

COVID-19 Trend Analysis

January 1, 2022 to February 28, 2023

The Omicron variant appeared at the end of November 2021 and hit like a tsunami. This 5th 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 5th wave.

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

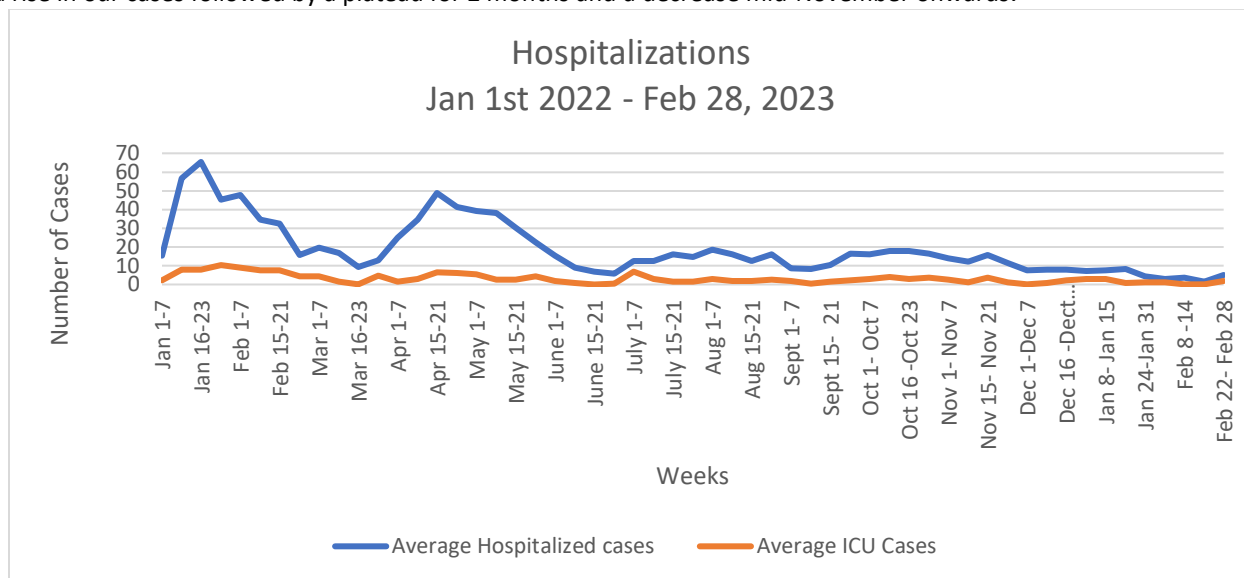
The 6th COVID-19 wave occurred from mid-March until the end of April as we saw our indicators start to rise in mid-March, peak, and then fall by the end of April. Our indicators then leveled off throughout May and June but started rising again at the beginning of July, plateauing July-August. This indicates that we are in a 7th wave. By the beginning of September, we see our cases decrease until mid-September and then begin to rise again until the end of October (See hospitalized cases below). There has been limited fluctuations as the number continues to decrease following January month.

Notably, the indicators are not as high as during the 6th wave. Although the summer of 2022 was more severe than the summers of 2020 & 2021, the numbers were still within feasible ranges.

When compared with the provincial trends, we see the same pattern. The numbers peaked in mid-Jan and dropped through February to mid-March before rising again until mid-April. Cases then dropped to an average low in June which then slightly increased beginning of July and plateaued Mid-July until the end of August. As for early September, it dipped then increased again until mid-October (See hospitalized cases below). However, there has been limited fluctuation and more decrease since then.

EOHU Hospitalizations

From a high of 69 on January 20th, 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 6th wave, which waned in May. However, we see a gradual increase at the end of June as we encountered the 7th 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. As of early September, we see a rise in our cases followed by a plateau for 2 months and a decrease mid-November onwards.



