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SURVEILLANCE REPORT

COVID-19, Influenza and Respiratory Syncytial Virus Outbreaks in Long-Term Care and Retirement Homes in the 2023-24 Surveillance Period

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This is the final report for the 2023-24 respiratory season. Publication of these data will resume for the 2024-25 season. For summary information on COVID-19, influenza, RSV and other respiratory outbreaks, please visit the Ontario Respiratory Virus Tool.

Purpose

The purpose of this bi-weekly report is to summarize available data on confirmed outbreaks in long-term care homes (LTCHs) and retirement homes (RHs) for COVID-19, influenza and respiratory syncytial virus (RSV) in Ontario for the 2023-24 surveillance period. The 2023-24 surveillance period (henceforth referred to as 2023-24) started on August 27, 2023 (week 35, 2023) and will end on August 24, 2024 (end of week 34, 2024) This report includes data reported as of March 2, 2024. Outbreaks meeting the provincial confirmed COVID-19[1] and respiratory infection outbreak in institutions and public hospitals[2] definitions are included in this report.

Key Findings

- Of COVID-19, influenza and RSV, COVID-19 is responsible for the most outbreaks in LTCHs and RHs in 2023-24 to date:
    - For LTCHs, there have been 1,212 COVID-19, 193 influenza and 82 RSV outbreaks (Table 1).
        - Of these, the following number of outbreaks are ongoing: COVID-19 (n=31), influenza (n=35), RSV (n=4)
    - For RHs, there have been 975 COVID-19, 74 influenza and 29 RSV outbreaks (Table 1).
        - Of these, the following number of outbreaks are ongoing: COVID-19 (n=19), influenza (n=17), RSV (n=3)

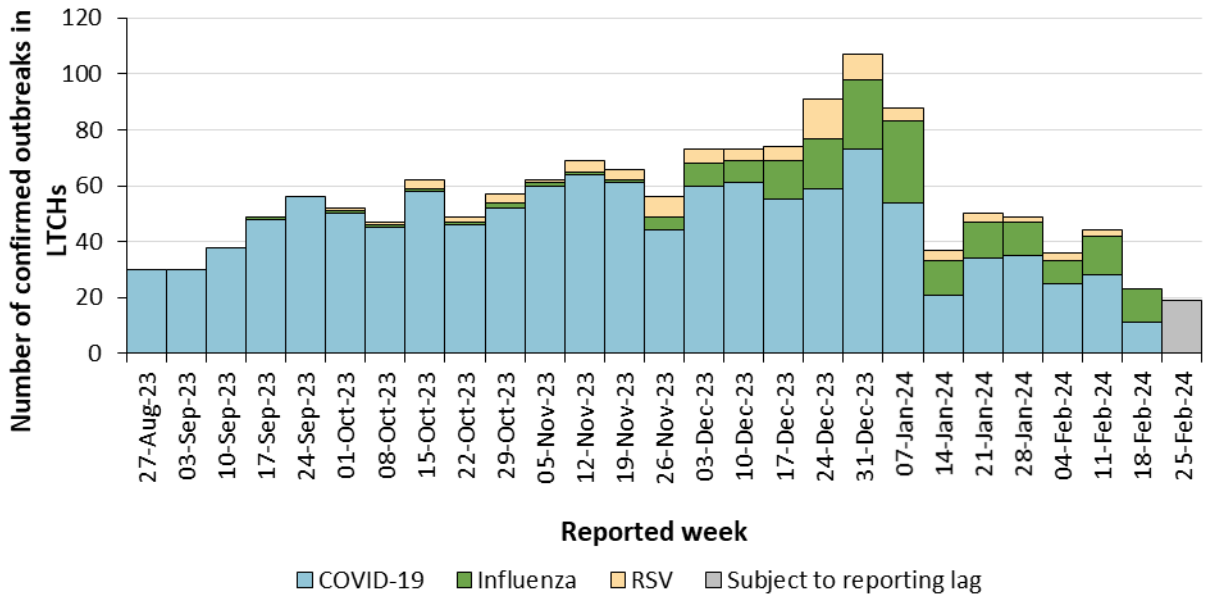
- Among COVID-19 outbreaks in LTCH settings in 2023-24 to date, there were 23,098 cases among residents and staff. There were 558 hospitalizations and 396 deaths among residents (Table 2a and 2b).
- Among COVID-19 outbreaks in RH settings in 2023-24 to date, there were 13,358 cases among residents and staff. There were 557 hospitalizations and 84 deaths among residents (Table 3a and 3b).
- The median outbreak duration of COVID-19 outbreaks in 2023-24 to date was 9 days in LTCHs and 8 days in RHs (Table 1). In comparison, the median outbreak duration of COVID-19 outbreaks in 2022-23 was 11 days in LTCHs and 9 days in RHs (Table A1).
- Among residents, the median attack rate for COVID-19 outbreaks in 2023-24 to date was 25.0% in LTCHs and 17.4% in RHs (Table 2a and 3a). In comparison, the median attack rate for COVID-19 outbreaks in 2022-23 was 31.1% in LTCHs and 22.2% in RHs (Table A2a and A3a).
- Among residents, the median hospitalization rate for COVID-19 outbreaks in 2023-24 to date was 4.0% in LTCHs and 9.1% in RHs (Table 2a and 3a). In comparison, the median hospitalization rate for COVID-19 outbreaks in 2022-23 was 4.5% in LTCHs and 7.7% in RHs (Table A2a and A3a).
- Among residents, the median case fatality rate for COVID-19 outbreaks in 2023-24 to date was 2.5% in LTCHs and <0.1% in RHs (Table 2a and 3a). In comparison, the median case fatality rate for COVID-19 outbreaks in 2022-23 was 4.3% in LTCHs and <0.1% in RHs (Table A2a and A3a).

