

## **COVID-19 Trend Analysis**

**Jan 1 – Aug 31<sup>st</sup>, 2022**

The Omicron variant appeared at the end of November 2021 and hit like a tsunami. This 5<sup>th</sup> wave saw our key indicators rise spectacularly 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. This signaled the end of the 5<sup>th</sup> wave.

As a comparison, from Jan 1<sup>st</sup> - Mar 31<sup>st</sup>, 2022, 6,087 cases were declared as compared to 1,966 cases during the same timeframe in 2021. The actual number during the 5<sup>th</sup> wave was much higher as, from Dec 2021 moving forward, only the high-risk cases were identified through a PCR test.

The 6<sup>th</sup> COVID-19 wave occurred from mid-March until the end of April 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 have started rising again since the beginning of July. They then peaked by the end of July, dipped at the beginning of August, and have since plateaued.

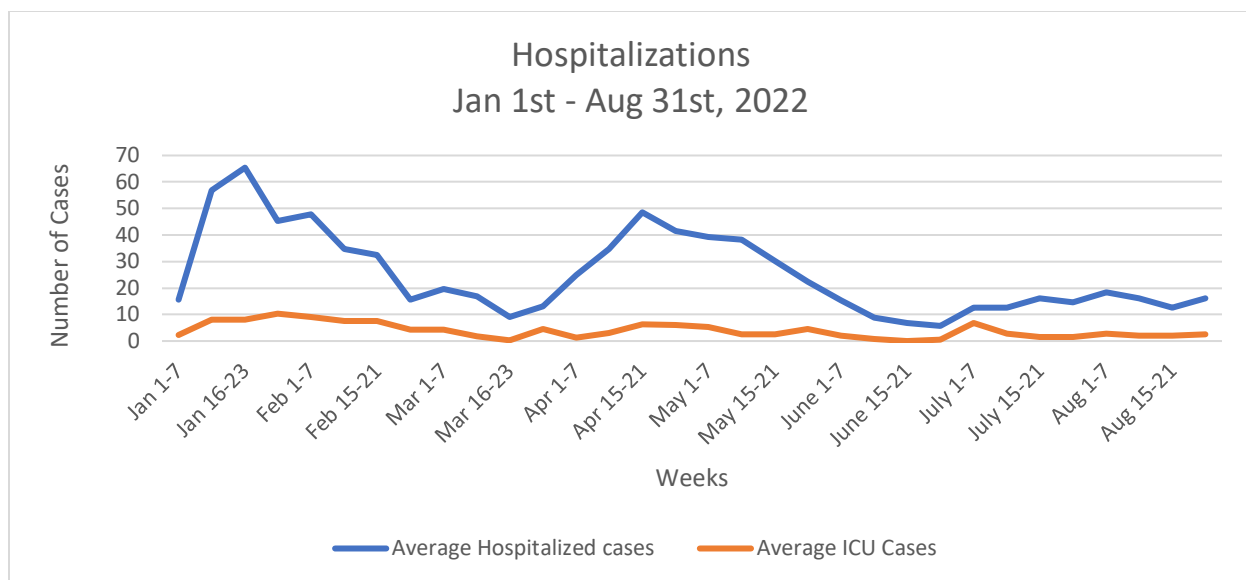
This indicates that we are in a 7<sup>th</sup> wave. However, the indicators are not as high as during the 6<sup>th</sup> wave. Therefore, although the summer of 2022 is more severe than the summers of 2020 & 2021, the numbers are still within feasible ranges.

When compared with the provincial trends, we see the same pattern. The numbers peaked in mid-Jan, dropped through mid-February to mid-March before rising again until late April, dropped through May-June, and started increasing as of the beginning of July, peaking at the end of July before dipping and then plateauing. (See hospitalized cases below)

### **Hospitalizations**

#### ***EOHU cases***

From a high of 69 on January 20<sup>th</sup>, our hospitalized cases continually decreased in hospital and ICU throughout February/March, after which they started to increase again. Mid-April, the number of cases climbed to an average of 49 as we endured the 6<sup>th</sup> wave which then waned in May. However, we see a gradual increase at the end of June as we encountered the 7<sup>th</sup> wave. At the beginning of August, we reached a peak of 19 hospitalized cases, before dipping slightly and then plateauing. Our weekly ICU numbers have been stable and low with fewer than 3 cases per week occurring from the end of August.