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

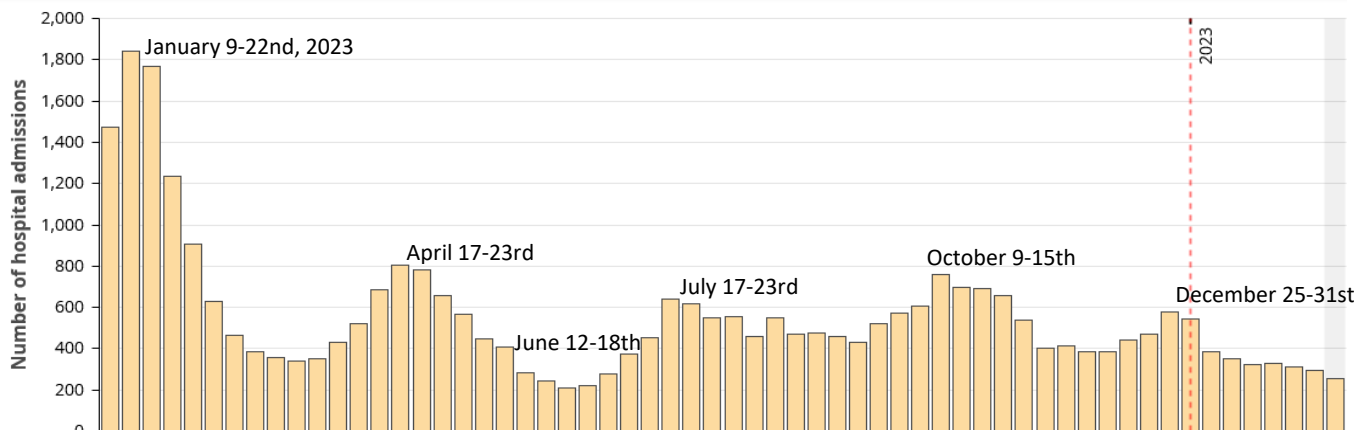
Weeks 2022	Average Hospitalized Cases	Average ICU Cases
Jan 1-7	16	2
Jan 8-15	57	8
Jan 16-23	65	8
Jan 24-31	45	10
Feb 1-7	48	9
Feb 8-14	35	8
Feb 15-21	33	8
Feb 22-28	16	4
Mar 1-7	20	4
Mar 8-15	17	2
Mar 16-23	9	0
Mar 24-31	13	5
Apr 1-7	25	1
Apr 8-14	35	3
Apr 15-21	49	6
Apr 22-30	42	6
May 1-7	39	5
May 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

Weeks 2022	Average Hospitalized Cases	Average ICU Cases
Aug 15-21	13	2
Aug 22-31	16	3
Sept 1-7	9	2
Sept 8-14	8	0
Sept 15-21	11	2
Sept 22-30	16	2
Oct 1-7	16	3
Oct 8-15	18	4
Oct 16-23	18	3
Oct 24-31	17	4
Nov 1-7	14	3
Nov 8-14	12	1
Nov 15-21	16	4
Nov 22-30	11	1
Dec 1-7	8	0
Dec 8-15	8	1
Dec 16-23	8	2

Weeks 2023	Average Hospitalized cases	Average ICU Cases
Jan 1-7	7	3
Jan 8-15	7	3
Jan 16-23	8	1
Jan 24-31	5	1
Feb 1-7	3	1
Feb 8-14	4	0
Feb 15-21	2	0
Feb 22-28	5	2

Provincial Trend of Hospitalized cases

When compared with the provincial trends, we see the same pattern. The highest peak occurred in January between the 9th and 22nd reaching an average of 1836 cases, meanwhile, the lowest rate occurred the week of June 5th with 204 cases which then increased mid-June as we transitioned into the 7th wave. Fortunately, we begin to see a decrease in this rate in mid-July, as the numbers plateau throughout August followed by a worsening in mid-October before decreasing over the following months. As illustrated in the figure, there is slight elevation in mid-December before a decline the following months.



Source: [Ontario COVID-19 Data Tool](#)

