COVID-19 Trend Analysis

January 1, 2023, to May 31, 2024

Summary of Covid Pandemic

The Omicron variant appeared at the end of November 2021 and hit like a tsunami. The 5th wave saw our key indicators rise dramatically, including record-breaking case counts and hospitalizations during the first month of 2022. The numbers peaked in mid-January before falling significantly by mid-March, signaling the end of the 5th wave.

From January 1st to March 31st, 2022, 6,087 cases were declared, compared to 1,966, 959, and 371 cases during the same timeframe in 2021, 2023, and 2024, respectively. It is important to note that the number during the 5th wave was much higher. Only the high-risk cases were identified from December onwards through a PCR test.

The 6th COVID-19 wave occurred from mid-March until the end of April 2022, as we saw our indicators start to rise in mid-March, peak, and then fall by the end of April. Our indicators then leveled off throughout May and June but rose again at the beginning of July, plateauing July-August. This indicates that we were in a 7th wave. By the beginning of September, our cases decreased until mid-September and rose again until October.

The data fluctuated little during the first two months of 2023. However, starting in March 2023, there was a slight increase in cases, followed by a decrease and plateau over the next several months. Similar to other respiratory illnesses, cases increased during the fall and winter.

Despite a significant decrease in cases since the beginning of 2023, positive cases, hospitalizations, and deaths have continued. Similar to summers over the past three years (2020 to 2023), the summer of 2024 will see a significant improvement in all indicators: a drop in cases, lower positivity, less COVID-19 in wastewater, fewer outbreaks, and fewer deaths. During the fall months, we saw a rise in the indicators. However, this trend has been decreasing recently.

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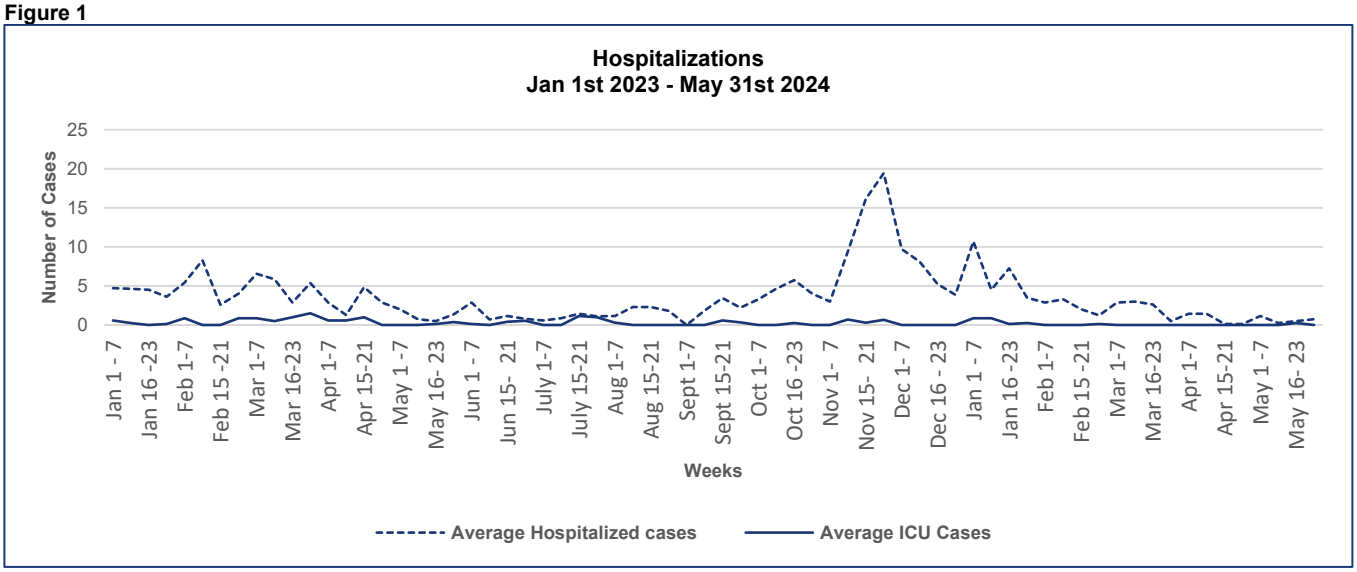
EOHU Hospitalizations

At the end of January 2023, cases were slightly increased, followed by a decrease in the second week of February. This trend continued until the beginning of March, after which the number of cases stabilized. Unfortunately, a few cases still required hospitalization throughout the spring and summer of 2023. During the fall season, there was an increase in cases, followed by a decrease at the end of November. Since the fall, there have been fluctuations in the number of hospitalization cases; however, they are within a reasonable range. We have observed a decrease in hospitalizations since the end of November.