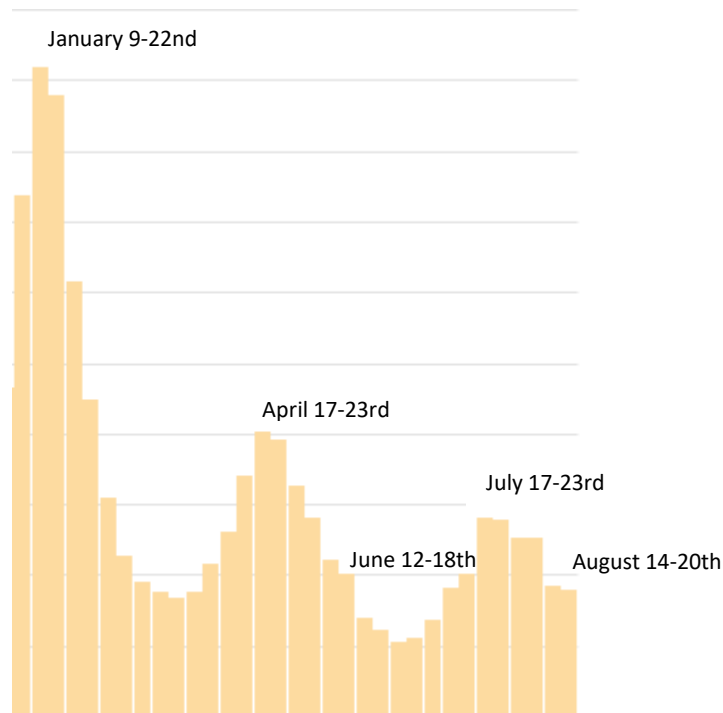
Source: Ontario Ministry of Health, Public Health Case and Contact Management Solution (CCM)

Weeks	Average Hospitalized cases	Average ICU Cases
Jan 1-7	16	2
Jan 8-15	57	8
Jan 16-23	65	8
Jan 24-31	45	10
Feb 1-7	48	9
Feb 8 -14	35	8
Feb 15-21	33	8
Feb 22-28	16	4
Mar 1-7	20	4
Mar 8 -15	17	2
Mar 16-23	9	0
Mar 24-31	13	5
Apr 1-7	25	1
Apr 8 -14	35	3
Apr 15-21	49	6
Apr 22-30	42	6
May 1-7	39	5
May 8-14	38	3
May 15-21	30	3
May 22-31	22	5
June 1-7	15	2
June 8-14	9	1
June 15-21	7	0
June 22-30	6	0
July 1-7	13	7
July 8-14	13	3
July 15-21	16	2
July 22-31	15	2

Aug 1-7	19	3
Aug 8-14	16	2
Aug 15- Aug 21	13	2
Aug 22-Aug 31	16	3

When compared with the provincial trends, we see the same pattern. The highest peak occurred in January between the 9<sup>th</sup> and 22<sup>nd</sup> reaching an average of 1797 cases, meanwhile, the lowest rate occurred the week of June 5<sup>th</sup> with 204 cases which then increased mid-June as we transitioned into the 7<sup>th</sup> wave. Fortunately, we begin to see a decrease in this rate in mid-July, then it peaks and plateaus throughout August.

