

Technical Notes

Data retrieved from database daily at 8:00 a.m.; dashboard is updated Monday to Friday at 1:30 p.m.

Data sources: Waterloo Region COVID-19 information database and Provincial Salesforce Case and Contact Management (CCM) database (as of August 13, 2020); COVaxON (Vaccination) Information Systems

The dashboard summarizes information on all positive COVID-19 cases within Waterloo Region. It is updated Monday-Friday at 1:30 p.m. with data that are current as of 11:59 p.m. the previous day. Six buttons at the top of the dashboard (***Epi-curves, Characteristics, Outbreaks, Map, Monitoring and Vaccine Impact***) can be used to view different sections. Testing data is refreshed on Tuesdays and Fridays, and Vaccine Impact data is refreshed bi-weekly on Fridays. The 'Change date field' button in the top right of the Epi-curve tab can be used to display cases 'by episode date' or 'by reported date' (the default). In some cases, additional information, such as counts, per cents or rates, is available when you move your mouse over the graphic.

A summary of the changes in the numbers since the last refresh is available by clicking the '24 hours' icon in the upper left corner of the dashboard.

Data reported in this dashboard is subject to movement of cases between health units, ongoing data quality initiatives, and may differ from other sources due to differences in when data was extracted.

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Term	Definition
Positive Cases	Individuals reported to the Region of Waterloo Public Health (Public Health) as a confirmed COVID-19 case, as defined by the Ontario Ministry of Health case definition . Positive cases are included where the Region of Waterloo Public Health is the diagnosing health unit (DHU). DHU refers to the case's public health unit of residence at the time of diagnosis and not necessarily the case's location of exposure. The DHU is also known as the Permanent Health Unit in the Provincial Salesforce Case and Contact Management (CCM) database.
Resolved Cases	The following cases are classified as resolved: Cases of illness that are reported as 'recovered', cases that are not hospitalized and are 10 days past their episode date, or cases that are currently hospitalized or immunocompromised, but are 20 days past their symptom onset or specimen collection date.
Active Cases	The total number of positive COVID-19 cases which are currently symptomatic or infectious. Active cases are all those not classified as resolved or deceased.
Cumulative Cases	The total number of positive COVID-19 cases over time. The cumulative case count includes all positive cases, both outbreak-related and non-outbreak related cases.

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Deaths	The total number of outbreak-related and community positive cases where COVID-19 was a direct or contributing cause of death.
Active Outbreaks	The number of long-term care homes (LTC) or retirement homes (RH), independent living facilities, congregate living settings, schools, post-secondary institutions, childcare centres (licensed), summer camps, hospitals or workplaces/facilities which currently have an active COVID-19 outbreak. Note that individuals who do not live in Waterloo Region are still counted in the overall outbreak totals for outbreaks occurring in Waterloo Region. However, these out of region residents are not included in the total case counts for Waterloo Region and their case management is done by another public health unit. Similarly, probable cases are included in outbreak totals to accurately represent the extent of the outbreak, but are not included in total case counts on the dashboard, as they have not been lab-confirmed. Probable cases included in outbreaks are defined as those that are symptomatic, have had a high risk outbreak exposure, and are not lab confirmed.
Total Tests	The cumulative number of known COVID-19 tests conducted in Waterloo Region. Test count data is obtained from the Ontario Laboratories Information System (OLIS) and is assigned to Waterloo Region based on the address on the Health Card. The numbers in this report may underestimate testing volumes because some records are missing Health Card Number (HCN), some labs do not report to OLIS, and from January to March 2020, there were technical issues that prevented some tests from being accepted into OLIS. Test counts are updated on the dashboard on Tuesday and Fridays.
Outbreak-related Case	Outbreak-related cases are positive COVID-19 cases associated with an outbreak in either a congregate living setting, independent living facility, long-term care home, retirement home, school, post-secondary institution, licensed child care centre, summer camp, hospital or workplace/facility. Outbreak-related cases can include those that are linked to outbreaks outside of Waterloo Region. As a result, it is possible for the number of outbreak-related cases for Waterloo Region to change even if there is not a change to an outbreak in Waterloo Region. A case can also be linked to more than one outbreak. However, such cases are still only counted once in the overall COVID-19 case counts.
Non-outbreak Case	Non-outbreak cases are those not associated with a specific outbreak. The transmission type may be close contact with another case, from travel, or from an unknown (community) source.
Reported Date	The date the positive test result was reported to Public Health.
Episode Date	Refers to the date symptoms first appeared, or if unknown/asymptomatic, the date the test sample was collected. If both onset and collection date are unknown, the episode date is the case was reported to Public Health. Note that this date may change as new dates are added to the patient record during case follow-up.