Interpretation Notes

- The report includes data for all outbreaks in 2023-24 to date, including those that are ongoing. Therefore, outbreak trends presented in this report are subject to change as public health units (PHUs) collect and enter additional information.
    - PHUs enter initial information (including aggregate count data) after declaring an outbreak and may make updates during the outbreak at their discretion. PHUs then have 14 calendar days to complete data entry for COVID-19 outbreaks after declaring them over, and 15 business days to complete data entry for influenza and RSV outbreaks after declaring them over. This means that data presented on ongoing outbreaks are not likely to be complete, and therefore should be interpreted with this in mind.
- Outbreaks with missing setting information, or settings other than LTCHs or RHs were not included in this analysis. Furthermore, Public Health Ontario has not conducted manual review, validation or data cleaning of the LTCH and RH settings entered in the integrated Public Health Information System (iPHIS) and the Public Health Case and Contact Management Solution (CCM).
- Median attack, hospitalization and case fatality rates along with median duration are not presented for outbreaks in 2023-24 when there are low counts.

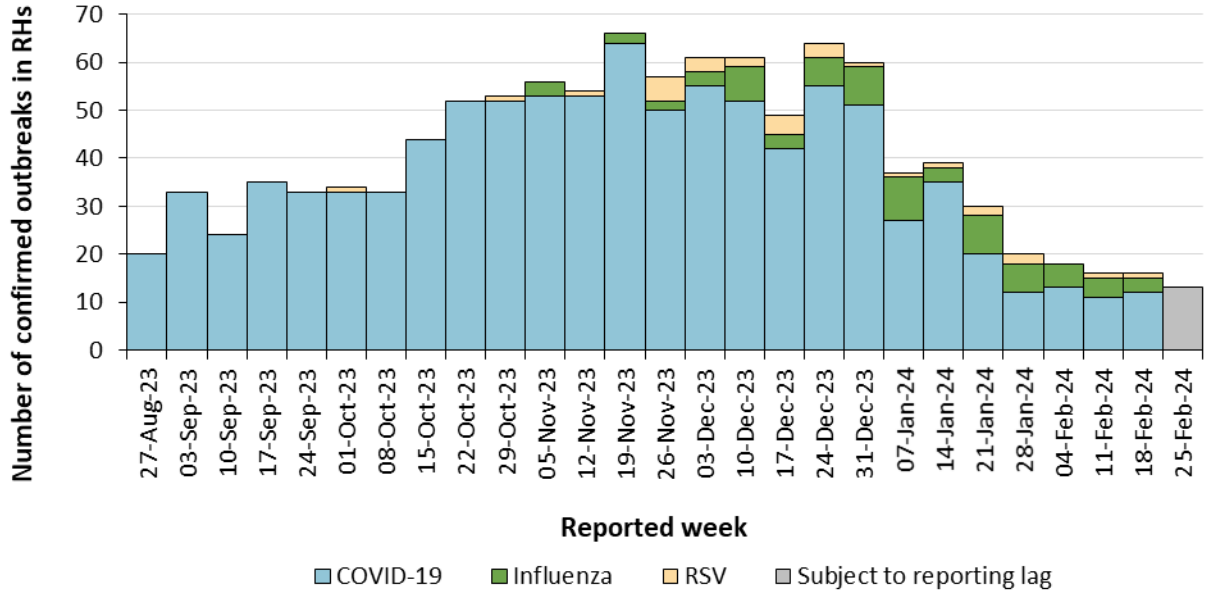
Results

Figure 1: Confirmed respiratory virus outbreaks in LTCHs by reported week, Ontario: 2023-24



Note: Respiratory virus outbreaks due to pathogens other than COVID-19, Influenza, and RSV are not presented.

Figure 2: Confirmed respiratory virus outbreaks in RHs by reported week, Ontario: 2023-24



Note: Respiratory virus outbreaks due to pathogens other than COVID-19, Influenza, and RSV are not presented.

Table 1: Confirmed outbreaks and median duration in LTCHs and RHs, by pathogen, Ontario: August 27, 2023 – March 2, 2024