### *Provincial Trend of Hospitalized cases*



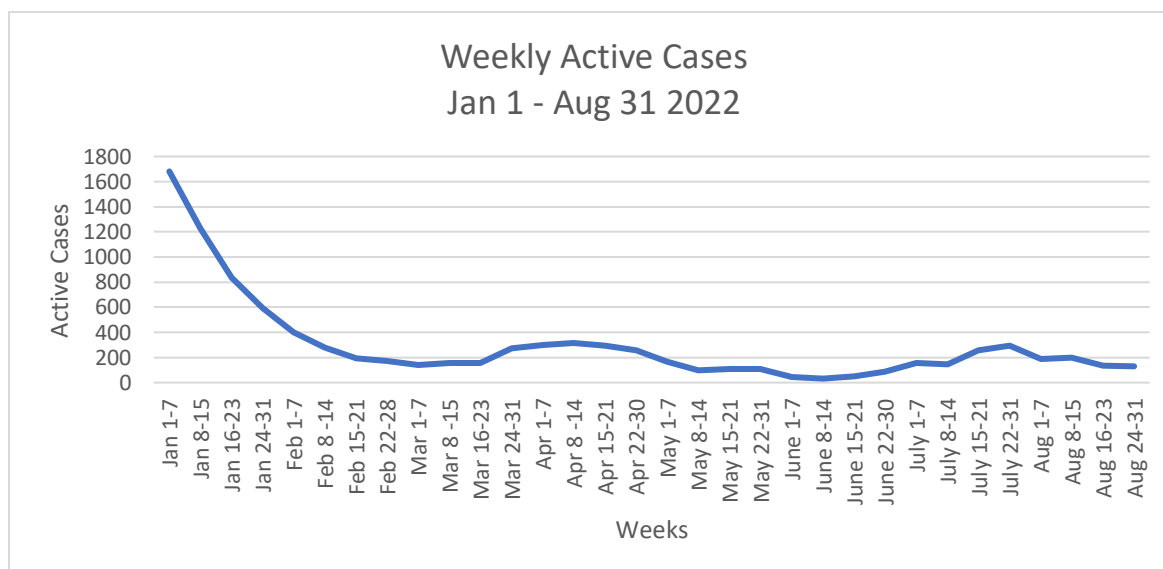
Source: Ontario COVID-19 Data Tool, <https://www.publichealthontario.ca/en/Data-and-Analysis/Infectious-Disease/COVID-19-Data-Surveillance/COVID-19-Data-Tool?tab=trends>

Week	Hospitalized Cases
Jan 2- Jan 8	1473
Jan 9- Jan 15	1835
Jan 16- Jan 22	1759
Jan 23- Jan 29	1228
Jan 30- Feb 5	893
Feb 6- Feb 12	620
Feb 13- Feb 19	451
Feb 20- Feb 26	380
Feb 27- Mar 5	354
Mar 6 – Mar 12	336
Mar 13 – Mar 19	352
Mar 20 – Mar 26	431
Mar 27 – Apr 2	524
Apr 3 – Apr 9	681

Apr 10 – Apr 16	803
Apr 17 – Apr 23	781
Apr 24- Apr 30	654
May 1 -May 7	562
May 8 – May 14	442
May 15 – May 21	402
May 22 – May 28	279
May 29- Jun 4	245
Jun 5 – Jun 11	207
Jun 12 – Jun 18	221
Jun 19 – Jun 25	271
Jun 26- Jul 2	361
Jul 3 – Jul 9	405
Jul 10- Jul 16	559
Jul 17 – Jul 23	555
Jul 24 – Jul 30	505
Jul 31-Aug 6	505
Aug 7- Aug 13	366
Aug 14- Aug 20	356

### **EOHU Active Cases**

From a high of 1676 cases the week of Jan 1 - 7th, our case numbers dropped to a low of 140 cases in mid-March before starting to rise as the 6<sup>th</sup> wave hit. They then peaked at 314 cases in mid-April before decreasing as the 6<sup>th</sup> wave started to wane at the end of April. The case counts continued to drop until the end of June when the counts started to rise again reaching a high of 286 cases as we continued into the 7<sup>th</sup> wave. However, we started to see a decrease at the beginning of August.