Figure 1



Source: Ontario Ministry of Health, Public Health Case and Contact Management Solution (CCM)

Table 1 A

Weeks, 2023	Average Hospitalized Cases	Average ICU Cases
Jan 1-7	5	1
Jan 8-15	5	0
Jan 16-23	5	0
Jan 24-31	4	0
Feb 1-7	5	1
Feb 8 -14	8	0
Feb 15 -21	3	0
Feb 22- 28	4	1
Mar 1-7	7	1
Mar 8-15	6	1
Mar 16-23	3	1
Mar 24-31	5	2
Apr 1-7	3	1
Apr 8 -14	1	1
Apr 15-21	5	1
Apr 22-30	3	0
May 1-7	2	0
May 8-15	1	0
May 16 -23	1	0
May 24-31	1	0
June 1-7	3	0
June 8-14	1	0
June 15-21	1	0
June 22-30	1	1
July 1-7	1	0
July 8-14	1	0
July 15-21	1	1
July 22-31	1	1
Aug 1-7	1	0
Aug 8-14	2	0
Aug 15-21	2	0
Aug 22-31	2	0
Sept 1-7	0	0
Sept 8 -14	2	0
Sept 15-21	3	1
Sept 22-30	2	0
Oct 1-7	3	0
Oct 8 -15	5	0
Oct 16-23	6	0
Oct 24-31	4	0
Nov 1- 7	3	0
Nov 8- 14	9	1
Nov 15- 21	16	0
Nov 22 - 30	19	1
Dec 1- 7	10	0
Dec 8- 15	8	0
Dec 16 - 23	5	0
Dec 24- 31	4	0

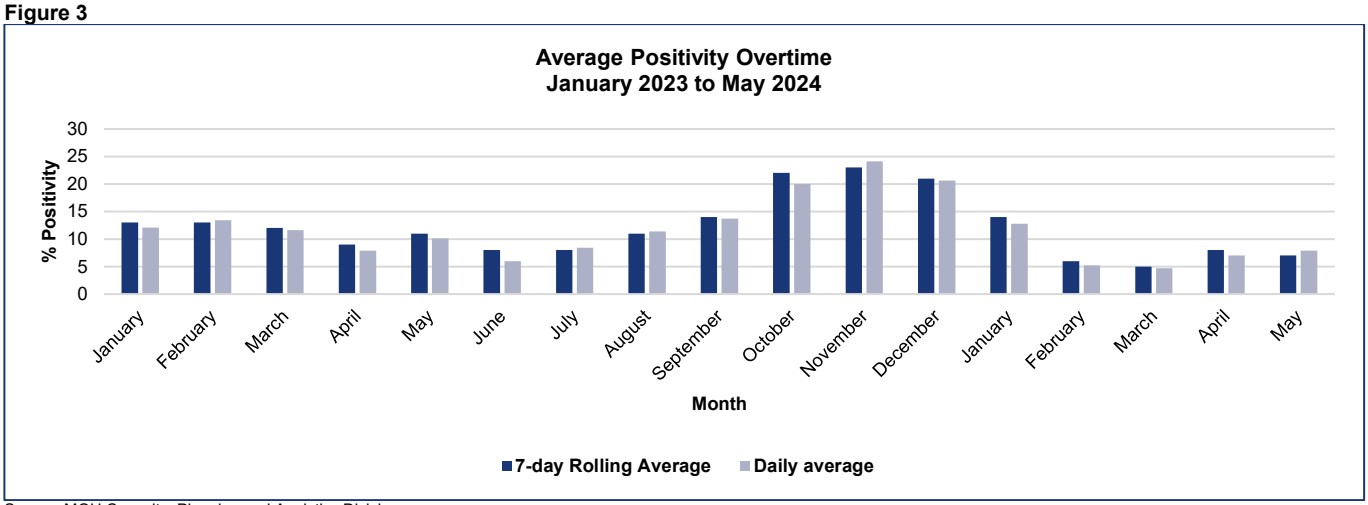
Table 1 B

Weeks, 2024	Average Hospitalized Cases	Average ICU Cases
Jan 1-7	11	1
Jan 8-15	5	1
Jan 16-23	7	0
Jan 24-31	4	0
Feb 1-7	3	0
Feb 8 -14	3	0
Feb 15 -21	2	0
Feb 22- 28	1	0
Mar 1-7	3	0
Mar 8 -15	3	0
Mar 16-23	3	0
Mar 24-31	1	0
Apr 1-7	1	0
Apr 8 -14	1	0
Apr 15-21	0	0
Apr 22-30	0	0
May 1-7	1	0
May 8-15	0	0
May 16 -23	1	0
May 24-31	1	0

