COVID-19 Data Tool

Updated: November 2022

Descriptive Measures

Number of confirmed COVID-19 cases

- This measure refers to the number of confirmed cases of COVID-19 meeting the MOH Case Definition – Coronavirus Disease (COVID-19).[1]

Number of COVID-19 cases with a hospital admission

- This measure refers to the number of confirmed cases hospitalized because of COVID-19 as defined in the data caveats.

Number of COVID-19 deaths

- This measure refers to the number of COVID-19 deaths meeting the COVID-19 death definition as defined in the data caveats.

COVID-19 rates

- COVID-19 rates are crude incidence rates.

- Rates are calculated for the province as a whole or for sub-groups such as age groups or sex (if selected in the tool). They are calculated by dividing the COVID-19 measure (cases, hospital admissions or deaths) by the total number of people in the applicable population:

$$\frac{Number\ of\ Cases}{Total\ number\ of\ people\ in\ that\ population} \times 100,000$$

Recent period

- This period refers to the most recent one week surveillance period for the specified measure e.g., cases, hospital admissions, deaths.

Cumulative period

- This period refers to all time counts or rates for the specified measure e.g. cases, hospital admissions, deaths.

7-Day rolling average case count

- This measure refers to the daily average number of confirmed COVID-19 cases in the previous seven day period, using a rolling 7-day window.

Laboratory tests

- This measure refers to the number of COVID-19 laboratory tests completed in the specified time period.

Percent positivity (for COVID-19)

- This measure refers to the percentage of COVID-19 tests performed that were positive for COVID-19 in a given surveillance week.

Percent positivity (for influenza)

- This measure refers to the percentage of influenza tests performed that were positive for influenza A or B in a given surveillance week.

Weekly indicator change

- A composite measure that assesses multiple indicators to provide the overall week over week change in trend (e.g., higher, similar, lower) for influenza (percent positivity, cases, outbreaks, public health unit activity levels) or COVID-19 (percent positivity, cases, outbreaks) comparing data from the most recent two surveillance weeks.

Number of COVID-19 outbreaks

- This measure refers to the number of confirmed COVID-19 outbreaks.

Tool Overview

COVID-19 & Flu Activity

- This tab presents information about COVID-19 and influenza activity in Ontario. Also shown is the number and percentage of tests positive for COVID-19 and influenza A and influenza B over the previous 52 surveillance weeks. Information on the activity metrics as well as data sources can be found in the Respiratory Virus Overview in Ontario report. Further details on data caveats and methods for influenza data can be found in the Ontario Respiratory Pathogen Bulletin. The metrics on this page include:

  - **Percent positivity**: An estimate of respiratory virus activity in the province, with the values low, moderate, high or very high. Percent positivity thresholds differ for influenza and COVID-19. See the percent positivity thresholds in the technical notes of the Respiratory Virus Overview in Ontario

  - **Weekly indicator change:** Weekly indicator change is a composite measure that uses multiple indicators to provide the overall change in trend (e.g., higher, similar, lower) for influenza as well as COVID-19 comparing data from the most recent two surveillance weeks.

- The surveillance week displayed can be modified to view activity for previous weeks.

Summary

- This tab presents summary information about confirmed COVID-19 cases in Ontario. Information on metrics related to vaccine uptake can be found in the Technical Notes – Vaccines. The metrics on the summary page include:

  - **Recent cases:** Recent cases include confirmed cases with a reported date within the most recent period. See definition above for recent period.

  - **Recent hospital admissions**: Recent hospital admissions include confirmed cases with a hospital admission date within the most recent period. See definition above for recent period.

  - **Recent deaths**: Recent deaths include confirmed cases with a date of death within the most recent period. See definition above for recent period.

  - **Total cases:** The cumulative number of confirmed COVID-19 cases (all time), as a count and rate per 100,000 population.

  - **Total hospital admissions:** The number of COVID-19 cases with a hospital admission date (all time), as a count and rate per 100,000 population.

  - **Total deaths:** The number of COVID-19 deaths, as a count and rate per 100,000 population.

  - **Weekly tests completed:** The number of weekly tests for COVID-19, as a count and rate per 100,000 population.

- **Weekly percent positive:** The percentage of weekly tests for COVID-19 that were positive for COVID-19.