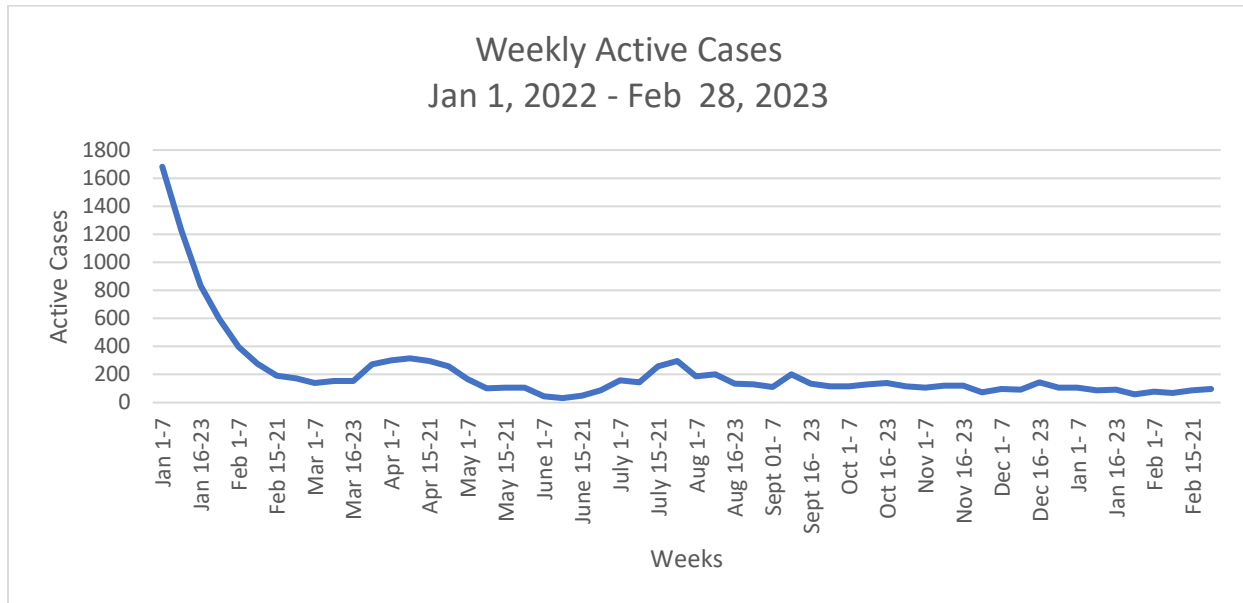
Week 2022	Hospitalized Cases
Jan 2-8	1,474
Jan 9-15	1,836
Jan 16-22	1,760
Jan 23-29	1,230
Jan 30 - Feb 5	892
Feb 6-12	623
Feb 13-19	453
Feb 20-26	382
Feb 27 - Mar 5	353
Mar 6-12	336
Mar 13-19	351
Mar 20-26	431
Mar 27 – Apr 2	523
Apr 3-9	681
Apr 10-16	805
Apr 17-23	778
Apr 24-30	652
May 1-7	563
May 8-14	446
May 15-21	406
May 22-28	281
May 29 - Jun 4	244
Jun 5-11	207
Jun 12-18	220
Jun 19-25	273
Jun 26 - Jul 2	366
Jul 3-9	408
Jul 10-16	594
Jul 17-23	612
Jul 24-30	541
Jul 31 - Aug 6	547
Aug 7-13	459
Aug 14-20	536
Aug 21-27	450
Aug 28 - Sept 3	453
Sept 4-10	456
Sept 11-17	426
Sept 18-24	516
Sept 25 - Oct 1	572

Week 2022	Hospitalized Cases
Oct 2-8	608
Oct 9-15	758
Oct 16-22	694
Oct 23-29	690
Oct 30 - Nov 5	657
Nov 6-12	542
Nov 13-19	401
Nov 20-26	412
Nov 27 - Dec 3	381
Dec 4-10	377
Dec 11-17	438
Dec 18-24	455
Dec 25-31	580

Week 2023	Hospitalized Cases
Jan 1-7	546
Jan 8-14	383
Jan 15-21	350
Jan 22-28	322
Jan 29- 4	329
Feb 5 – 11	312
Feb 12- 18	295
Feb 19- 25	256

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 6th wave hit. They then peaked at 314 cases in mid-April before decreasing as the 6th 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 7th wave. However, we started to see the numbers plateau in August until the beginning of September. There was a small increase followed by a decline and plateau in cases in the following months.