EOHU Positivity Rate: a 7-day rolling average

From a high of 18.1% on January 2nd and a 7-day rolling monthly average of 13% for January, these rates remained stable in February and March before decreasing in April and plateauing during the summer months, reaching a low of 8% for the 7-day rolling monthly average. It then rebounded to a high of 35.1% in November, with an average monthly rate of 24.1%. Since January 2024, the monthly 7-day rolling average has decreased to 5% in March with minor fluctuations since then.

Figure 3



Source: MOH Capacity, Planning and Analytics Division

Table 3

Month 2023/2024	7-day Rolling Average (%)	Daily Average (%)
January	13	12.1
February	13	13.4
March	12	11.6
April	9	7.9
May	11	10.1
June	8	6
July	8	8.4
August	11	11.4
September	14	13.7
October	22	20
November	23	24.1
December	21	20.6
January	14	12.8
February	6	5.2
March	5	4.7
April	8	7
May	7	7.9

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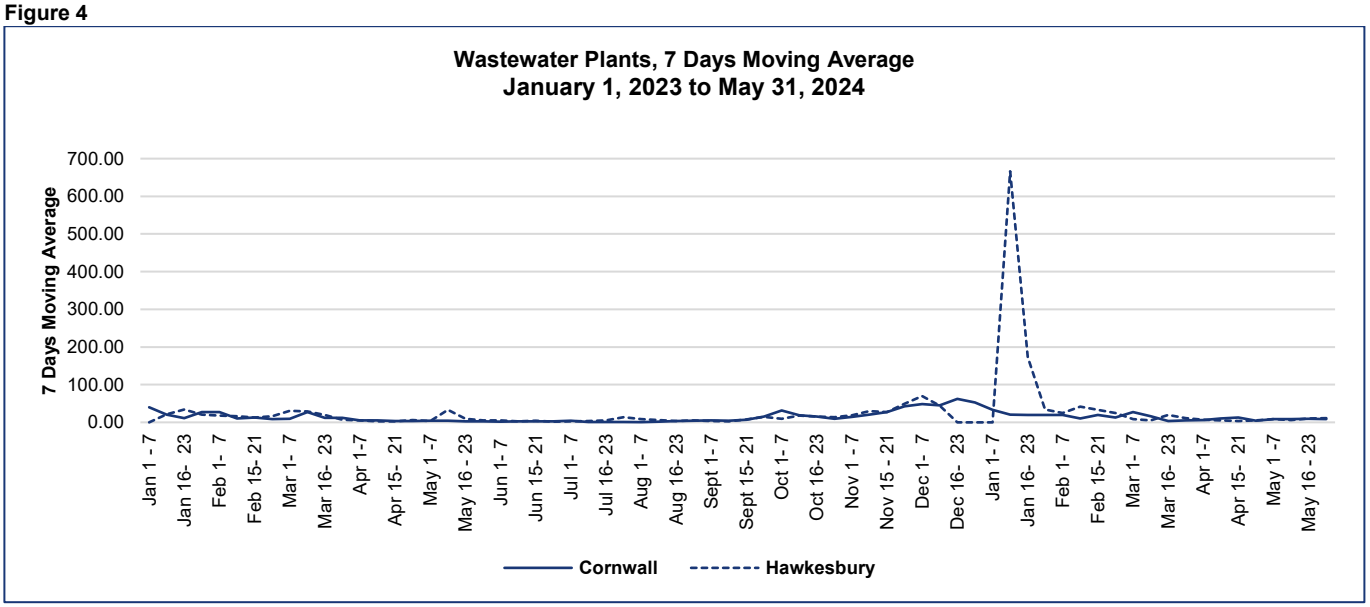
EOHU Wastewater Plants

As illustrated in the following figure, in 2023, both Cornwall and Hawkesbury sites experienced an increase in virus found per unit of wastewater in January, March, and October to December while remaining at lower levels during the other months. In 2023, the virus per unit in wastewater showed ebbs and flows over the winter months. In the spring and summer months of 2023, there was a decline in the rates. However, we see an increase in these rates during the second week of January, with the highest ascent of 666.36 GC/mL specifically for Hawkesbury, followed by a decrease, reflecting the increase in COVID-19 activity in this region.