- **Total tests:** The cumulative number of tests completed for COVID-19 (all time), as a count and rate per 1,000 population.

Case Trends

- This tab displays trends in COVID-19 case counts, hospital admissions and deaths over time

- The time period displayed can be modified (start date/week, end date/week; daily vs. weekly)

- Data can be viewed for Ontario or for each of Ontario's 34 local public health units (PHUs)

- Case data can be viewed by episode or reported date type. Data can be presented as counts with 7-day rolling averages, rates per 100,000 population or both

- Hospital admissions data are displayed by hospital admission date. Data can be presented as counts, rates per 100,000 population or both

- Deaths are displayed by date of death. Data can be presented as counts, rates per 100,000 population or both

- A grey background is used to indicate days or weeks where data may change as a result of lags in case identification, reporting and/or data entry (for COVID-19 cases).

Age and Sex

- This tab displays confirmed COVID-19 case counts, hospital admissions and deaths by age group and sex.

- Data can be viewed for Ontario or for each of Ontario's 34 PHUs, for a recent or cumulative time period, split by sex or all cases, and with or without all ages combined.

- Case data are presented by age groupings. Can be viewed by recent or cumulative cases. Data can be presented as counts, rates per 100,000 population or both.

- Hospital admission data are presented by age groupings. Can be viewed by recent or cumulative hospital admissions. Data can be presented by counts, rates per 100,000 population or both.

- Death data are presented by age groupings. Can be viewed by recent or cumulative deaths. Data can be presented by counts, rates per 100,000 population or both.

  - The all ages category includes all deaths in Ontario when deaths are viewed for Ontario, and deaths among people age 20 and older in a given PHU when deaths are viewed for individual PHUs.

- To protect against sharing potentially identifiable information, data about deaths in the COVID-19 data tool for children in age groups 0-4, 5-11, and 12-19 are aggregated to under 20 years of age at the provincial level and are not broken down by PHU.

Map

- This tab displays confirmed COVID-19 cases, hospital admissions, and deaths for all of Ontario and each of Ontario's 34 PHUs, as counts and rates per 100,000 population, for the most recent one week surveillance period.

- The map shading shows the range of cases, hospital admissions, deaths, and vaccinations for each PHU. Counts and rates per 100,000 population can be viewed when selecting the PHU on the map.

- This tab also displays vaccinations for each of Ontario's 34 public health units, as counts and percentage of the vaccine-eligible population. Vaccinations data can be viewed by vaccination status or vaccination coverage.

Outbreaks

- This tab displays confirmed COVID-19 outbreak counts by setting.

- The time period displayed can be modified (start week, end week; daily vs. weekly).

- Data can be viewed for Ontario or for each of Ontario's 34 PHUs.

- When "All categories" is selected in the "Setting" dropdown menu, there are five summary boxes that display the number of ongoing outbreaks in long-term care homes, retirement homes, hospitals, congregate living and total. This summary can be viewed for Ontario or by PHU.

- When an outbreak setting category is selected in the "Setting" dropdown menu, the summary of ongoing outbreaks updates to display the number of ongoing outbreaks in each of the setting sub-categories. This summary can be viewed for Ontario or by local public health unit.

- Cumulative outbreak data in the table can be viewed for Ontario or for each PHU, and by daily or weekly period (by Surveillance week) as well as by outbreak setting category (All categories, Congregate Care and Congregate Living).

- A grey background is used to indicate days or weeks where data may change as a result of lags in case identification, reporting and/or data entry (for COVID-19 cases).

Lab Tests

- This tab displays the number of COVID-19 tests completed by the network of laboratories across the province as well as the percentage of those tests that were positive (percent positive).

- The time period displayed can be modified (start week, end week).

- Laboratory testing data was made available starting March, 29 2020. Percent positivity data was made available starting April 16, 2020.

Data Limitations

The following data definitions and data limitations apply to the information related to COVID-19 data and were last updated November, 2022.

Data sources for the COVID-19 data tool

- Case data for the COVID-19 data Tool were based on information extracted from the Public Health Case and Contact Management Solution (CCM) for all PHUs weekly prior to posting in the COVID-19 Data Tool for waves four through seven. Data from waves one through three are refreshed on an ad hoc basis. For the most recent data refresh date of waves one through three, refer to the current version of the Weekly COVID-19 Epidemiological Summary available on the COVID-19 Data and Surveillance webpage.