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

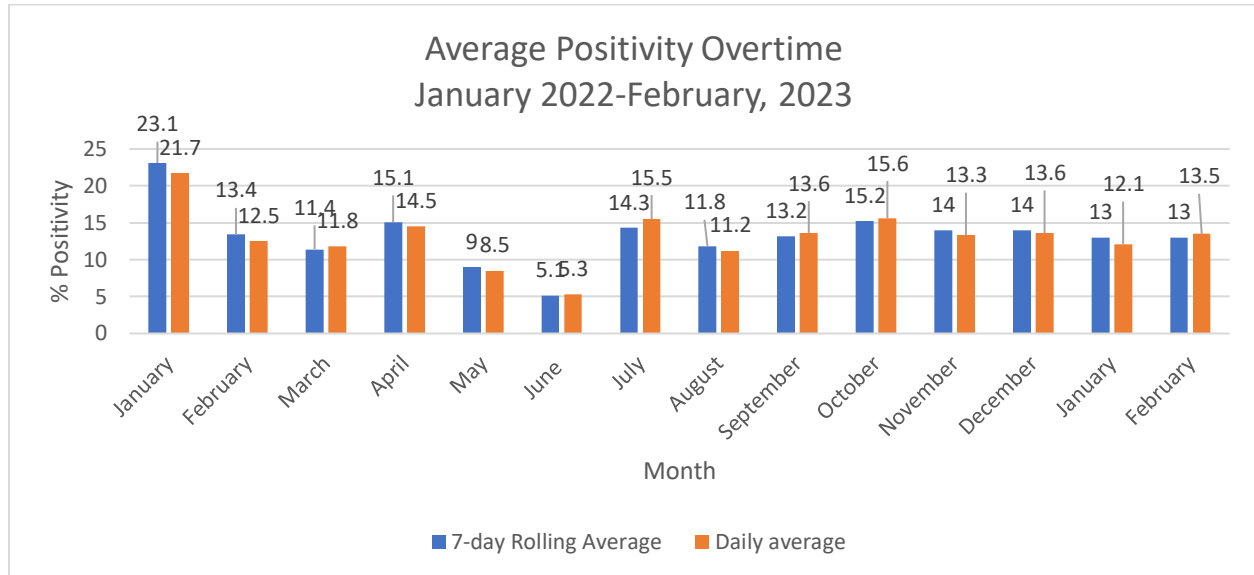
Weeks 2022	Active Case Counts
Jan 1-7	1,681
Jan 8-15	1,230
Jan 16-23	833
Jan 24-31	594
Feb 1-7	398
Feb 8-14	277
Feb 15-21	192
Feb 22-28	174
Mar 1-7	140
Mar 8-15	156
Mar 16-23	156
Mar 24-31	271
Apr 1-7	300
Apr 8-14	356
Apr 15-21	314
Apr 22-30	199
May 1-7	167
May 8-14	107
May 15-21	116
May 22-31	92
June 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
Aug 1-7	188

Weeks 2022	Active Case Counts
Aug 8-14	199
Aug 15-21	134
Aug 22-31	130
Sept 1-7	109
Sept 8-15	201
Sept 16-23	136
Sept 24-30	118
Oct 1-7	115
Oct 8-15	132
Oct 16-23	139
Oct 24-31	117
Nov 1-7	108
Nov 8-15	120
Nov 16-23	119
Nov 24-30	75
Dec 1-7	96
Dec 8-15	92
Dec 16-23	145
Dec 24-31	104

Weeks 2023	Active Case Counts
Jan 1-7	105
Jan 8-15	88
Jan 16-23	91
Jan 24-31	57
Feb 1-7	77
Feb 8-14	67
Feb 15-21	86
Feb 22-28	96

EOHU Positivity Rate: a 7-day rolling average

From a high of 32.2% on January 3rd 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 19th, with an average monthly rate of 5.1% in June. However, it has since rebounded to a high of 18% on July 19th with an average monthly rate of 14.3%. This rate decreased in August to an average monthly 7-day rolling of 11.8% but has risen in October reaching a high of 15.6% for the daily average before decreasing slightly the following months. In February, we see a slight increase compared to the previous month, reaching a daily average of 13.5%.