Figure 4



Source: Ontario Ministry of Health, Ontario Wastewater Surveillance Initiative Data Visualization Hub (BETA).

Table 4 A

2023	Cornwall	Hawkesbury
Jan 1- 7	39.80	0.00
Jan 8- 15	20.83	21.18
Jan 16- 23	11.31	34.39
Jan 24- 31	27.21	20.35
Feb 1- 7	27.34	17.93
Feb 8 - 14	9.93	16.14
Feb 15- 21	13.08	12.63
Feb 22- 28	8.60	16.16
Mar 1- 7	9.64	30.59
Mar 8 - 15	27.28	29.17
Mar 16- 23	11.64	19.97
Mar 24- 31	11.82	7.03
Apr 1-7	5.09	4.83
Apr 8-14	4.89	2.39
Apr 15-21	3.17	2.75
Apr 22-30	3.41	6.04
May 1-7	4.35	3.57
May 8-15	4.77	33.10
May 16-23	2.73	9.57
May 24-31	2.69	5.02
Jun 1-7	1.44	5.03
Jun 8-14	2.52	2.42
Jun 15-21	2.68	4.65
Jun 22-30	2.64	2.08
Jul 1- 7	4.04	2.85
Jul 8-15	0.73	3.35
Jul 16- 23	0.96	5.60
Jul 24- 31	1.25	13.67
Aug 1- 7	0.58	8.95
Aug 8- 15	1.49	6.17
Aug 16- 23	3.32	3.44
Aug 24- 31	4.00	5.48
Sept 1- 7	5.21	3.48
Sept 8- 14	4.18	2.90
Sept 15- 21	6.75	8.17
Sept 22- 30	15.32	14.83
Oct 1- 7	31.82	9.88
Oct 8- 15	19.20	17.95
Oct 16- 23	15.61	15.71
Oct 24- 31	9.81	13.93
Nov 1 - 7	14.64	19.01
Nov 8 - 14	20.59	29.53
Nov 15 - 21	27.30	26.97
Nov 22 - 30	42.57	49.74
Dec 1- 7	48.66	69.62
Dec 8- 15	44.77	44.05
Dec 16- 23	62.30	0.00
Dec 24- 31	52.50	0.00