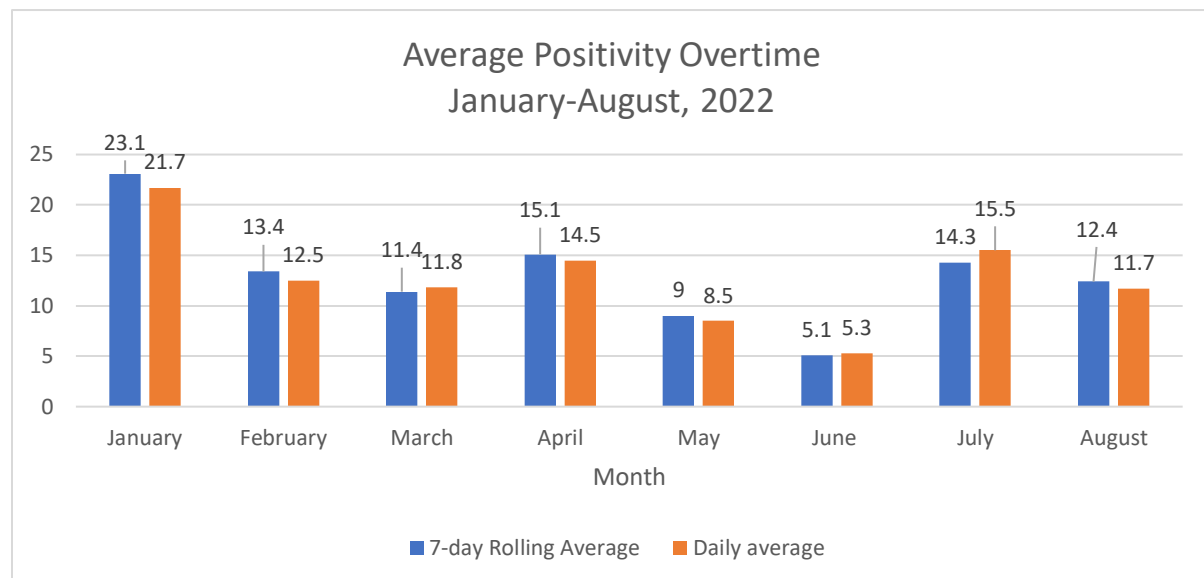


Source: Ontario Ministry of Health, Public Health Case and Contact Management Solution (CCM)

Weeks	Average Active Case counts
Jan 1-7	1681
Jan 8-15	1230
Jan 16-23	833
Jan 24-31	594
Feb 1-7	398
Feb 8 -14	277
Feb 15-21	192
Feb 22-28	174
Mar 1-7	140
Mar 8 -15	156
Mar 16-23	156
Mar 24-31	271
Apr 1-7	300
Apr 8 -14	356
Apr 15-21	314
Apr 22-30	199
May 1-7	167
May 8-14	107
May 15-21	116
May 22-31	92
June 1-7	46
June 8-14	43
June 15-21	55
June 22-30	72
July 1-7	158
July 8-14	180
July 15-21	286
July 22-31	234
August 1- 7	188
August 8-14	199
August 15-21	134
August 22-31	130

### **EOHU Positivity Rate: a 7-day rolling average**

From a high of 32.2% on January 3<sup>rd</sup> and an average 7-day rolling of 21.7% for January, these rates declined in February and March before increasing again in April which then dropped the following months to a low of 3.7% on June 19<sup>th</sup>, with an average monthly rate of 5.1% in June. However, it has since rebounded in July and August reaching a high of 17.3% on August 2<sup>nd</sup> with an average monthly rate of 12.4%.



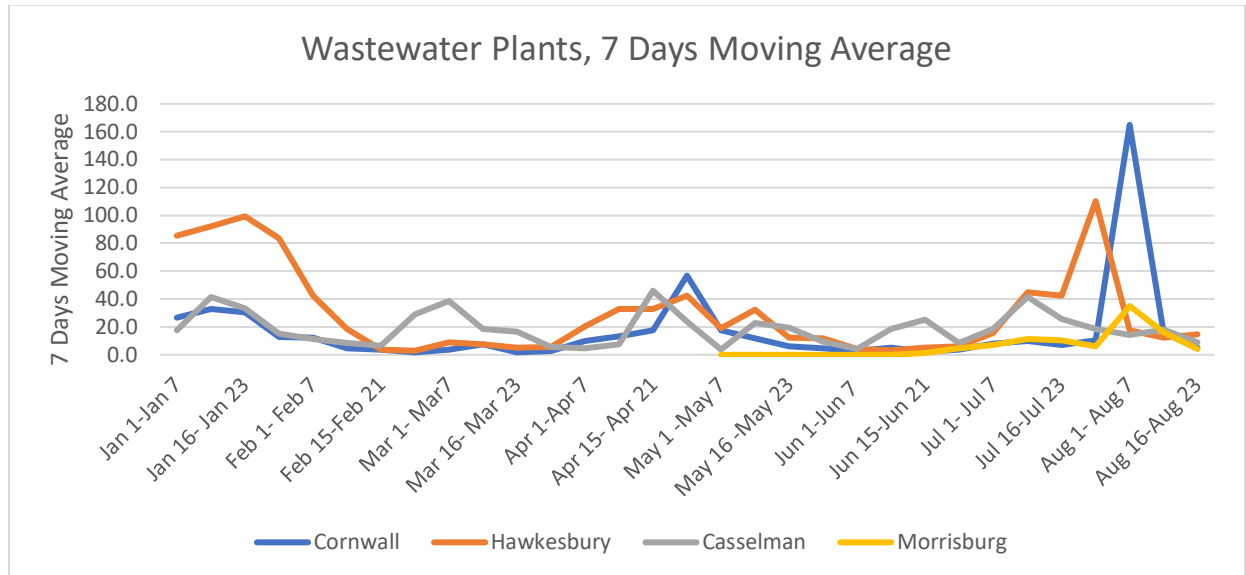
Source: MOH Capacity, Planning and Analytics Division