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Mutations/Variants	<p>Viruses often mutate to better adapt to their environment. SARS-CoV-2, the virus that causes COVID-19, has mutated into several variants of concern (VOCs) that are now being tracked locally. These variants are of concern because they have been demonstrated to be more easily transmitted and/or to have more severe outcomes. Each VOC has characteristic mutations of interest (MOIs) that are associated with it. A subset of positive specimens may be screened for VOCs/MOIs. Currently, there are several designated VOCs:</p> <ul style="list-style-type: none"> • Lineage B.1.1.7 (Alpha); • Lineage B.1.351 (Beta); • Lineage B.1.617.2 (Delta); • Lineage P.1 (Gamma); • Lineage B.1.1.529 (Omicron) <p>Prior to November 12, 2021 Mutations and Variants included all confirmed COVID-19 cases where lineage was identified by genomic analysis, and those presumed to belong to a lineage based on the mutations identified (and based on local epidemiology, cases that screened negative for both N501Y and E484K are presumed to be B.1.617.2 only for the period of May 1-Nov. 11, 2021).</p> <p>As of November 12, 2021, routine Variants of Concern (VOC) PCR testing of positive COVID-19 samples is no longer being conducted. Eligible positive COVID-19 samples will now be forwarded for whole genome sequencing (WGS). However, screening practices for VOCs and MOIs may vary over time based on positivity, lab capacity, and evolution of variants.</p> <p>Comprehensive Ontario data on variants can be found in PHO's Whole Genome Sequencing enhanced epidemiological summary. Presumptive cases may have been re-classified once whole genome sequencing results were received.</p>
7-day moving average rate of new cases per 100,000 population	<p>The rate of new daily COVID-19 cases per 100,000 population, averaged across the most recent 7 days of data. An updated Waterloo Region 2020 population estimate from Statistics Canada and Ontario Ministry of Finance projections (Spring 2021) is now used in this calculation (605,232), to better reflect the growing and changing population, and to align with the Waterloo Region COVID-19 Vaccine Distribution Summary dashboard. The Ontario population estimate (14,734,014), is also from this source.</p>

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Case Status	<p>The current reported status of all positive confirmed COVID-19 cases within Waterloo Region. Possible categories include active, resolved, deceased or pending. If a positive case changes in status, their current case status will be updated to reflect the most recent data available. Note that due to missing outcome date in some records at the time the dashboard is refreshed, some cases will have a pending case status. As a result, the number of active, resolved or deceased cases will not add up to the total number of cases, unless the number of 'pending' cases is taken into account.</p>
Ever Hospitalized	<p>Positive cases who have been hospitalized due to complications associated with COVID-19, including individuals currently hospitalized, discharged, or deceased. The proportion of individuals ever hospitalized is separated into two categories:</p> <ul style="list-style-type: none"> • ICU: Individuals admitted to the intensive care unit (ICU) related to a COVID-19 infection, including individuals who are currently in the ICU, have been discharged, or are deceased. • Non-ICU: Individuals who were hospitalized due to a COVID-19 infection, excluding individuals admitted to ICU. This includes individuals who are currently hospitalized, have been discharged, or are deceased. <p>Note that the data source for ever hospitalized is Salesforce Case and Contact Management (CCM). This may differ from the numbers reported for current hospitalizations, which is sourced from the Ontario Ministry of Health (MOH) and includes hospitalizations of all cases at Waterloo Region hospitals, whether or not they are residents of Waterloo Region.</p>