- CCM is a dynamic disease reporting system, which allows ongoing updates to data previously entered. As a result, data extracted from CCM represent a snapshot at the time of extraction and may differ from previous or subsequent reports.

- Ontario population estimate data were sourced from Statistics Canada.[2] Rates for total cases, total hospital admissions and total deaths were calculated using the Ontario 2021 population estimates sourced from Statistics Canada, while vaccination coverage was calculated using Ontario 2022 population projections sourced from Statistics Canada.[3]

- COVID-19 laboratory testing data for this tool were based on information from The Provincial COVID-19 Diagnostics Network, reported by member microbiology laboratories.

Data notes and caveats for COVID-19 data

CASE COUNTS AND TESTING

- Due to changes in the Ministry of Health's updated guidance on testing and case, contact and outbreak management, case counts in this report are an underestimate of the true number of individuals with COVID-19 in Ontario. As such, data should be interpreted with caution.

- The data only represent cases reported to public health units and recorded in CCM. As a result, all counts will be subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours, which may depend on severity of illness, clinical practice, changes in laboratory testing, access to testing and reporting behaviours.

- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags. Previously reported data may change as public health units update case data.

- Due to differences in reporting timeframes, counts presented here may not align with counts presented on PHU websites. For discrepancies in counts, data presented on the PHU website should be used.

- Only cases meeting the confirmed case classification as listed in the MOH Case Definition – Coronavirus Disease (COVID-19) document are included.[1]

- Cases of confirmed reinfection, as defined in the provincial case definitions, are counted as unique cases.

- Surveillance weeks correspond to the [Public Health Agency of Canada (PHAC) influenza surveillance weeks](.)[4]

- Reported Date is the date the COVID case was reported to public health.

- Case Episode Date is based on the best estimate of the date of disease onset. This date is calculated based on either the date of symptom onset, specimen collection/test date for the COVID-19 test, or the date the COVID-19 case was reported to public health (not the specimen collection/test date).

- COVID-19 cases from CCM for which the Classification and/or Disposition was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, IGNORE, DUPLICATE, or any variation on these values have been excluded. The provincial case count for COVID-19 may include some duplicate records, if these records were not identified and resolved.

- Cases with unknown or missing ages were excluded from age-specific analyses.

- Male/Female information are sourced from the Sex field in CCM and are intended to represent sex assigned at birth. On October 14, 2021, changes were made in CCM to enable reporting on the Sex field where this data field is supplemented by archived Male/Female information previously entered in the Gender field.

- Orientation of case counts by geography is based on the permanent health unit (also referred to as diagnosing health unit or DHU). DHU refers to the case's public health unit of residence at the time of illness onset and not necessarily the location of exposure. Cases for which the DHU was reported as MOH-PHO (to signify a case is not a resident of Ontario) have been excluded from the analysis.

- The number of tests performed does not reflect the number of specimens or persons tested. More than one test may be performed per specimen or per person. As such, the percentage of tests that were positive does not necessarily translate to the number of specimens or persons testing positive.

SEVERITY INDICATORS (HOSPITAL ADMISSIONS AND DEATHS)

- Data on hospital admissions, and deaths are likely under-reported as these events may occur after the completion of public health follow up of cases. Cases that were admitted to hospital or died after follow-up was completed may not be captured in CCM.

- Hospital admissions include all cases admitted to hospital (or that had their hospital stay extended) because of COVID-19. It includes cases that have been discharged from hospital as well as cases that are currently in hospital. Includes Intensive Care Unit (ICU) cases but not emergency room visits. Hospital admissions were identified by a reported hospital admission date or reported 'Yes' for hospitalization/ICU.

- Hospital admission date refers to the first admission date recorded on the case record. Hospital service transfers (e.g., alternate level of care (ALC)) are not reflected in the hospital admission date.

- If hospital admission date is missing, then ICU admission date is used (if applicable). When there is no ICU admission date to serve as a proxy, then the case reported date is used.

- For surveillance purposes, a COVID-19 death is defined as a death resulting from a clinically compatible illness in a confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID-19 (e.g., trauma). There should be no period of complete recovery between the illness and the reported death.

