

Weekly Respiratory Virus Update Technical Document

Purpose of Report

The purpose of the weekly respiratory virus update (WRVU) report is to share the most recent week's local influenza and COVID-19 activity with stakeholders and the public, including crude counts of cases as well as a descriptive epidemiological profile of the respiratory season as it evolves, providing an overview of circulating respiratory viruses. The epidemiological profile may include the impacted demographic groups, the severity of influenza and/or COVID-19, outbreaks reported and influenza vaccine match.

Legislative Authority

Influenza and COVID-19 surveillance and reporting falls under the scope of the [Ontario Public Health Standards](#) and the [Infectious Diseases Protocol](#).

Case Definitions

Case definitions for influenza and COVID-19 are defined under [Appendix B](#) of the Ontario Public Health Standards Infectious Diseases Protocol.

Primary Audience

The primary audience of this report are community partners and health care professionals in the Simcoe and Muskoka regions. These include (and are not limited to):

- Long term care homes
- Retirement homes
- Corrections facilities
- Acute care facilities (e.g. hospitals)
- Designated officers for Police, Fire and Emergency Management

Reporting Guidelines

Frequency: Weekly from November to April (or as determined by health unit management).
Posted to the website and shared to the distribution list on Wednesday mornings.

Surveillance weeks cover Sunday to Saturday and follow the Public Health Ontario [surveillance week schedule](#) for the respiratory virus season.

Data Sources:

- Integrated Public Health Information System (iPHIS)
- Case and Contact Management (CCM) Solution
- [Ontario Respiratory Pathogen Bulletin](#)
- [Public Health Ontario Laboratory Respiratory Pathogen Surveillance Reports](#)
- [FluWatch](#)

- [Acute Care Enhanced Surveillance \(ACES\) system](#)

Data Limitations

Timeliness:

The provincial data are lagged by one week compared to all other data presented in this update due to data availability. The emergency department data, local counts of influenza and COVID-19, and outbreaks are current to date.

The number of cases and/or outbreaks and percent positivity reported for a given surveillance week may change as more information becomes available.

Case Reporting:

Sporadic cases do not accurately describe all cases of influenza and/or COVID-19 as those cases reported are skewed towards individuals more likely to seek medical care and be tested (e.g., young, elderly and immunocompromised) as well as healthcare workers.

Cases are reported based on where the individual normally lives which may not match where they acquired the illness.

While Public Health Ontario only requires case information as provided by the laboratory report, the health unit investigates all outbreak cases, as information is available, in order to provide a more accurate local picture of adverse outcomes and subtyping.

Data Comparison:

The indicators used in this report are different from those presented in the COVID-19 Community Risk Level and cannot be directly compared. Differences may be due to data reporting lag and/or indicator definitions

Dissemination

The weekly respiratory virus update will be shared with both internal and external partners. The Epidemiologist is responsible for compiling and sending out the bulletin.

Frequency: Weekly during active respiratory virus season

Start Date: November (or as determined by health unit management)

End Date: Ongoing until end of April (or as determined by health unit management)

Other Sources of Respiratory Data

- [Ontario Respiratory Pathogen Bulletin](#)
- [Public Health Ontario Laboratory Respiratory Pathogen Surveillance Reports](#)
- [Viral Respiratory Mapper](#)
- [Public Health Agency of Canada FluWatch](#)
- [WHO Seasonal Influenza](#)

Acknowledgement

This guide was developed by Danielle Hachborn, Epidemiologist, in consultation with Jillian Fenik, Manager of Infectious Diseases, Amanda Tumukuratiire, Research Analyst and Stacey Collins, Data Management Assistant.

Appendix A: Influenza Indicators

The following tables outline the basic requirements for the calculation of each of the following influenza/COVID-19 indicators, including APHEO. All indicators listed below are based on flu or COVID-19 data by respiratory virus season (September to August). Information includes the numerator, denominator, exclusion criteria and additional analytical notes.

Note that indicators below are based on influenza, but can be calculated similarly for COVID-19. Analysis notes detail any differences between COVID-19 and influenza.

APHEO Indicators

Source: [APHEO Core Indicators](#)

Total Incidence Rate

| | |
|------------------------|--|
| Description: | The rate of influenza or COVID-19 per 100,000 individuals in the currently respiratory virus season to date |
| Data Source: | Influenza: iPHIS; COVID-19: CCM; Population Estimates/Projections |
| Numerator: | Number of new influenza/COVID-19 cases where Simcoe Muskoka is the diagnosing health unit in the current respiratory virus season |
| Denominator | Total population for the currently respiratory virus season (see analysis notes below) |
| Exclusions: | Missing data |
| Calculation: | $\frac{\text{Total number of new cases in the specified time period}}{\text{Total population in the specified time period}}$ |
| Subgroups: | Age at illness (see below) |
| Analysis Notes: | - Population count is based on the population for starting year of the season (i.e. 2016 for the 2016-17 respiratory virus season). This can be pulled from the Population Estimates/Projections from Intellihealth. |