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Transmission Type	<p>For each positive case, the transmission type refers to the most probable source from which COVID-19 was contracted. Exposure can occur up to 14 days before symptoms arise, and can be classified into four main categories:</p> <ol style="list-style-type: none"> 1. Close Contact: Individuals who were exposed to a confirmed or probable COVID-19 case as a result of close contact, such as residing in the same household. 2. Community: Individuals whose exposure source is not known. 3. Outbreak-related: Individuals who were exposed to a confirmed or probable COVID-19 case associated with an outbreak setting (see definition of settings below). This may include exposure to an outbreak outside of Waterloo Region. 4. Travel: Individuals who were exposed to a confirmed or probable COVID-19 case during travel outside the province of Ontario. <p>Where cases have more than one exposure, the most probable exposure is assigned so that Outbreak (institutional) is prioritized over Travel, which is prioritized over Close Contact, followed by Community/Unknown. Cases for whom transmission type is still under investigation are noted below the figure.</p>
Outbreak Settings	<p>Outbreak-related cases are classified into seven main outbreak settings, defined as follows:</p> <ol style="list-style-type: none"> 1. LTC/RH: Active outbreaks in long-term care and retirement homes. Since April 8 2021, a facility outbreak is defined as two or more lab-confirmed COVID-19 cases in residents and/or staff (or other visitors) in a LTCH/RH with an epidemiological link, within a 14-day period, where at least one case could have reasonably acquired their infection in the home. Examples of reasonably having acquired infection in a home include: <ol style="list-style-type: none"> a. No obvious source of infection outside of the LTCH setting; OR b. Known exposure in the LTCH setting. <p>Prior to April 8 2021, A facility outbreak was defined as one or more positive cases in resident(s) or staff (anyone conducting activities in the LTCH, including but not limited to, health care workers). In this setting, “non-staff cases” refers to LTC/RH residents.</p>

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<p>Outbreak Settings</p>	<p>2. Congregate Settings: Active outbreaks with one or more cases in staff or residents in group homes, and disability-specific congregate settings. This does not include correctional facilities. Note that congregate setting “staff/non-staff” data is aggregated to protect the privacy of individuals, as many facilities have a small number of residents and staff, and facilities are generally not named. However, as of September 17, 2021, outbreaks in these settings with 5 or more confirmed cases in a setting of 10 or more people, and no privacy concerns, will be publicly disclosed.</p> <p>3. Workplace/facility Settings: Active outbreaks in occupational or facility settings, separated into broad categories. These outbreaks are defined as those with two or more confirmed cases where the most likely source of exposure was associated with the workplace/facility. Outbreaks are aggregated by category and not named to protect the privacy of individuals. As of September 17, 2021, outbreaks in these settings with 5 or more confirmed cases in a setting of 10 or more people, and no privacy concerns, will be publicly disclosed.</p> <p>4. Schools: Active outbreaks in schools are defined as two or more confirmed cases in a school with an epidemiological link, within a 14-day period, where at least one case could have reasonably acquired their infection in the school (including transportation). Staff and student (non-staff) cases are aggregated to protect the privacy of individuals.</p> <p>5. Post-secondary: Active outbreaks in post-secondary institutions are defined as two or more confirmed cases in On-Campus Housing, Learning Sites or Workplace associated with the post-secondary institution with an epidemiological link, within a 14-day period, where at least one case could have reasonably acquired their infection in the post-secondary institution. Staff and student (non-staff) cases are aggregated to protect the privacy of individuals.</p>

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Outbreak Settings	<p>6. Licensed child care centre settings: An outbreak in a licensed child care setting is defined as two or more confirmed COVID-19 cases in children, staff/providers or other visitors with an epidemiological link (e.g., cases in the same room,), within a 14-day period, where at least one case could have reasonably gotten their infection in the child care setting. Staff and child (non-staff) cases are aggregated to protect the privacy of individuals.</p> <p>7. Summer camps (day): One or more probable or confirmed COVID-19 cases in a camp participant or staff member requires collaboration with the local public health unit, who will determine the exposure risk and provide direction for all contacts and determine next steps based on their investigation and risk assessment.</p> <p>8. Hospitals: Hospital outbreaks are declared by area hospitals in consultation with Public Health.</p>
Health Care Worker	An individual working in a health care setting who is involved in direct patient care.
Sex	Male/Female information presented are intended to represent sex assigned at birth. Where sex is not available, the data is supplemented with information in the previously-used Gender field.
Pending	A characteristic for a positive case which is not currently available from existing data. Individual records with pending characteristics are updated on an ongoing basis, where possible, as data becomes available.