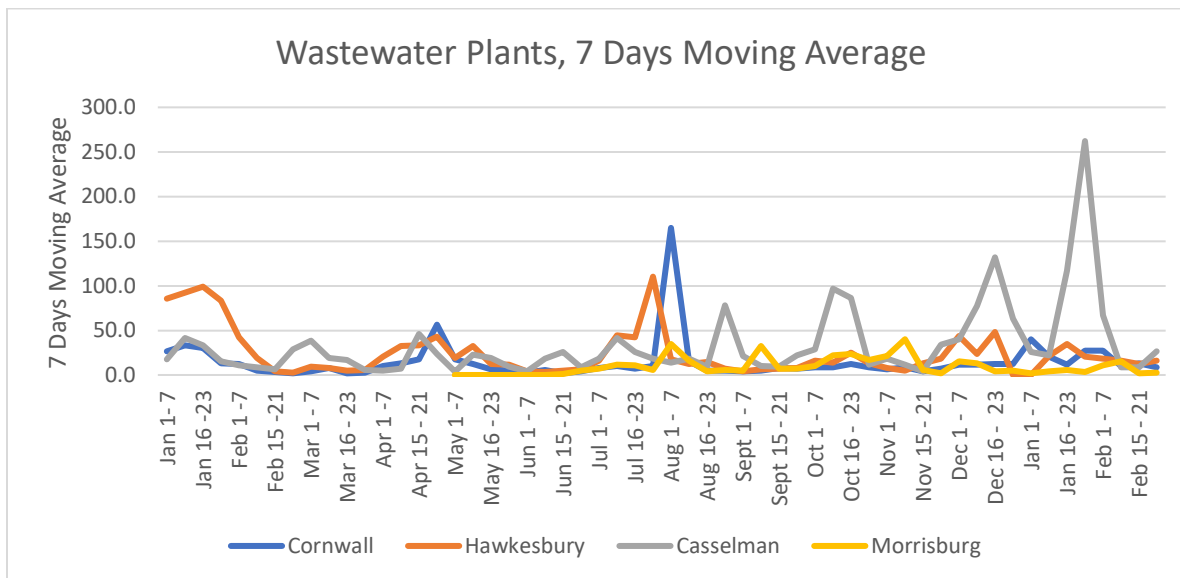


Source: MOH Capacity, Planning and Analytics Division

Month 2022/2023	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	11.8	11.2
September	13.2	13.6
October	15.2	15.6
November	13.5	13.3
December	14	13.6
January	13	12.1
February	13	13.5

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 15th. 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 1st, and later dropping to a low of 4.52, April 1-7th. All sites experienced a rise at some point during April but then waned from the beginning of May before another increase, particularly for Hawkesbury. The highest climb during the 7th 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. All sites leveled off since this decline except for Casselman and Morrisburg. Casselman experienced the highest peak at the beginning of January before hitting a rapid decline mid- February.



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

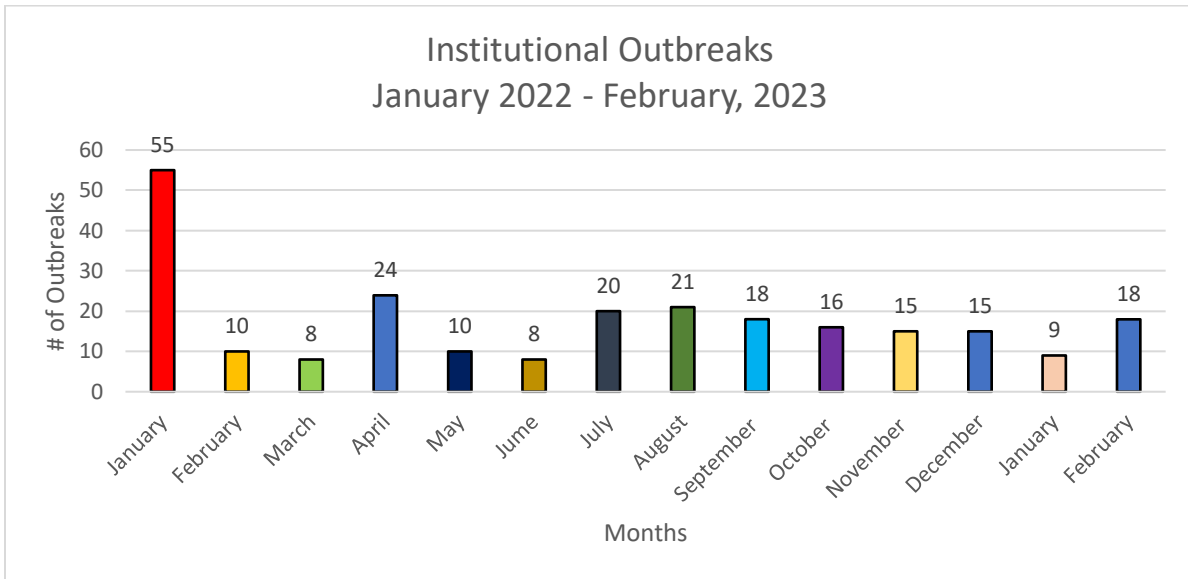
	Cornwall	Hawkesbury	Casselman	Morrisburg
Jan 1-7	26.5	85.6	17.8	n/a
Jan 8-15	32.9	92.36	41.60	n/a
Jan 16-23	30.3	99.34	33.46	n/a
Jan 24-31	12.9	83.58	15.23	n/a
Feb 1-7	12.2	42.20	11.18	n/a
Feb 8-14	4.7	18.69	8.57	n/a
Feb 15-21	3.6	3.73	6.42	n/a
Feb 22-28	1.9	2.96	28.81	n/a
Mar 1-7	3.7	9.19	38.57	n/a
Mar 8-15	7.5	7.62	18.67	n/a
Mar 16-23	1.8	5.04	16.65	n/a
Mar 24-31	2.8	5.62	5.60	n/a
Apr 1-7	9.8	20.21	4.53	n/a
Apr 8-14	13.3	32.66	7.31	n/a
Apr 15-21	17.3	33.02	46.01	n/a
Apr 22-30	56.7	42.58	23.61	n/a
May 1-7	17.78	18.93	3.79	0.00
May 8-15	11.99	32.54	22.71	0.00
May 16-23	6.02	12.33	19.28	0.00
May 24-31	4.59	11.69	9.64	0.00
Jun 1-7	2.76	4.07	4.26	0.00
Jun 8-14	5.26	3.15	18.56	0.00
Jun 15-21	2.12	4.94	25.43	1.11
Jun 22-30	3.88	6.12	8.44	4.83

