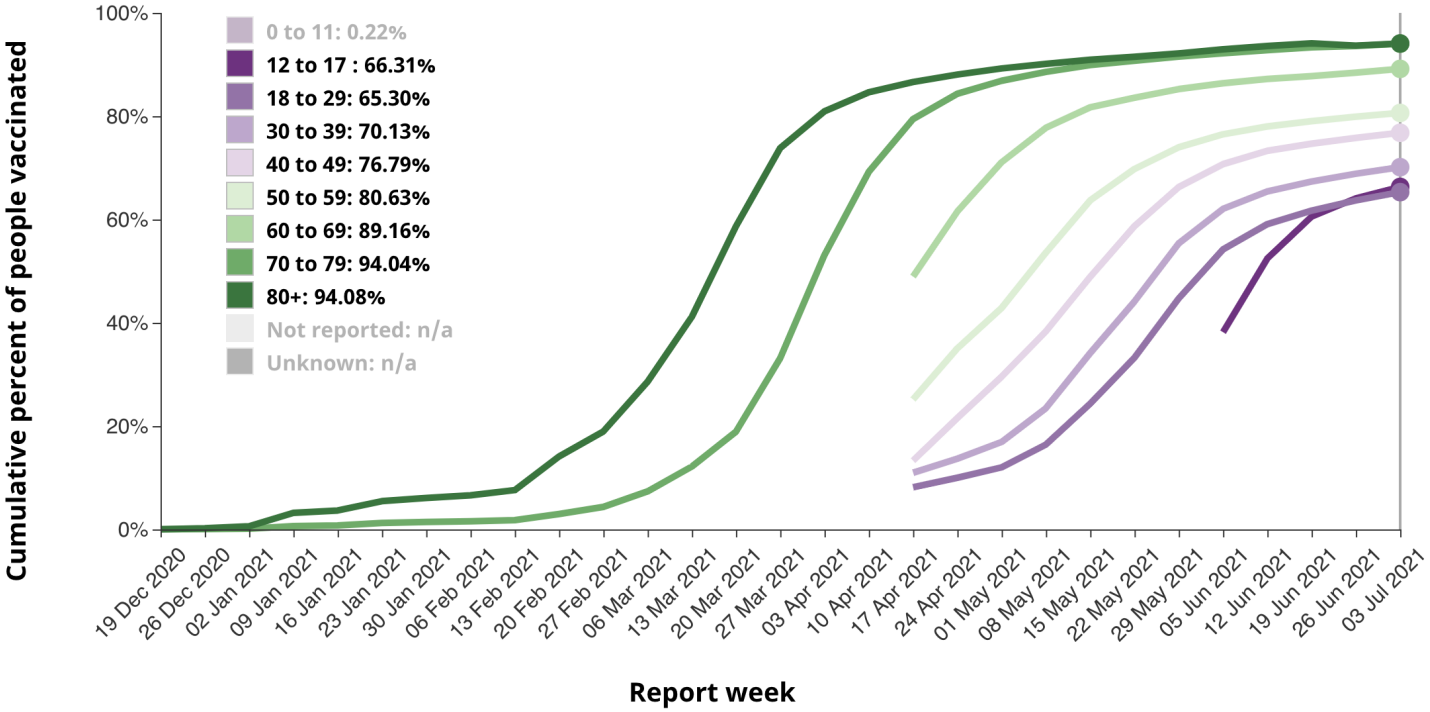
Vaccination in Long-Term Care Homes

Figure 4. Cumulative percent of people who have received at least one dose of a COVID-19 vaccine in Canada by age group and report week, July 3, 2021

Hover over the line graph to see the cumulative number or percent of people vaccinated by age group and report week. Click on an age group to remove it from the graph. Add it back to the graph by clicking on the label again.



Source: Government of Canada. *COVID-19 vaccination in Canada*. https://health-infobase.canada.ca/covid-19/vaccination-coverage/. Accessed 10 July 2021.

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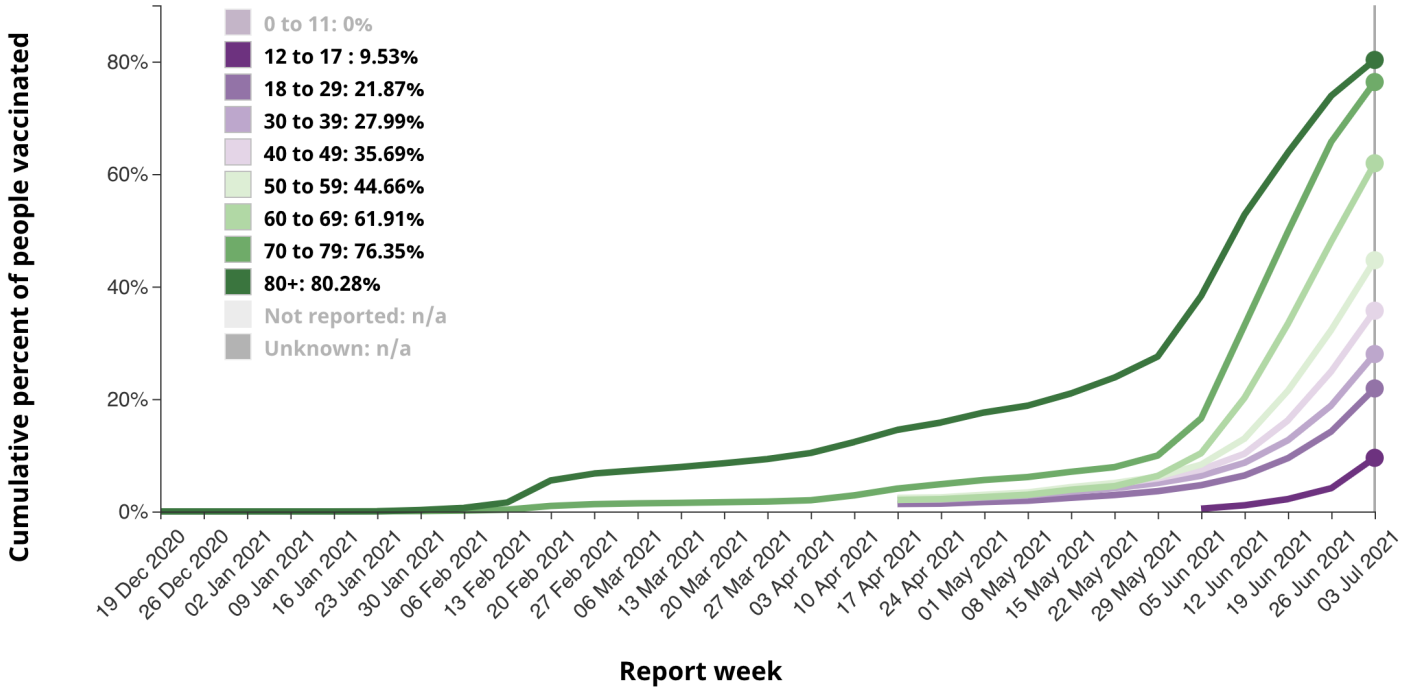
Vaccination in Long-Term Care Homes