Age-specific Incidence Rate

| | |
|---------------------|--|
| Description: | The rate of influenza or COVID-19 per 100,000 individuals of a particular age group in the currently respiratory virus season to date |
| Data Source: | Influenza: iPHIS; COVID-10: CCM; Population Estimates/Projections |
| Numerator: | Number of new influenza/COVID-19 cases where Simcoe Muskoka is the diagnosing health unit in the current respiratory virus season for a specific age group |
| Denominator | Total population for the currently respiratory virus season for a specific age group (see analysis notes below) |
| Exclusions: | Missing data |
| Calculation: | $\frac{\text{Total number of new cases in the specified time period in an age group}}{\text{Total population in the specified time period in that age group}}$ |

| | |
|------------------------|--|
| Subgroups: | Age groups are: <1, 1-4, 5-14, 15-24, 25-44, 45-64, 65-84, 85+ |
| Analysis Notes: | - Population count is based on the population for starting year of the season (i.e. 2016 for the 2016-17 respiratory virus season). This can be pulled from the Population Estimates/Projections from Intellihealth. |

Non-APHEO Indicators

Percent Positivity

| | |
|------------------------|---|
| Description: | The proportion of tested specimens that are positive for a specified strain of flu (Influenza A or B) for the specified time period (reporting week or season to date) |
| Data Source | Influenza: PHO Laboratory Respiratory Pathogen Surveillance Report – Table 6 COVID-19: Ontario Laboratory Information System (OLIS) – see analysis notes |
| Numerator: | Number of positive specimens for a specified strain of influenza or COVID-19. |
| Denominator | Total number of specimens tested for influenza or COVID-19. |
| Exclusions: | Missing data |
| Calculation: | $\frac{\text{Total number of positive specimens (of a particular strain)}}{\text{Total number of specimens tested for specific virus}}$ |
| Subgroups: | None available |
| Analysis Notes: | <ul style="list-style-type: none"> - Calculated for a week time period, following the respiratory season surveillance week numbers (Sunday to Saturday). - Displayed by the first day of the surveillance week for the current respiratory virus season (i.e. Week 35 = September 4, 2016) - COVID-19 percent positivity, including the numerator and denominator, is calculated internally using OLIS and provincially downloaded data. |

Respiratory Syndrome Emergency Department Visits

| | |
|------------------------|--|
| Description: | The proportion of ED visits that are categorized as a respiratory syndrome at participating SMDHU hospitals for the specified week. |
| Data Source: | Acute Care Enhanced Surveillance (ACES) system |
| Numerator: | Number of ED visits at participating SMDHU hospitals where the chief complaint is categorized as a respiratory syndrome for the defined time period |
| Denominator | Total number of ED visits at participating SMDHU hospitals for the defined time period |
| Exclusions: | Missing data |
| Calculation: | $\frac{\text{Total number of ED visits at participating SMDHU hospitals that are categorized as respiratory syndrome in specified time period}}{\text{Total number of ED visits at participating SMDHU hospitals in specified time period}}$ |
| Subgroups: | Can be grouped by age, sex, postal code |
| Analysis Notes: | - Calculated for a week time period, following the respiratory virus season surveillance week numbers (Sunday to Saturday). |

- Displayed by the first day of the surveillance week for the current respiratory virus season (i.e. Week 35 = September 4, 2016)
- As of October 2016, Muskoka Algonquin Health Care, Georgian Bay General Hospital, Orillia Soldiers Memorial, Royal Victoria Health Centre were the participating hospitals.
- Does not include influenza-like illness (ILI).

Percent Vaccine Match

| | |
|------------------------|---|
| Description: | The proportion of characterized isolates that match the influenza vaccine strains for the current respiratory virus season. |
| Data Source: | PHO Laboratory Respiratory Pathogen Surveillance Report/ PHAC FluWatch |
| Numerator: | Number of influenza isolates characterized across Canada by NML that match the subtype/strain of interest |
| Denominator | The number of influenza isolates characterized across Canada by NML that are of the same type as the subtype or strain of interest. |
| Exclusions: | Missing data |
| Calculation: | $\frac{\text{Total number of influenza isolates characterized that match the subtype or strain of interest}}{\text{Total number of influenza isolates characterized that are of the same type as the subtype or strain of interest}}$ |
| Subgroups: | None |
| Analysis Notes: | <ul style="list-style-type: none"> - Completed for each influenza strain contained within the trivalent and quadrivalent vaccines for the respiratory virus season. - The number of isolates characterized by the National Microbiology Lab (NML) for each health unit is random based on the positive flu specimens submitted by Public Health Ontario Lab (PHOL). In practice PHOL attempts to submit at least one specimen from each flu outbreak but sporadic cases as random, with more specimens submitted at the beginning, end and out-of-season time periods. - Denominator information is not available at the PHU level, as PHUs are only notified of strain typing results received back from NML which may not include all specimens submitted. - Calculated for the respiratory virus season-to-date. - Numerator includes both those strains antigenically similar as well as those with reduced titer by HI assay, as well as those genetically characterized to be within the same genetic group as the current vaccine strain (for H3N2) - Not completed for COVID-19 |