Month	7-day Rolling Average	Daily average
January	23.1	21.7
February	13.4	12.5
March	11.4	11.8
April	15.1	14.5
May	9	8.5
June	5.1	5.3
July	14.3	15.5
August	12.4	11.7

### **EOHU Wastewater Plants**

The wastewater values reflect a similar pattern as the active cases. As illustrated in the following figure, most sites experienced an increase in January, April, and August with the highest ascent at the end July-Beginning of August. As the cases rise and fall, the virus found per unit of wastewater follows the same declining pattern from mid-January until mid-February for Cornwall, Hawkesbury, and Casselman reaching an average of 4.58 for the 7-day rolling, the week of February 15<sup>th</sup>. Cornwall and Hawkesbury leveled off the following months until the beginning of April before they experienced another increase then declined the following two months (i.e., May & June). Casselman, on the other hand, endured its second peak earlier during the year compared to Hawkesbury and Cornwall reaching a high of 38.6 for the week of March 1<sup>st</sup> and later dropping to a low of 4.52, April 1 -7<sup>th</sup>. All sites experienced a rise at some point during April but then waned from the beginning of May before another increase, particularly for Hawkesbury

and Casselman. The highest climb during the 7<sup>th</sup> wave occurred end of July-beginning of August before the large drop in mid-August then plateauing thereafter. Cornwall experienced the highest peak at the beginning of August with an average of 164.87 followed by Hawkesbury (110.21) and Morrisburg (34.98) for the 7-day rolling average.



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

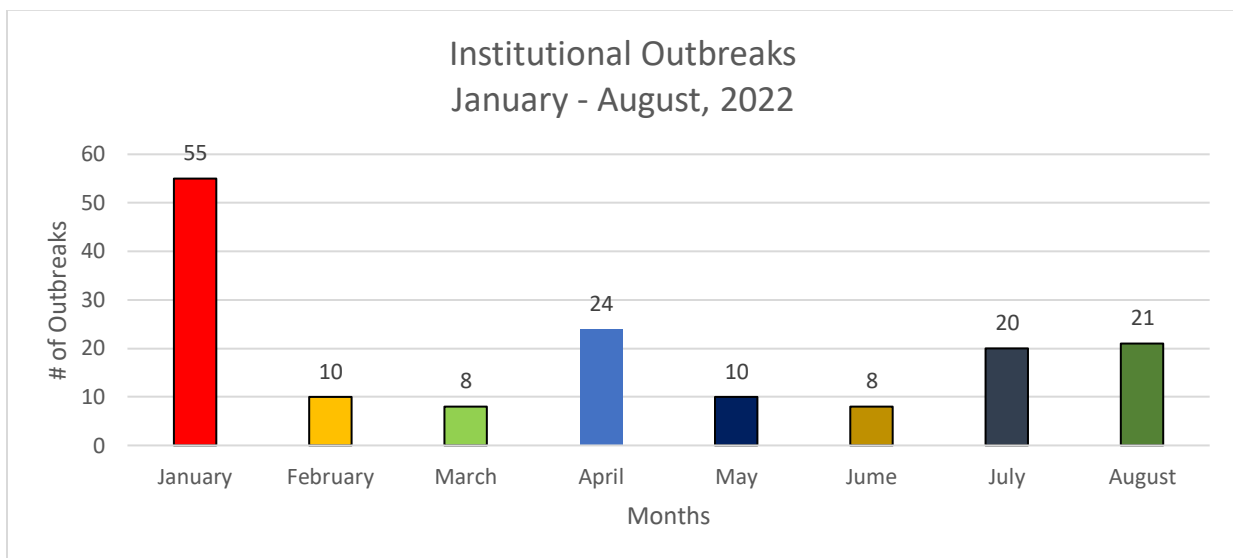
	7 Days Moving Average			
	Cornwall	Hawkesbury	Casselman	Morrisburg
Jan 1-Jan 7	26.5	85.6	17.8	n/a
Jan 8- Jan 15	32.9	92.36	41.60	n/a
Jan 16- Jan 23	30.3	99.34	33.46	n/a
Jan 24- Jan 31	12.9	83.58	15.23	n/a
Feb 1- Feb 7	12.2	42.20	11.18	n/a
Feb 8 - Feb 14	4.7	18.69	8.57	n/a
Feb 15-Feb 21	3.6	3.73	6.42	n/a
Feb 22- Feb 28	1.9	2.96	28.81	n/a
Mar 1- Mar7	3.7	9.19	38.57	n/a
Mar 8 -Mar 15	7.5	7.62	18.67	n/a
Mar 16- Mar 23	1.8	5.04	16.65	n/a
Mar 24- Mar 31	2.8	5.62	5.60	n/a
Apr 1-Apr 7	9.8	20.21	4.53	n/a
Apr 8 -Apr 14	13.3	32.66	7.31	n/a
Apr 15- Apr 21	17.3	33.02	46.01	n/a
Apr 22- Apr 30	56.7	42.58	23.61	n/a
May 1 -May 7	17.78	18.93	3.79	0.00
May 8 -May 15	11.99	32.54	22.71	0.00
May 16 -May 23	6.02	12.33	19.28	0.00
May 24 -May 31	4.59	11.69	9.64	0.00
Jun 1-Jun 7	2.76	4.07	4.26	0.00