Figure 4. Cumulative percent of people fully vaccinated with a COVID-19 vaccine in Canada by age group and report week, July 3, 2021

Hover over the line graph to see the cumulative number or percent of people vaccinated by age group and report week. Click on an age group to remove it from the graph. Add it back to the graph by clicking on the label again.



Source: Government of Canada. *COVID-19 vaccination in Canada*. https://health-infobase.canada.ca/covid-19/vaccination-coverage/. Accessed 10 July 2021.

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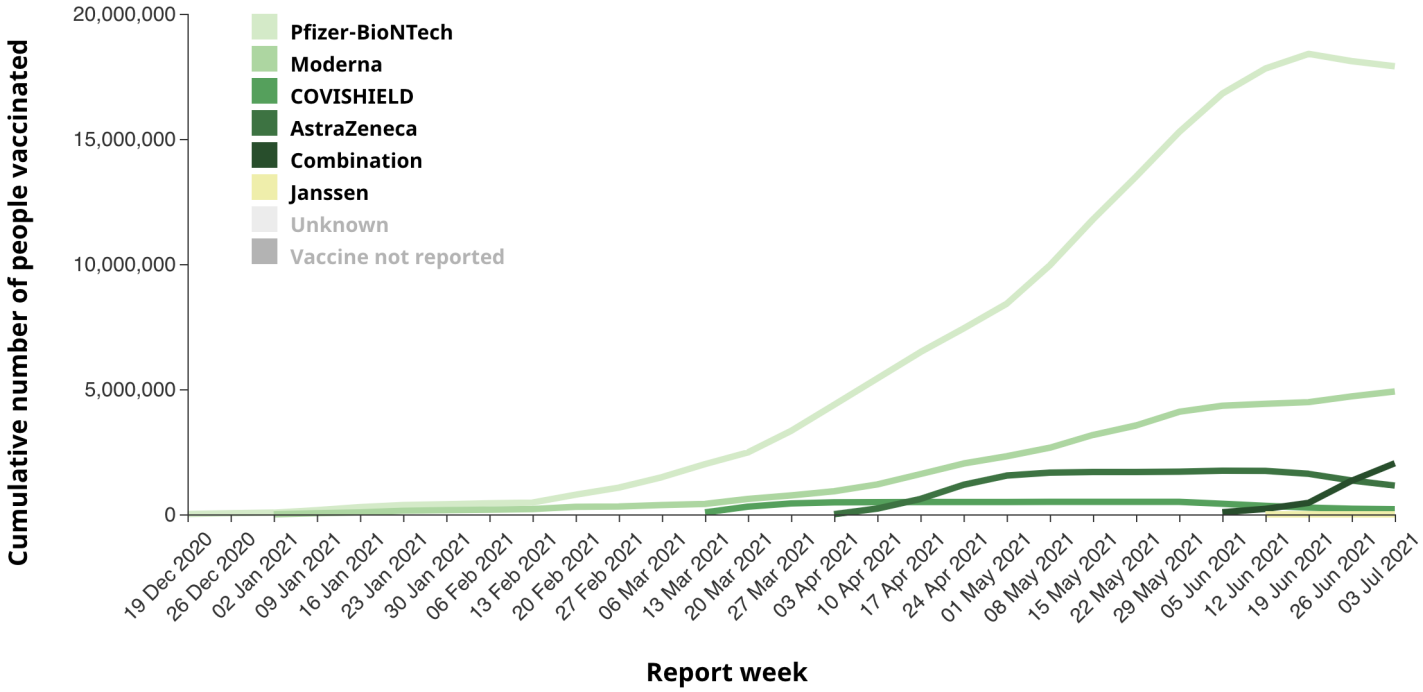
Vaccination in Long-Term Care Homes

Figure 5. Cumulative number of people who have received at least one dose of a COVID-19 vaccine in Canada by vaccine product and report week, July 3, 2021

Hover over the line graph to see the cumulative number or percent of people vaccinated by vaccine product and report week. Click on a vaccine to remove it from the graph. Add it back to the graph by clicking on the label again.



Source: Government of Canada. *COVID-19 vaccination in Canada*. https://health-infobase.canada.ca/covid-19/vaccination-coverage/. Accessed 10 July 2021.