	Cornwall	Hawkesbury	Casselman	Morrisburg
Jul 1-7	8.04	15.90	18.36	7.13
Jul 8-15	9.76	44.58	41.67	11.59
Jul 16-23	7.10	42.45	25.85	10.61
Jul 24-31	10.29	110.21	18.54	5.93
Aug 1-7	164.87	17.67	14.15	34.98
Aug 8-15	15.51	12.39	18.18	16.13
Aug 16-23	5.00	14.54	9.06	4.41
Aug 24-31	4.89	7.17	78.06	5.39
Sept 1-7	3.73	4.01	21.01	5.01
Sept 8-14	4.47	6.52	10.30	32.56
Sept 15-21	7.48	6.98	9.01	7.37
Sept 22-30	7	7.86	21.8	7.33
Oct 1-7	8.22	16.01	28.89	9.76
Oct 8-15	8.8	14.18	97.12	22.36
Oct 16-23	12.35	24.69	86.43	23.7
Oct 24-31	8.36	13.10	11.43	16.85
Nov 1-7	6.67	7.84	17.99	21.54
Nov 8-14	8.74	4.76	11.56	40.09
Nov 15-21	4.38	12.75	4.23	5.39
Nov 22-30	7.29	18.04	33.72	1.95
Dec 1-7	11.40	43.87	39.85	14.93
Dec 8-15	11.19	23.66	77.54	13.38
Dec 16-23	12.16	48.31	131.63	4.36
Dec 24-31	12.32	0.00	62.97	4.90

	Cornwall	Hawkesbury	Casselman	Morrisburg
Jan 1- 7	39.80	0.00	26.13	2.00
Jan 8- 15	20.83	21.18	22.16	4.06
Jan 16- 23	11.31	34.39	116.64	5.81
Jan 24- 31	27.21	20.35	262.20	3.54
Feb 1- 7	27.34	17.93	66.86	11.12
Feb 8 - 14	9.93	16.14	8.79	15.44
Feb 15- 21	13.08	12.63	8.83	1.54
Feb 22- 28	8.61	16.14	26.74	2.33

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 21 in August but have then declined the following months and rebounded again in February reaching a high of 18.