Jun 8-Jun 14	5.26	3.15	18.56	0.00
Jun 15-Jun 21	2.12	4.94	25.43	1.11
Jun 22-Jun 30	3.88	6.12	8.44	4.83
Jul 1- Jul 7	8.04	15.90	18.36	7.13
Jul 8-Jul 15	9.76	44.58	41.67	11.59
Jul 16-Jul 23	7.10	42.45	25.85	10.61
Jul 24-Jul 31	10.29	110.21	18.54	5.93
Aug 1- Aug 7	164.87	17.67	14.15	34.98
Aug 8-Aug 15	15.51	12.39	18.18	16.13
Aug 16-Aug 23	5.00	14.54	9.06	4.41

### **EOHU Institutional Outbreaks**

We reached the highest number peak at the beginning of the year in January with a total of 55 outbreaks which then dropped to an average low of 9 in February and March. The number of outbreaks then climbed to 24 in April before falling to 10 in May and 8 in June. However, the numbers rebounded to 20 in July and then plateaued in August with a total of 21.



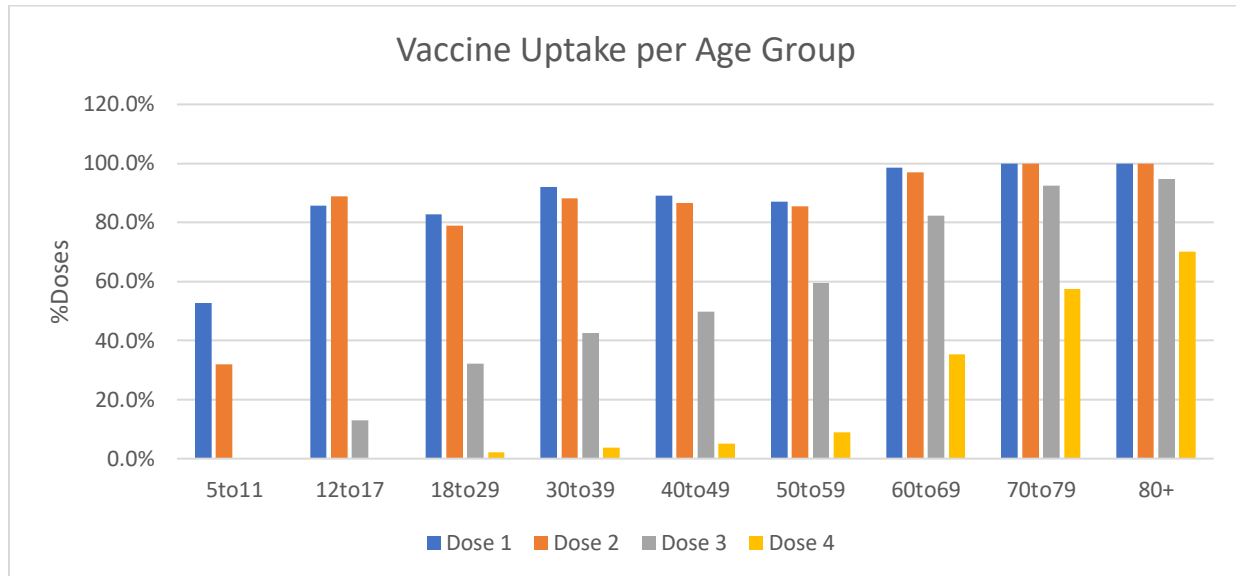
\*The outbreaks were identified by their reported date.