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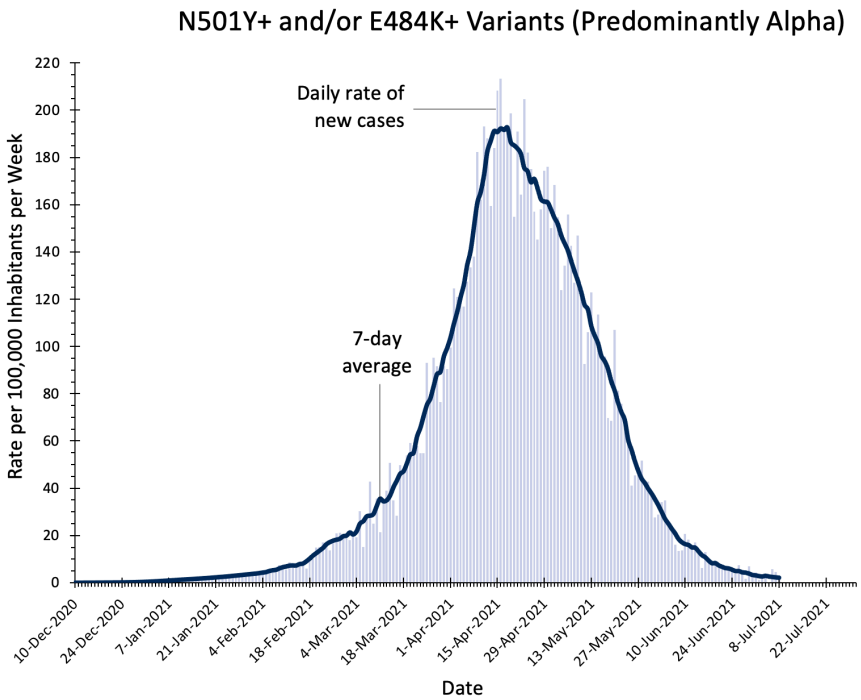
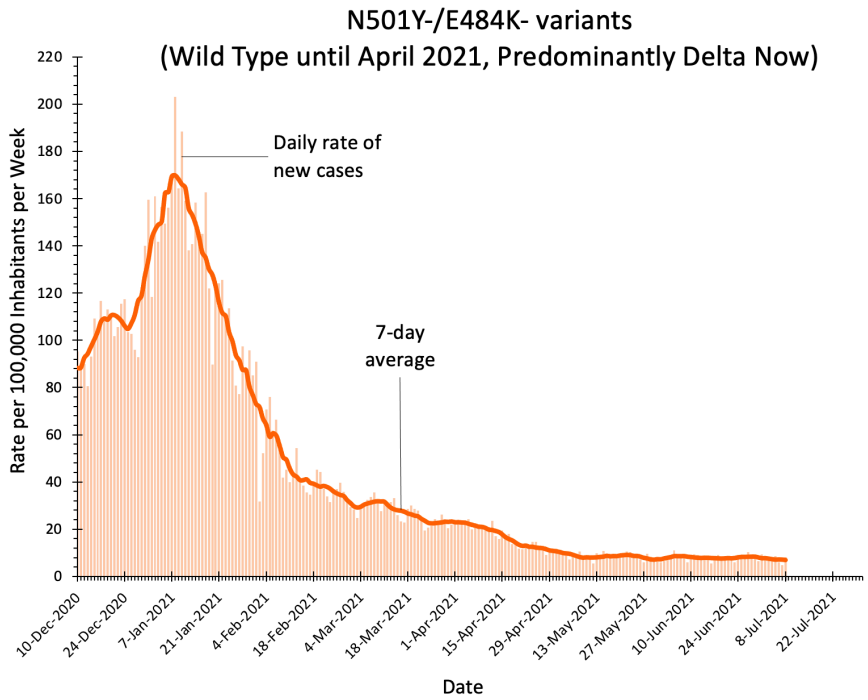
Percentage of Cases Caused by Variants





Source: Ontario COVID-19 Science Advisory Table. https://covid19-sciencetable.ca/ontario-dashboard/

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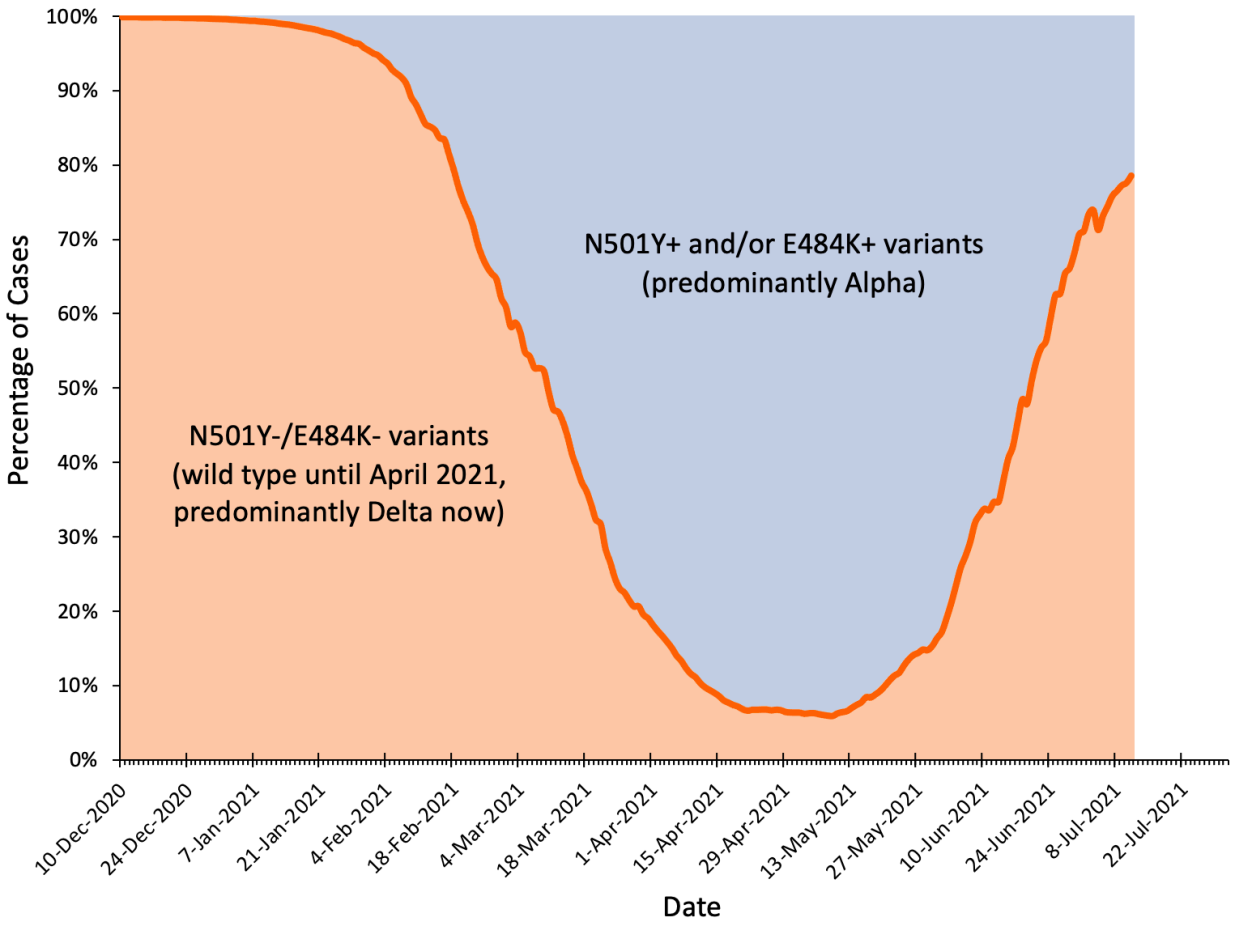
Percentage of Cases Caused by Variants