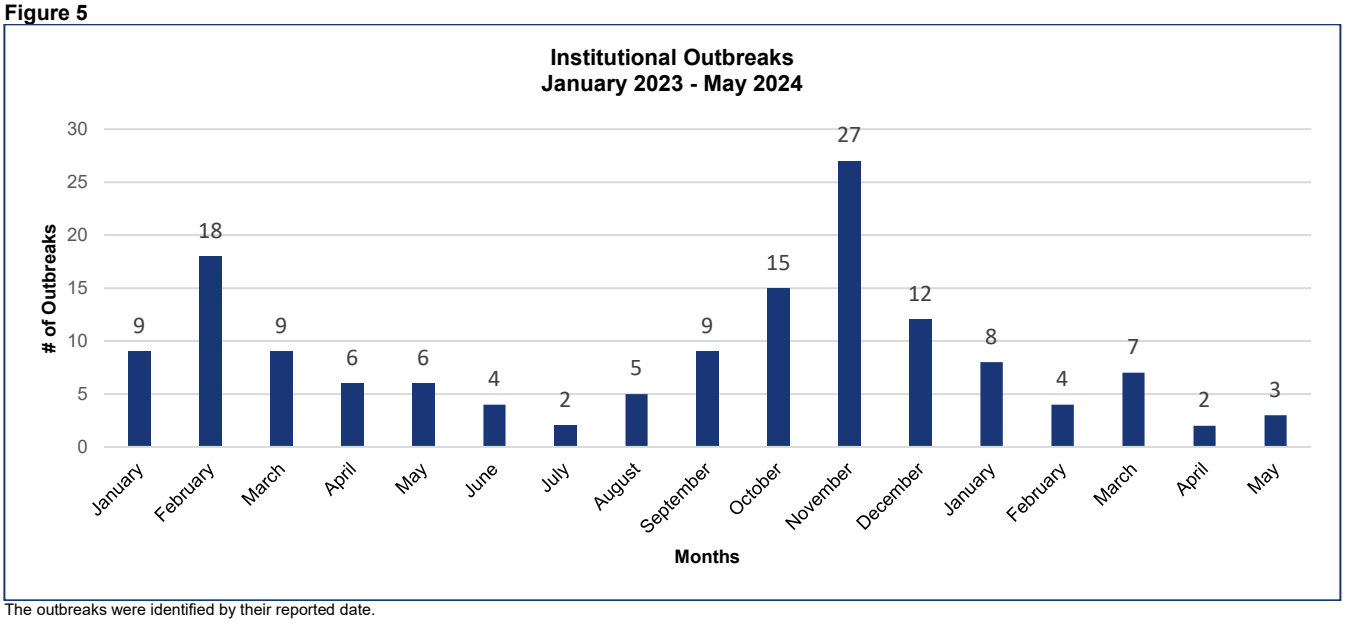
Table 4 B

2024	Cornwall	Hawkesbury
Jan 1- 7	33.03	0.00
Jan 8- 15	20.29	666.36
Jan 16- 23	19.93	173.03
Jan 24- 31	19.38	33.72
Feb 1- 7	19.66	24.46
Feb 8 - 14	10.38	41.85
Feb 15- 21	19.26	33.54
Feb 22- 28	13.10	24.52
Mar 1- 7	27.31	8.53
Mar 8 - 15	16.03	4.93
Mar 16- 23	3.68	19.72
Mar 24- 31	4.88	11.50
Apr 1-7	5.80	6.77
Apr 8-14	10.60	5.12
Apr 15-21	13.09	3.17
Apr 22-30	4.50	5.29
Mar 1- 7	8.31	8.25
Mar 8 - 15	8.82	5.67
Mar 16- 23	9.61	10.31
Mar 24- 31	8.71	11.34

EOHU Institutional Outbreaks

In 2023, we reached the first peak in the number of outbreaks at the beginning of the year (in February), with 18 outbreaks dropping to a low of 2 in July. The number of outbreaks climbed to 27 in November before falling to an average of 2 in April.

Figure 5



The outbreaks were identified by their reported date.
Source: EOHU, Institutional outbreak advisory, ID team

Table 5

Months 2023/2024	Outbreaks
January	9
February	18
March	9
April	6
May	6
June	4
July	2
August	5
September	9
October	15
November	27
December	12
January	8
February	4
March	7
April	2
May	3

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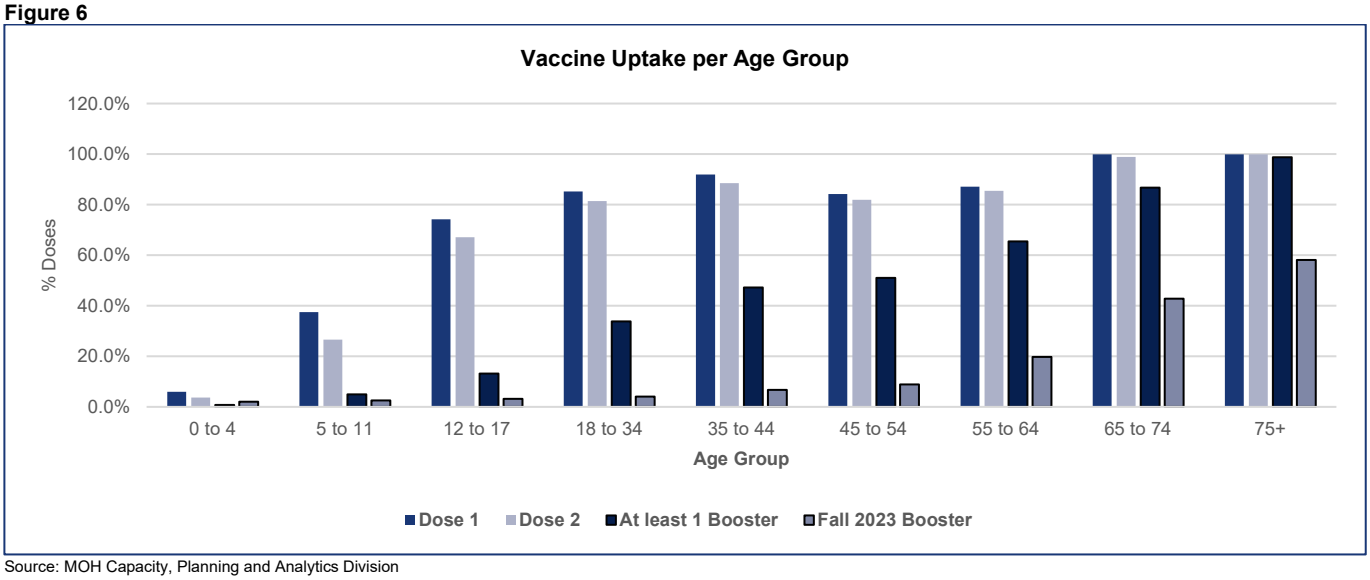
EOHU Vaccine Coverage