Month/Measure	COVID-19 LTCH	COVID-19 RH	Influenza LTCH	Influenza RH	RSV LTCH	RSV RH
September 2023	202	145	1	0	0	0
October 2023	219	179	5	0	7	1
November 2023	252	246	9	6	19	3
December 2023	251	216	49	20	29	16
January 2024	199	136	86	29	21	6
February 2024	89	53	43	19	6	3
Total number of outbreaks	**1,212**	**975**	**193**	**74**	**82**	**29**
Median outbreak duration in days (IQR)	9 (5-16)	8 (5-13)	5 (2-11)	7 (4-10)	8 (4-14)	8 (2-14)

Note: September 2023 includes data for August 27-31, 2023. February 2024 includes data for March 1-2, 2024.
IQR: Interquartile Range; --: Refers to where data are not reported or are not presented due to low counts.

Table 2a: Confirmed outbreaks in LTCHs among residents, by pathogen, Ontario: August 27, 2023 – March 2, 2024

Measure	COVID-19	Influenza	RSV
Total number of cases among residents	**17,747**	**1,885**	**697**
Median outbreak attack rate (IQR)	25.0% (12.5-41.6%)	14.7% (9.0-22.6%)	15.4% (9.5-24.0%)
Total number of cases hospitalized	**558**	**156**	**30**
Median hospitalization rate (IQR)	4.0% (0.0-11.1%)	0.0% (0.0-11.3%)	0.0% (0.0-0.0%)
Total number of deaths	**396**	**58**	**13**
Median case fatality rate (IQR)	2.5% (0.0-6.7%)	0.0% (0.0-0.0%)	0.0% (0.0-0.0%)

IQR: Interquartile Range; --: Refers to where data are not reported or are not presented due to low counts.

Table 2b: Confirmed outbreaks in LTCHs among staff, by pathogen, Ontario: August 27, 2023 – March 2, 2024

Measure	COVID-19	Influenza	RSV
Total number of cases among staff	**5,351**	**446**	**98**
Median outbreak attack rate (IQR)	6.8% (2.3-15.8%)	0.0% (0.0-6.4%)	0.0% (0.0-3.3%)
Total number of cases hospitalized	**3**	**3**	**0**
Median hospitalization rate (IQR)	0.0% (0.0-0.0%)	0.0% (0.0-0.0%)	--
Total number of deaths	**0**	**1**	**0**
Median case fatality rate (IQR)	--	0.0% (0.0-0.0%)	--

IQR: Interquartile Range; --: Refers to where data are not reported or are not presented due to low counts.