Source: Ontario COVID-19 Science Advisory Table. https://covid19-sciencetable.ca/ontario-dashboard/

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Outcomes Associated with the New VOCs

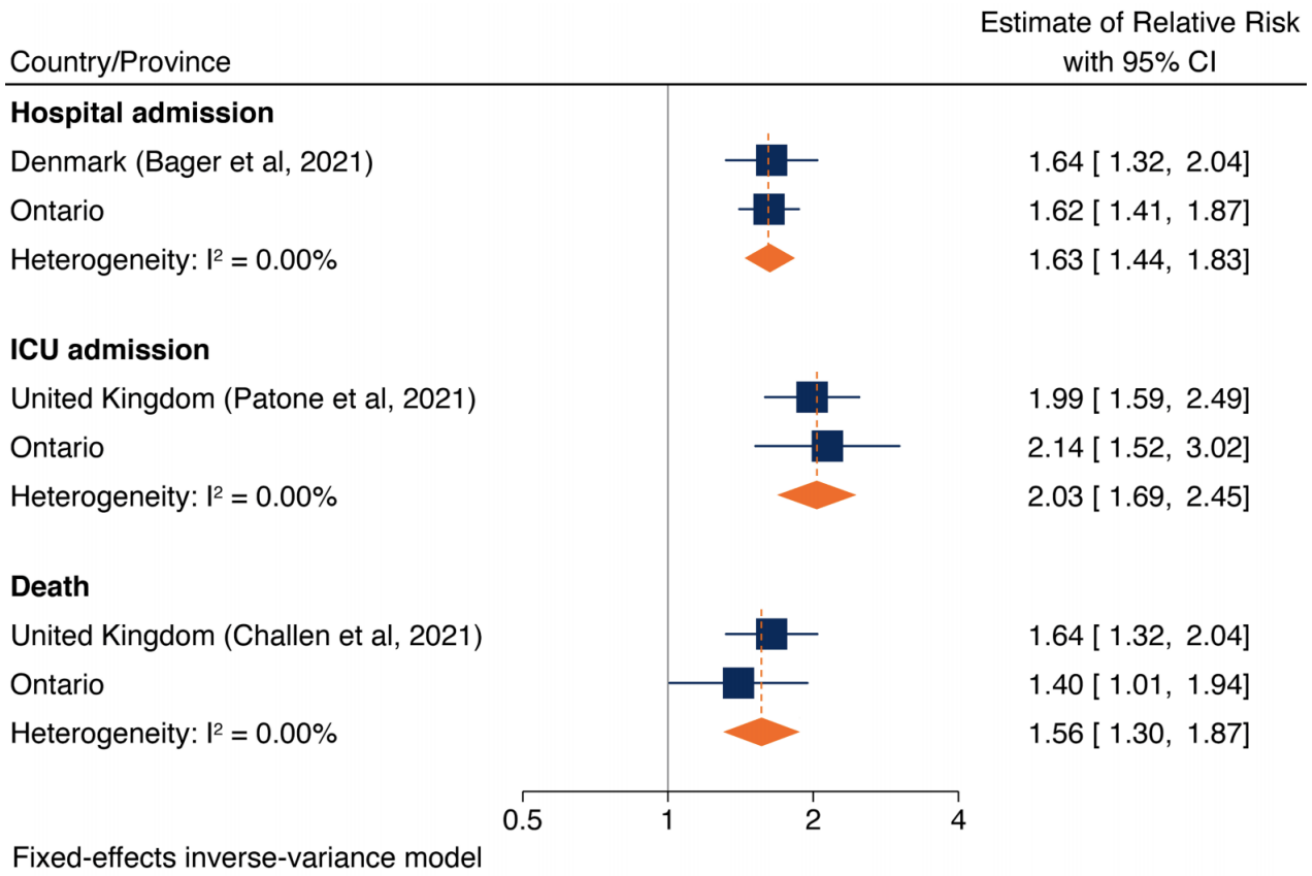

Figure 3. Meta-Analysis of the Risk of COVID-19 Hospitalization, Intensive Care Unit Admission and Death Associated with new VOCs Compared to Early Variants

Source: Tuite AR, Fisman DN, Odutayo A, et al. *COVID-19 hospitalizations, ICU admissions and deaths associated with the new variants of concern*. Science Briefs of the Ontario COVID19 Science Advisory Table. 2021;1(18). https://doi.org/10.47326/ocsat.2021.02.18.1.0