- Deaths are determined by using the Outcome and Type of Death fields in CCM. COVID-19 deaths are counted where the Outcome value is 'Fatal' and the Type of Death value is not 'DOPHS was unrelated to cause of death' or 'Under PHU Review'.

- COVID-19 deaths are placed in time using the 'Date of Death' field in CCM. If the date of death is missing, the outcome date field is used as a proxy. When there is no outcome date to serve as a proxy, then the case reported date is used.

- 'Long-term care home residents' includes cases that reported 'Yes' to the risk factor 'Resident of a long-term care home'; or 'Yes' to the risk factor 'Resident of nursing home or other chronic care facility' and reported to be part of an outbreak assigned as a long-term care home (via the Outbreak number or case comments field); or were reported to be part of an outbreak assigned as a long-term care home (via the outbreak number or case comments field) with an age over 70 years and did not report 'No' to the risk factors 'Resident of long-term care home' or 'Resident of nursing home or other chronic care facility'. 'Long-term care home residents' excludes cases that reported 'Yes' to any of the health care worker occupational risk factors.

OUTBREAKS

- Outbreak reported week is based on the outbreak reported date, and if unavailable, the date the public health unit created the outbreak.

- Ongoing outbreaks are those that are reported in CCM as 'Open' without a 'Declared Over Date' recorded and were reported within the past 5 months.

- Outbreaks are declared by the local medical officer of health or their designate in accordance with the Health Protection and Promotion Act and criteria outlined in Ministry guidance documents.[5]

- Confirmed outbreaks in high-risk settings are defined in Ministry of Health's Guidance for the Health Sector.[6] Guidance for specific settings includes: COVID-19 Guidance: Long-Term Care Homes, Retirement Homes, and Other Congregate Living Settings for Public Health Units, COVID-19 Guidance: Acute Care.[7,8]

  - Note: Prior to May 5, 2021, a confirmed COVID-19 outbreak in a long-term care home or retirement home setting was defined as a single, laboratory confirmed case of COVID-19 in a resident or staff member.

  - Outbreak definitions have changed over the course of the pandemic and outbreaks were declared based on the definitions in place at the time.

References

1. Ontario. Ministry of Health; Ontario. Ministry of Long-Term Care. COVID-19: guidance for the health sector [Internet]. Toronto, ON: Queen's Printer for Ontario; 2021 [modified 2021 Mar 23; cited 2021 Mar 23]. Available from: http://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/2019_guidance.aspx

2. Statistics Canada. Population estimates 2001-2021: Table 1 annual population estimates by age and sex for July 1, 2001 to 2021, health regions, Ontario [unpublished data table]. Ottawa, ON: Government of Canada; 2022 [received 2022 Mar 25].

3. Statistics Canada. Population projections 2021-2046: Table 1 annual population projections by age and sex for July 1, 2021 to 2046, health regions, Ontario [unpublished data table]. Ottawa, ON: Government of Canada; 2022 [received 2022 May 09].

4. Government of Canada. FluWatch weeks calendar: 2020-2021 [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2020 Sep 01; cited 2021 Jan 07]. Available from: https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenzasurveillance/fluwatch-weeks-calendar.html

5. *Health Protection and Promotion Act*, RSO 1990, c H.7. Available from: https://www.ontario.ca/laws/statute/90h07

6. Ontario. Ministry of Health. COVID-19: guidance for the health sector [Internet]. Toronto, ON: Queen's Printer for Ontario; 2019 [modified 2021 Aug 26; cited 2022 Nov 4]. Available from: https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/2019_case_definition.pdf

7. Ontario. Ministry of Health. COVID-19 guidance: long-term care homes, retirement homes, and other congregate living settings for public health units [Internet]. Version 8. Toronto, ON: Queen's Printer for Ontario; 2022 [modified 2022 Oct 6; cited 2022 Nov 4]. Available from: https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/LTCH_RH_guidance_PHU.pdf

8. Ontario. Ministry of Health. COVID-19 guidance: acute care [Internet]. Version 8. Toronto, ON: Queen's Printer for Ontario; 2022 [modified 2022 Jun 11; cited 2022 Nov 4]. Available from: https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/2019_acute_care_guidance.pdf

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