Table 3a: Confirmed outbreaks in RHs among residents, by pathogen, Ontario: August 27, 2023 – March 2, 2024

Measure	COVID-19	Influenza	RSV
Total number of cases among residents	**11,353**	**673**	**230**
Median outbreak attack rate (IQR)	17.4% (9.5-29.9%)	12.2% (7.1-20.0%)	13.1% (6.5-18.9%)
Total number of cases hospitalized	**557**	**100**	**24**
Median hospitalization rate (IQR)	9.1% (0.0-16.7%)	9.1% (0.0-31.3%)	0.0% (0.0-25.0%)
Total number of deaths	**84**	**15**	**2**
Median case fatality rate (IQR)	0.0% (0.0-3.8%)	0.0% (0.0-0.0%)	0.0% (0.0-0.0%)

IQR: Interquartile Range; --: Refers to where data are not reported or are not presented due to low counts.

Table 3b: Confirmed outbreaks in RHs among staff, by pathogen, Ontario: August 27, 2023 – March 2, 2024

Measure	COVID-19	Influenza	RSV
Total number of cases among staff	**2,005**	**68**	**27**
Median outbreak attack rate (IQR)	5.6% (0.4-15.0%)	0.0% (0.0-4.0%)	0.0% (0.0-0.0%)
Total number of cases hospitalized	**15**	**0**	**0**
Median hospitalization rate (IQR)	0.0% (0.0-0.0%)	--	--
Total number of deaths	**0**	**0**	**0**
Median case fatality rate (IQR)	--	--	--

IQR: Interquartile Range; --: Refers to where data are not reported or are not presented due to low counts.

Technical Notes

- For the 2023-24 surveillance period data for COVID-19 outbreaks, including aggregate case counts, were based on information successfully extracted from CCM by Public Health Ontario (PHO) as of March 5, 2024 at 1 p.m. For the 2022-23 surveillance period, data were based on information successfully extracted from CCM by PHO as of October 3, 2023 at 1 p.m.
- For the 2023-24 surveillance period data for influenza and RSV outbreaks, including aggregate case counts, were based on information successfully extracted from iPHIS by PHO as of March 6, 2024 at 9 a.m. For the 2022-23 surveillance period data were based on information successfully extracted from iPHIS by PHO as of November 15, 2023 at 9 a.m.
    - Outbreaks not meeting the provincial definition for respiratory infection outbreaks in institutions and public hospitals (e.g., 0 aggregate cases reported) were excluded from the analyses.
- Only outbreaks reported on or after August 28, 2022 to the Saturday immediately before the extraction dates are included in the report.
- iPHIS and CCM are dynamic disease reporting systems that allow ongoing updates to data previously entered. As a result, data extracted from CCM and iPHIS represent a snapshot at the time of extraction and may differ from previous or subsequent reports.
- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags. Unless otherwise noted, previously reported data may change, unless otherwise noted, as PHUs update and close outbreaks.
- All data in this report relating to cases, hospitalizations and deaths are based on aggregate counts reported in CCM and iPHIS. Aggregate counts can include cases that are symptomatic or that test positive by rapid antigen test (RAT). In contrast, previously reported counts of COVID-19 cases, hospitalizations and deaths in LTCHs and RHs were based on individual reports of PCR-confirmed cases, which were identified in CCM by risk factor and/or outbreak linkage. As a result, aggregately reported data in this report should not be compared directly to outbreak indicators that are based on individually reported cases.
- Aggregate data for the 2022-23 surveillance period may be less complete. Even though PHUs were required to enter this information, more emphasis was placed on individual case data entry until April 1, 2023 when the reporting requirement was changed to allow PHUs to focus on aggregate case reporting, instead of individual linking of cases to LTCH/RH outbreaks.
- Outbreak reported week is based on the outbreak reported date, and if unavailable, the date the public health unit created the outbreak is used.
- Outbreaks without setting reported and in settings other than LTCH and RH were excluded from the analyses. For this report, PHO has not conducted manual review, validation or data cleaning of the LTCH and RH settings entered in iPHIS and CCM.
- Cases are individuals that were line listed for the outbreak (i.e., related to the outbreak) and may or may not have been confirmed by a laboratory or rapid test (i.e., line listed based on symptoms and/or epidemiologic links). These counts are reported in aggregate in CCM and iPHIS.
- Hospitalized cases are individuals who were line listed and met the outbreak case definition (i.e. for the COVID-19, influenza or RSV outbreak) who were subsequently admitted to the hospital because of their infection. These counts are reported in aggregate in CCM and iPHIS.