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C19ImmunityStudy.ca

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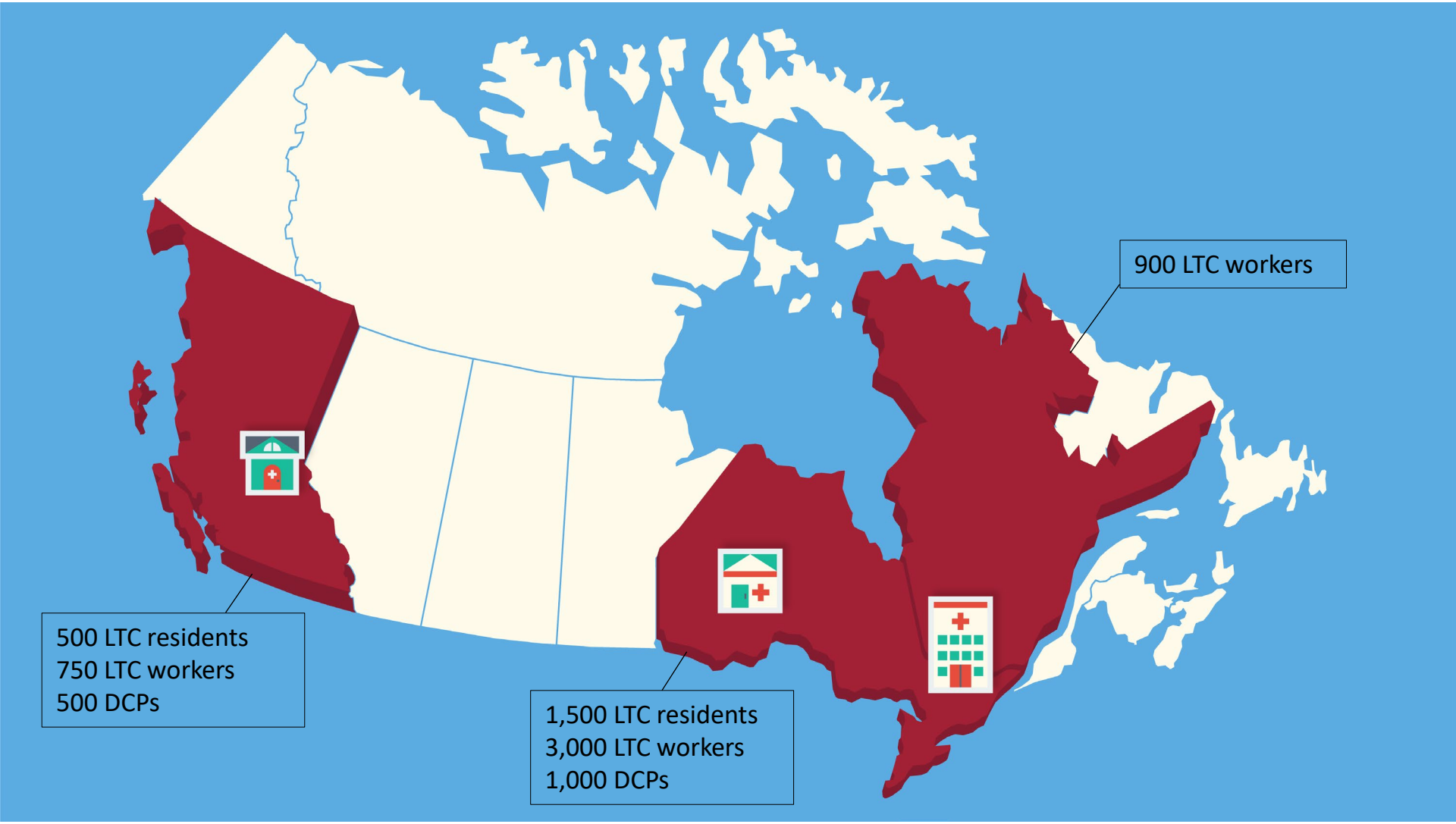
About This Study

- Click here for a short video about the study!

  https://twitter.com/BruyereC19Study/status/1366727764032827393?s=20

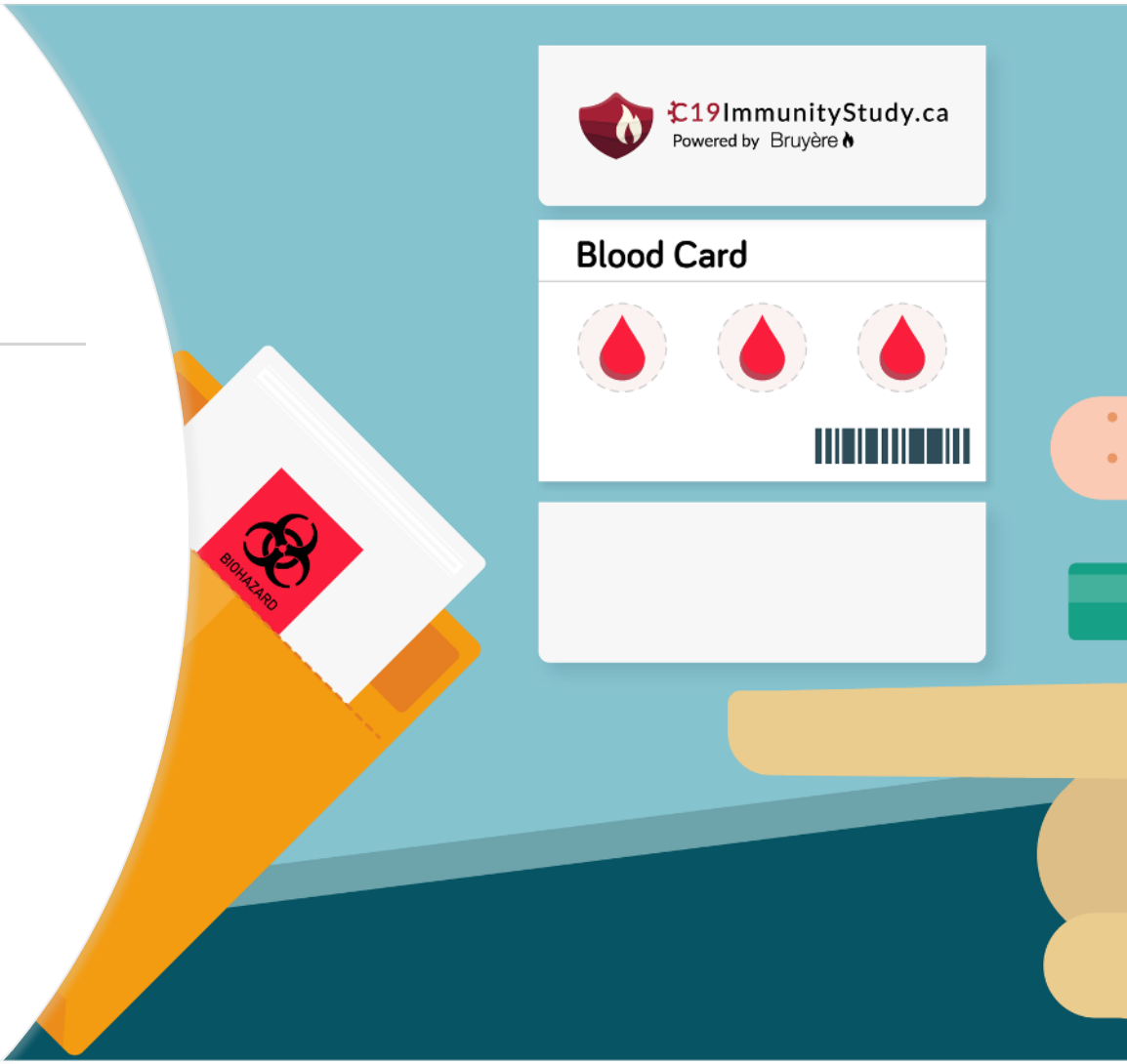
Study Objectives

- To determine the risk factors that increase the likelihood of a SARS-CoV-2 infection, re-infection and serious outcomes from COVID-19.
- To monitor vaccine efficacy up to 12 months post-vaccination.