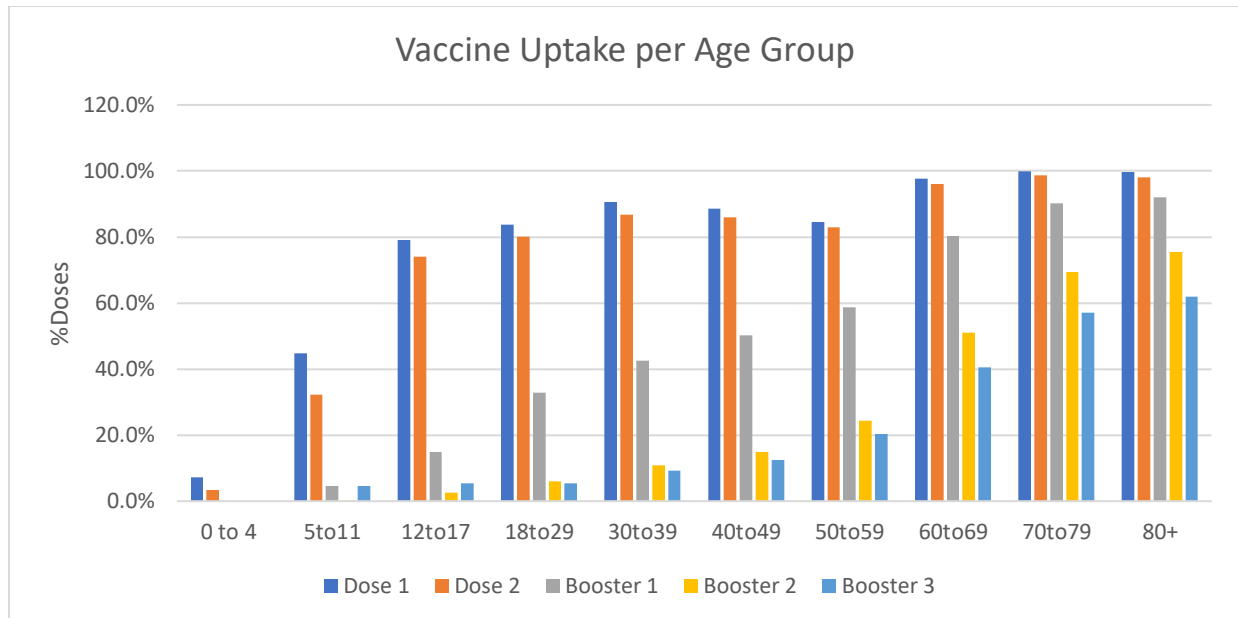
The outbreaks were identified by their reported date.

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
September	18
October	16
November	15
December	15
January	9
February	18

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 (3rd dose) was not as popular with the younger population (under 60 yrs). 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 3rd dose plateaued in the spring. The fall booster has good uptake with the 60+ population but not with the younger age groups.



Source: MOH Capacity, Planning and Analytics Division

Age	Dose 1	Dose 2	Booster 1	Booster 2	Booster 3
0 to 4	7.1%	3.4%	0.0%	0.0%	0.0%
5 to 11	44.7%	32.2%	4.6%	0.1%	4.5%
12 to 17	79.1%	74.1%	14.9%	2.6%	5.4%
18 to 29	83.7%	80.0%	32.9%	6.1%	5.5%
30 to 39	90.6%	86.7%	42.5%	10.8%	9.2%
40 to 49	88.7%	86.1%	50.2%	15.0%	12.5%
50 to 59	84.6%	82.9%	58.6%	24.4%	20.4%
60 to 69	97.7%	96.0%	80.3%	51.1%	40.5%
70 to 79	99.9%	98.7%	90.2%	69.3%	57.0%
80+	99.7%	98.0%	92.0%	75.4%	61.9%

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 3rd dose combined with the highly contagious Omicron, and the waning of the 2nd dose, the 5th wave hit our communities hard.

The end of the 5th wave corresponded with the change in public health precautions thus paving the way for the 6th 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. In the fall, three different respiratory illness met to cause havoc on our health care system: COVID-19, influenza and RSV. The impact was felt strongly in children.

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 7th and subsequent waves may be less strong¹. However, the virus continues to circulate because of the low coverage of the third dose; two doses are less effective against Omicron (5th+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 infection²: the waning coverage of the 2nd dose (less than 50%) roared back to 92% following the 3rd dose booster.

Recommendations:

- ✓ If you only have your 2nd or 3rd doses, consider getting a booster shot. This is especially important if you or people you are in touch with regularly have co-morbidities (see summary above). Also
- ✓ 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.

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.