- Deaths are outbreak-related deaths (i.e. excluding deaths where COVID-19, influenza or RSV were unrelated to the cause of death) that occurred in individuals, who were line listed and met the case definition for those outbreaks. These counts are reported in aggregate in CCM and iPHIS.
- Attack rate was calculated as:

$$\frac{\text{(Cases in residents/staff)}}{\text{(Number of residents/staff in the affected area)}}$$

  - If the number of cases or the number of residents/staff in the affected area was not available, then the attack rate for that outbreak was not calculated and not included in the summary of attack rates.
  - Attack rates calculated to be over 100% were set to 100% for the purposes of this report.
- Case hospitalization rate was calculated as:

$$\frac{\text{Hospitalizations among resident/staff cases occurring as a result of their infection}}{\text{Number of Cases in residents/staff}}$$

  - If the number of hospitalizations was missing then the hospitalization rate was not calculated and not included in the summary of hospitalization rates.
  - Hospitalization rates calculated to be over 100% were set to 100% for the purposes of this report.
- Case fatality rate was calculated as:

$$\frac{\text{Deaths among resident/staff cases occurring as a result of their infection}}{\text{Number of Cases in residents/staff}}$$

  - If the number of deaths was missing then the case fatality rate was not calculated and not included in the summary of case fatality rates.
  - Case fatality rates calculated to be over 100% were set to 100% for the purposes of this report.
- Duration was calculated as:

  Date of onset of illness in last case - Date onset of illness in first case. It is not calculated for outbreaks missing either of these dates.

  - If an outbreak had a calculated duration less than 0 days, then the outbreak was excluded from calculations of summary duration measures.
  - Duration is not calculated for ongoing outbreaks.
- The interquartile range (IQR) is between the 25th and 75th percentiles of the data.
- Further data caveats and methods are available in the technical notes for the Ontario Respiratory Virus Tool.[3]

References

1. Ontario. Ministry of Health; Ontario. Ontario public health standards: requirements for programs, services and accountability. Infectious disease protocol. Appendix 1: case definitions and disease specific information. Disease: diseases caused by a novel coronavirus, including coronavirus disease 2019 (COVID-19), severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). Effective: Sep 2023 [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Oct 5]. Available from: https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/novel_coronavirus.pdf

2. Ontario. Ministry of Health; Ontario. Ontario public health standards: requirements for programs, services and accountability. Infectious disease protocol. Appendix 1: case definitions and disease specific information. Disease: respiratory infection outbreaks in institutions and public hospitals. Effective: September 2023 [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Oct 5]. Available from: https://www.ontario.ca/files/2023-12/moh-ophs-respiratory-infection-outbreaks-en-2023.pdf

3. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Technical notes: Ontario respiratory virus tool [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Oct 5]. Available from: https://www.publichealthontario.ca/-/media/Data-Files/respiratory-virus-tool-technical-notes.pdf?sc_lang=en&rev=6666037161944b44a0ce824cc29159c1&hash=D24A3AA65098CB74A872C24E1564B2AE

Appendix A: 2022-23 Surveillance Period Data Tables

Table A1: Confirmed outbreaks and median duration in LTCHs and RHs, by pathogen, Ontario: August 28, 2022 – August 26, 2023