900 LTC workers
500 LTC residents
750 LTC workers
500 DCPs
1,500 LTC residents
3,000 LTC workers
1,000 DCPs

Sample Collection

- Dried blood sample (DBS) cards.
- Up to 4 collection timepoints over 12 months.



Dried Blood Sample Collection Instructions

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Step 1

Open the dried blood spot kit and check that it contains the following:

- ☐ Dried Blood Sample (DBS) Card
- ☐ Biohazard Self-Sealing Bags
- ☐ Lancet
- ☐ Alcohol Wipe
- ☐ BandAid

Step 2

Wash hands with soap and warm water for 20 seconds and dry your hands thoroughly after.

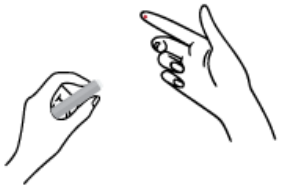
Step 3

Scan the Dried Blood Sample (DBS) Card and fill out the date of collection (the date on which you are collecting the sample) on the card and spreadsheet

Step 5

Soak the finger that you will draw the blood from in a bowl of warm water for 1 minute. Clean your finger with an alcohol prep pad and allow the alcohol to dry/evaporate.

Step 5



Twist off the lancet cap. Place the exposed end of the lancet onto your finger and press down on the opposite end of the lancet to prick your finger.

Allow a drop of blood to form on your finger (you can apply pressure to your finger to encourage the blood drop to form).

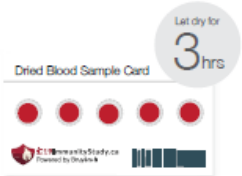
Step 6

When ready, hold finger over the card and place a drop of blood in the first circle.

Apply pressure to the fingertip to allow a drop of blood to form aiming to fill the entire circle up to the dotted border on the card. If unable to fill the entire circle with one drop of blood, massage finger and try again on a new circle.

Repeat to fill all 5 circles on the pad

Step 7



Bandage your finger and discard the used lancet and other garbage.

Leave the card open and allow it to dry for at least 3 hours, if you can, leave it to dry overnight.

Step 8

Once dry, fold the top over the circles and tuck the cover inside.

Place the card inside the pouch and place the pouch in the return envelope.

Follow the provided instructions for how to mail the completed kit back to the laboratory.

Evidence on Effectiveness

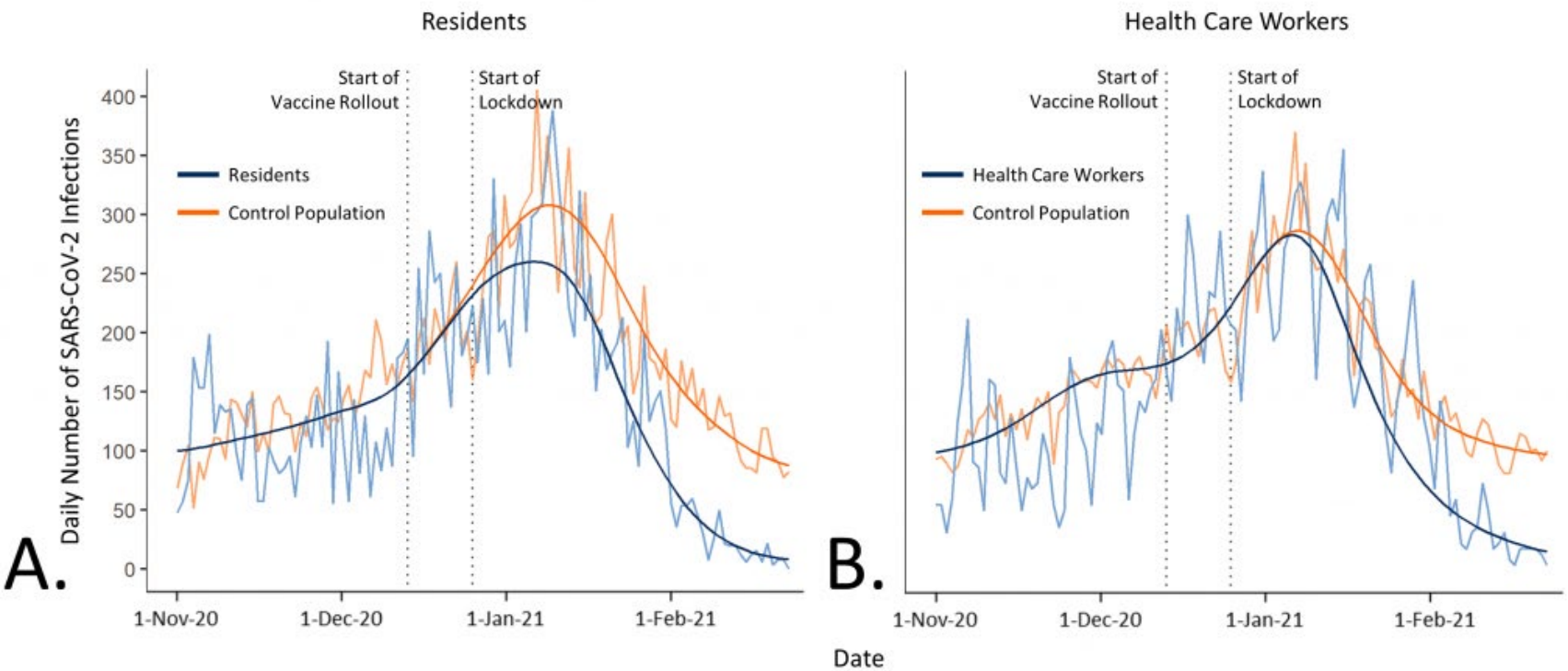
Kitchener-Waterloo

Fully vaccinated woman died with COVID-19 at Kitchener long-term care home

Woman had shown only mild symptoms, long-term care home says

Kate Bueckert · CBC News · Posted: Jun 20, 2021 11:47 AM ET | Last Updated: June 21

How well do these vaccines work?