Source: EOHU, Institutional outbreak advisory, ID team

Months	Outbreaks
January	55
February	10
March	8
April	24
May	10
June	8
July	20
August	21

## EOHU Vaccine Coverage

Initially, there was a great uptake for doses one and two of the vaccine against COVID in the youth and adult population (12+). However as indicated in the graph below, the booster dose (3<sup>rd</sup> dose) was not as popular with the younger population (under 60yrs). The younger age groups have not yet reached 60% coverage as compared to the 60+ population with an average of 89% coverage. In effect, the number of people with a 3<sup>rd</sup> dose plateaued in the spring and seems to have influenced the 6<sup>th</sup> and 7<sup>th</sup> waves.



Source: MOH Capacity, Planning and Analytics Division

Age	Dose 1	Dose 2	Dose 3	Dose 4
5 to 11	52.8%	31.9%	0.0%	0.0%
12 to 17	85.7%	88.9%	13.0%	0.0%
18 to 29	82.8%	79.0%	32.3%	2.1%
30 to 39	92.0%	88.2%	42.6%	3.8%
40 to 49	89.1%	86.6%	49.8%	5.1%
50 to 59	87.1%	85.5%	59.6%	8.9%
60 to 69	98.5%	96.9%	82.2%	35.4%
70 to 79	99.9%	99.9%	92.5%	57.5%
80+	99.9%	99.9%	94.7%	70.0%

## **Summary**

The literature shows that the first and second vaccine doses were very effective against the virus up to and including the Delta variant (waves 1-4, prior to Dec 2021). However, with a lower uptake for the 3<sup>rd</sup> dose combined with the highly contagious Omicron, and the waning of the 2<sup>nd</sup> dose, the 5<sup>th</sup> wave hit our communities hard.

The end of the 5<sup>th</sup> wave corresponded with the change in public health precautions thus paving the way for the 6<sup>th</sup> wave from mid-March- the end of April. By the end of March, the provincial public health restrictions were completely lifted including no longer needing to wear a mask in indoor public places. Once the weather turned nice in May and June, people started going outside more, and the numbers dropped. However, when the new Omicron variant B5 appeared, the lack of public health precautions and the proximity of people as the summer season advanced allowed it to take hold.

Many of the people hospitalized have a variety of different co-morbidities and influencing factors. For many, the factor is age. However, in our younger population (under 70 yrs of age), 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 one's self and loved ones if these co-morbidities are present.

Scientific literature has demonstrated that there is a waning in vaccine protection after 6 months. Many specialists are of the opinion that over 50% of the population have been exposed to the virus and this when combined with the vaccination rate, may explain why the 7<sup>th</sup> and subsequent waves may be less strong<sup>1</sup>. However, the virus continues to circulate because of the low coverage of the third dose; two doses are less effective against Omicron (5<sup>th</sup>+wave) due mostly to the waning protection and the variation in the spike protein; thus the importance of the population receiving their booster as vaccine boosters are effective in restoring protection against infection<sup>2</sup>: the waning coverage of the 2<sup>nd</sup> dose (less than 50%) roared back to 92% following the 3<sup>rd</sup> dose booster.

## **Recommendations:**

- ✓ If you only have your 2<sup>nd</sup> dose, consider getting the 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 you are not up-to-date with your vaccine coverage, consider wearing a mask.
- ✓ Ensure to wash or disinfect your hands as often as necessary.

<sup>1</sup> "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 5<sup>th</sup>, 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.