Month/Measure	COVID-19 LTCH	COVID-19 RH	Influenza LTCH	Influenza RH	RSV LTCH	RSV RH
September	215	222	1	0	1	0
October	262	270	8	8	2	1
November	140	145	66	28	13	3
December	208	163	55	28	42	17
January	155	146	9	8	64	16
February	121	94	3	1	23	8
March	115	87	2	0	9	5
April	82	68	2	1	8	1
May	82	54	2	0	3	0
June	37	38	3	0	2	0
July	49	20	1	1	0	0
August	86	44	0	0	1	0
Total number of outbreaks	**1,552**	**1,351**	**152**	**75**	**168**	**51**
Median outbreak duration in days (IQR)	11 (5-18)	9 (5-14)	6 (3-11)	5 (2.5-8)	10 (4-16)	7.5 (4-14)

Note: September 2022 includes data for August 28-31, 2022. August 2023 includes data up to August 26, 2023.
IQR: Interquartile Range

Table A2a: Confirmed outbreaks in LTCHs among residents, by pathogen, Ontario: August 28, 2022 – August 26, 2023

Measure	COVID-19	Influenza	RSV
Total number of cases among residents	**27,190**	**1,383**	**1,561**
Median outbreak attack rate (IQR)	31.1% (13.6-52.0%)	15.0% (8.7-25.0%)	18.3% (11.3-29.0%)
Total number of cases hospitalized	**659**	**99**	**63**
Median hospitalization rate (IQR)	4.5% (0.0-10.0%)	0.0% (0.0-10.0%)	0.0% (0.0-0.0%)
Total number of deaths	**792**	**40**	**34**
Median case fatality rate (IQR)	4.3% (0.0-8.3%)	0.0% (0.0-0.0%)	0.0% (0.0-0.0%)

IQR: Interquartile Range

Table A2b: Confirmed outbreaks in LTCHs among staff, by pathogen, Ontario: August 28, 2022 – August 26, 2023

Measure	COVID-19	Influenza	RSV
Total number of cases among staff	**9,086**	**341**	**134**
Median outbreak attack rate (IQR)	11.1% (5.0-22.9%)	1.2% (0.0-6.3%)	0.0% (0.0-2.5%)
Total number of cases hospitalized	**0**	**1**	**0**
Median hospitalization rate (IQR)	--	0.0% (0.0-0.0%)	--
Total number of deaths	**0**	**0**	**0**
Median case fatality rate (IQR)	--	--	--

IQR: Interquartile Range; --: Refers to where data are not reported

Table A3a: Confirmed outbreaks in RHs among residents, by pathogen, Ontario: August 28, 2022 – August 26, 2023

Measure	COVID-19	Influenza	RSV
Total number of cases among residents	**17,692**	**559**	**432**
Median outbreak attack rate (IQR)	22.2% (11.1-39.0%)	12.5% (6.6-24.7%)	14.2% (7.1-28.6%)
Total number of cases hospitalized	**707**	**82**	**28**
Median hospitalization rate (IQR)	7.7% (2.5-15.4%)	10.6% (0.0-25.0%)	0.0% (0.0-9.1%)
Total number of deaths	**165**	**8**	**6**
Median case fatality rate (IQR)	0.0% (0.0-5.0%)	0.0% (0.0-0.0%)	0.0% (0.0-0.0%)

IQR: Interquartile Range

Table A3b: Confirmed outbreaks in RHs among staff, by pathogen, Ontario: August 28, 2022 – August 26, 2023

Measure	COVID-19	Influenza	RSV
Total number of cases among staff	**2,768**	**81**	**39**
Median outbreak attack rate (IQR)	8.6% (2.6-20.0%)	0.0% (0.0-6.9%)	0.0% (0.0-5.7%)
Total number of cases hospitalized	**3**	**0**	**0**
Median hospitalization rate (IQR)	0.0% (0.0%-0.0%)	--	--
Total number of deaths	**0**	**0**	**0**
Median case fatality rate (IQR)	--	--	--

IQR: Interquartile Range; --: Refers to where data are not reported

Citation

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