Source: Brown KA, Stall NM, Vanniyasingam T, et al. Early impact of Ontario's COVID-19 vaccine rollout on long-term care home residents and health care workers. Science Briefs of the Ontario COVID-19 Science Advisory Table. 2021;2(13). https://doi.org/10.47326/ocsat.2021.02.13.1.0

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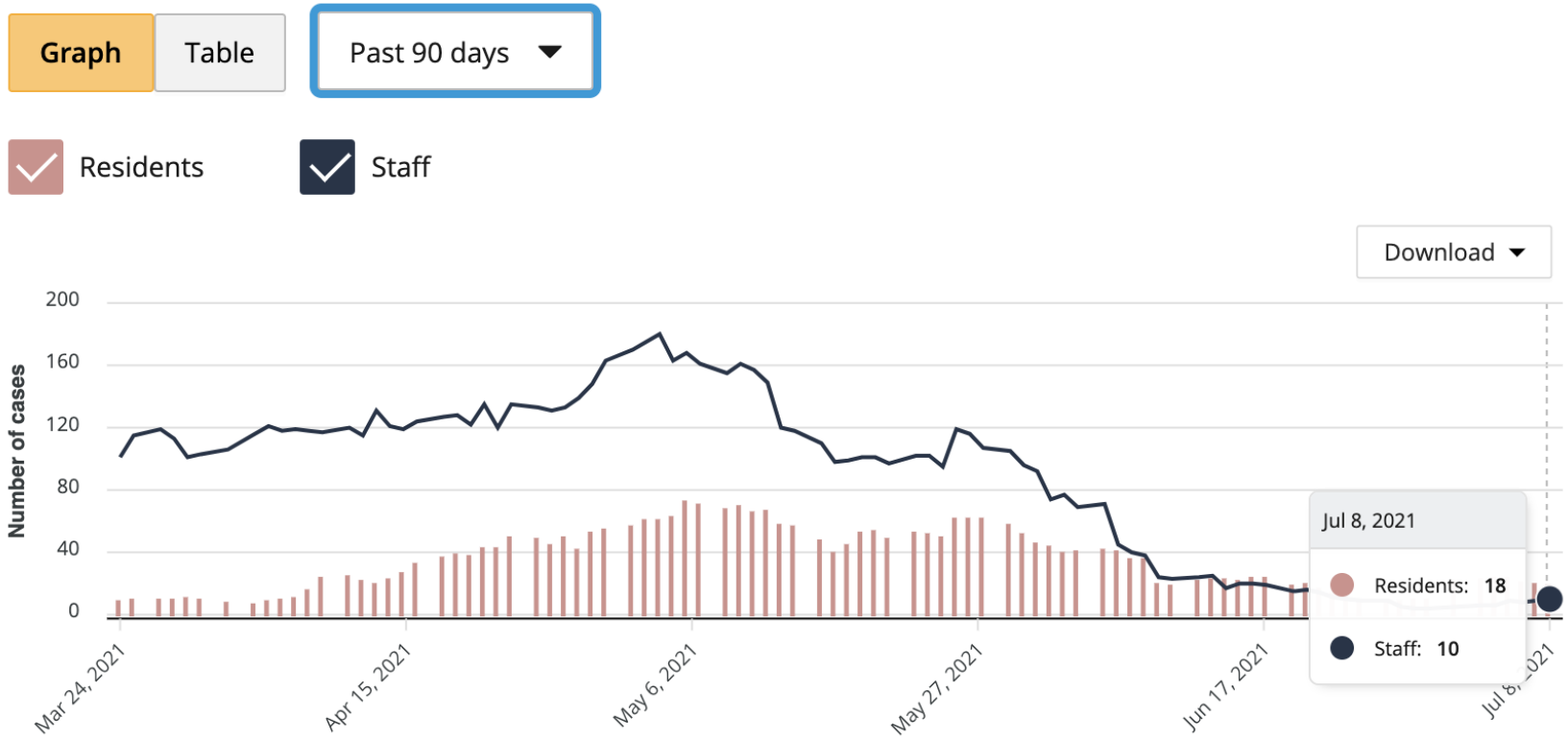
How well do these vaccines work?

Number of residents and staff who currently have COVID-19.



Source: Government of Ontario. *Long-term care homes | COVID-19 (coronavirus) in Ontario*. https://covid-19.ontario.ca/data/long-term-care-homes. Access 10 July 2021.

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How well do these vaccines work?

Deaths

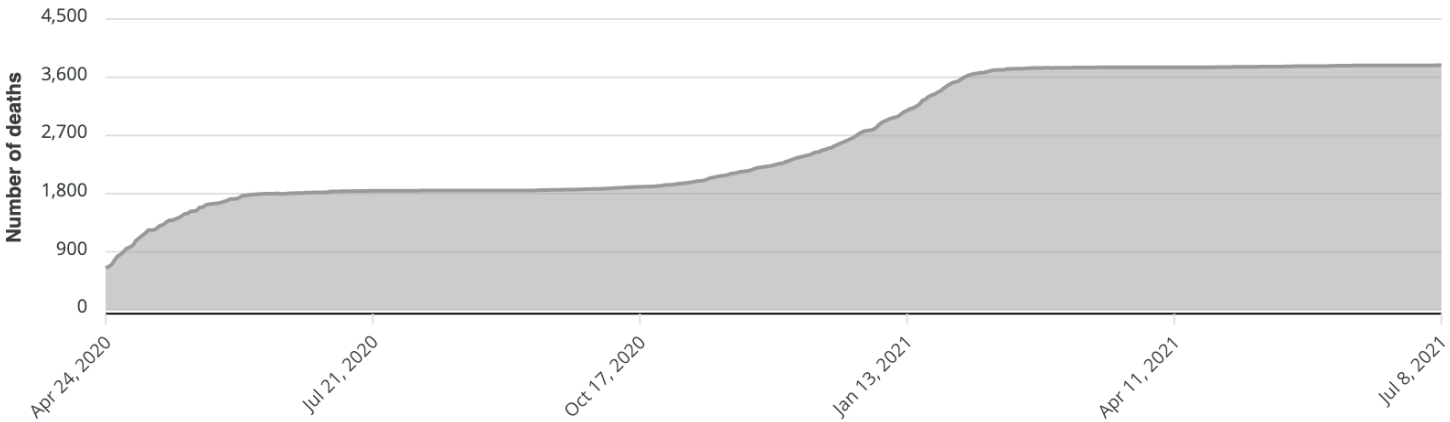
Daily | **Cumulative**

Each day's total is added to the total of all previous days.