Initially, there was significant uptake for the first and second doses of the COVID-19 vaccine in the youth and adult population (individuals aged 12 and over). However, as the graph below indicates, the additional booster dose was less popular with the younger population (individuals under 55). The younger age groups have not yet reached 60% coverage, compared to the 65+ population, which has an average coverage of 86.7%.

The fall 2023 booster has shown a similar pattern, with better uptake among the older populations and minimal uptake among the younger populations.

Figure 6



Source: MOH Capacity, Planning and Analytics Division

Table 6

Age	Dose 1	Dose 2	At least 1 Booster	Fall 2023 Booster
0 to 4	5.7%	3.5%	0.8%	2.0%
5 to 11	36.6%	25.8%	4.8%	2.6%
12 to 17	73.7%	66.4%	13.0%	3.1%
18 to 34	85.2%	81.3%	33.7%	4.0%
35 to 44	92.1%	88.5%	47.1%	6.7%
45 to 54	84.0%	81.8%	50.9%	8.8%
55 to 64	86.9%	85.2%	65.2%	19.6%
65 to 74	99.9%	99.0%	86.8%	42.9%
75+	99.9%	99.9%	99.4%	58.8%

Seeing that a large portion of the population was vaccinated and exposed to COVID-19, the indicators plateaued mainly during the winter and spring of 2023, followed by a drop in the summer. However, as people moved indoors for the cold season and adults and children returned to work and school, the ebbs and flows in the indicators demonstrated that COVID-19 is still present and active in our community.

In the fall of 2022, we saw high rates of influenza and RSV co-occurring as an increase in COVID-19 activity, which overwhelmed our healthcare system. Fortunately, we did not see the same situation in 2023.

Many residents currently hospitalized have a variety of different co-morbidities and influencing factors. For many, the factor is age. However, in our population under 70 years old, the following co-morbidities are common: congestive heart failure, heart disease, chronic obstructive pulmonary disease (COPD), diabetes, obesity, renal disease, and different cancers. This highlights the importance of protecting yourself and loved ones if these co-morbidities exist.

Scientific literature has demonstrated a waning in the protection offered by COVID-19 vaccines after six months. However, many specialists think that over 50% of the population has been exposed to the virus. Combined with the vaccination rate, this may explain why the later waves are less strong[1]. However, the variants circulating continued to impact our population due to the low coverage of the booster doses. Therefore, the population needs to receive their fall booster, as these boosters effectively restore protection against infection[2]. The waning protection offered by the earlier doses (less than 50%) increased to 92% following a booster. Different variants of the COVID-19 virus are still present in our communities. The best protection against catching the virus is to stay updated with the COVID-19 boosters.

Recommendations:

- ✓ Consider getting the fall booster shot. This is especially important if you or people you are in touch with regularly have co-morbidities (see summary above).
- ✓ If you are in a crowded public space and are not up-to-date with your vaccine coverage, consider staying 2m apart from others and wearing a mask.
- ✓ Ensure you wash or disinfect your hands as often as necessary.

1 “A lot of Ontarians have already been infected with the Omicron variant — seroprevalence studies suggest half the population has natural immunity, he said — and that combined with high vaccination rates and the fact that a new variant of concern has not yet emerged, all bode well, Moore said.” –Interview with Dr. Moore on August 5th, 2022, CTV News

2. Cristina Menni PhD et al (2022). COVID-19 vaccine waning and effectiveness and side-effects of boosters: a prospective community study from the ZOE COVID Study. The Lancet Infectious Diseases, Volume 22, (7), P. 1002-1010.