Graph | Table | All time

☑ Residents ☐ Staff

Download



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Duration of Immunity

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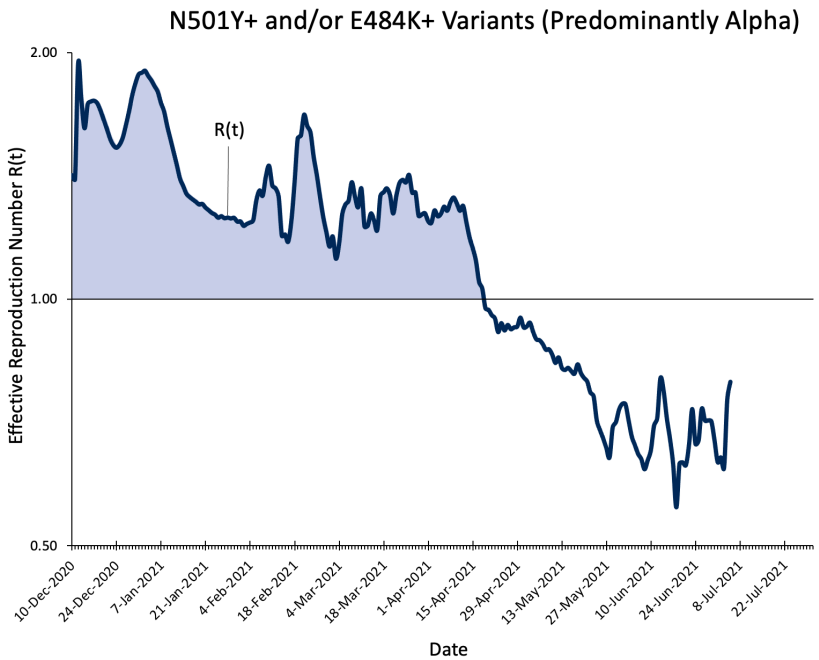
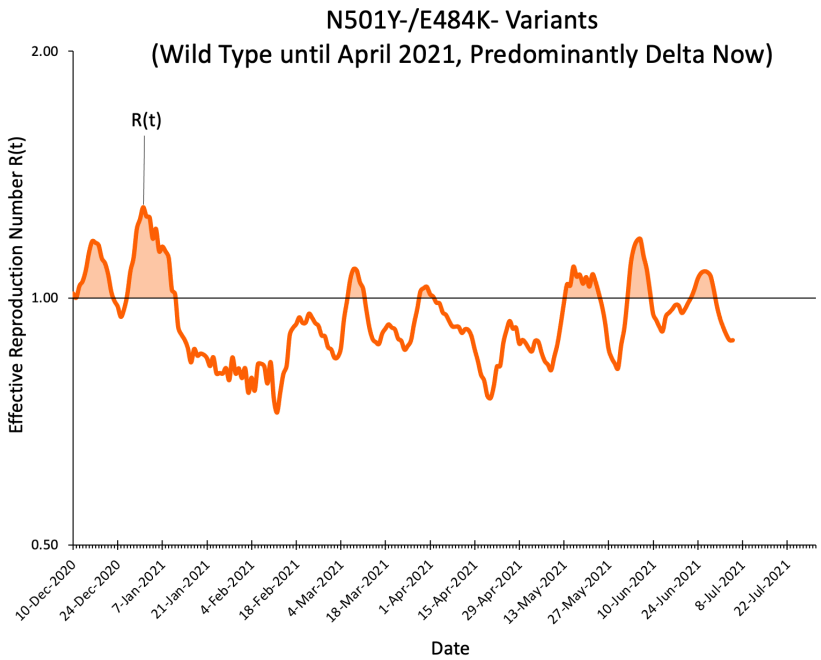
Results Forthcoming!

Implications for Future

Implications for the Future

- Level and duration of immunity, in light of newer variants of concern





Implications for the Future

- Community transmission will continue to expose care home populations to future infections, morbidity and mortality.
- Ongoing social, ethical and legal issues related to vaccination of workers in long-term care.

As COVID-19 outbreaks in long-term care continue, B.C. rethinks voluntary vaccines policy

JUSTINE HUNTER
VICTORIA
PUBLISHED JUNE 13, 2021

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Implications for the Future

- Direct and indirect long-term health impact of COVID-19

Table 2
Number of people in Canada who would develop cardiovascular disease over a three-year period under different scenarios of change in leisure-time physical activity

			Additional new cases of cardiovascular disease under different scenarios of reduced leisure-time physical activity, 2020 to 2023		
	Number of Canadians	No change in physical activity	10% decrease	20% decrease	40% decrease
Age group			number		
Women, aged 20 and older	**13,339,000**	**90,500**	**534**	**600**	**1,481**
20 to 39	4,651,000	1,600	14	19	46
40 to 59	4,738,000	14,100	123	137	360
60 to 79	3,405,000	47,700	320	354	872
80 or older	545,000	27,000	81	87	209
Men, aged 20 and older	**12,879,000**	**137,700**	**1,133**	**1,288**	**3,361**
20 to 39	4,863,000	3,000	34	34	102
40 to 59	4,699,000	41,300	400	451	1,175
60 to 79	2,921,000	71,400	602	689	1,823
80 or older	395,000	22,000	100	110	269

Note: CVD: Cardiovascular disease. Numbers may not sum to the total because of rounding.
Sources: Statistics Canada, 2018 Canadian Community Health Survey, Cardiovascular Population Risk Tool (CVDPoRT).

Source: Manuel D et al. *The effect of COVID-19 on physical activity among Canadians and the future risk of cardiovascular disease*. StatCan COVID-19: Data to Insights for a Better Canada. https://www150.statcan.gc.ca/n1/pub/45-28-0001/2021001/article/00019-eng.pdf.