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<p>Cases per 100,000 Population (map)</p>	<p>Rates (number of cases per 100,000 population) are calculated as:</p> $\frac{\text{Number of positive COVID-19 cases}}{\text{Population size}} * 100,000$ <p>The rate is based on the home residence of positive cases and not necessarily where exposure occurred. Home residence is usually based on the address found on an individual’s health card or their normal place of residence.</p> <p>Population sizes for Regional neighbourhoods are consistent with the Region of Waterloo year-end 2019 estimate (referenced in this Community Planning report). However, Region of Waterloo Planning, Development and Legislative Services has provided adjustments to include population growth to mid-year 2020 and to adjust for post-secondary attendance as a result of COVID-19 (updated population for Waterloo Region = 588,878).</p> <p>The number of positive cases in each neighbourhood may be skewed based on testing guidance that prioritizes groups and settings at greater risk, including long-term care and retirement homes.</p> <p>The overall rate for Waterloo Region on the map uses an updated Waterloo Region 2020 population estimate of 605,232, from Statistics Canada and Ontario Ministry of Finance projections (Spring 2021) to better reflect the growing and changing population, and to align with the Waterloo Region COVID-19 Vaccine Distribution Summary dashboard.</p> <p>Updated neighbourhood-level 2020 estimates are not currently available from Statistics Canada/Ontario Ministry of Finance.</p>

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Neighbourhood	<p>Neighbourhoods refer to a custom level of geography developed by Region of Waterloo staff in coordination with area municipalities, local service providers and community members. These neighbourhoods are often used for service planning.</p> <p>There are 45 neighbourhoods in Waterloo Region. These neighbourhoods do not necessarily represent neighbourhood association boundaries.</p> <p>Cases are matched to neighbourhoods based on the residential address and does not necessarily reflect where exposure occurred. Cases with missing or invalid addresses are excluded from the neighbourhood mapping because they cannot be assigned to a neighbourhood.</p> <p>Neighbourhoods with counts less than or equal to five cases have been suppressed to protect personal health information and display as NR, “not reportable”.</p>
Currently hospitalized/ Currently in ICU	<p>Hospitalization data includes all patients that are currently admitted to hospitals within Waterloo Region (Data source: Ontario MOH). This includes Grand River Hospital, Cambridge Memorial Hospital and St. Mary’s General Hospital. This can include cases that live outside of Waterloo Region and are admitted to local hospitals to reflect local hospital capacity.</p> <p>‘Currently in ICU’ refers to the number of confirmed COVID-19 patients admitted into the Intensive Care Unit (ICU). This includes both active and resolved cases that are still in ICU and undergoing treatment due to COVID-19, even if they are no longer considered infectious.</p> <p>‘Currently hospitalized’ refers to the number of active confirmed COVID-19 patients admitted to the hospital, and does not included resolved cases that are still hospitalized. As such, the number of current ICU patients could exceed the number of inpatients.</p> <p>Due to the refresh frequency of the MOH data source, there is a two day lag between the current day and the day the hospital data was reported. Therefore the numbers in this report may underestimate or overestimate the number of patients hospitalized.</p>

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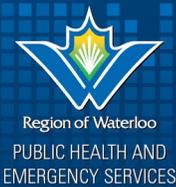
Term	Definition
Test turnaround time	<p>Turnaround time is defined as the time between the specimen collection date and the reported date.</p> <p>The data for turnaround time is based on Ontario Laboratory Information System (OLIS) and includes all tests, not just positives.</p> <p>Test data for the most recent 6 days are considered interim and should be interpreted with caution because there can be a lag between when a sample is collected and when the result is entered into OLIS.</p> <p>Test data from OLIS is assigned to Waterloo region based on the address on the person’s health card. As a result, test numbers could include tests done outside of our region if a resident chose to get tested elsewhere or if the address on the health card is incorrect. In addition, tests done on residents without health cards would not be included.</p>
7 day moving average of new tests per 100,000 population	<p>The rate of new daily COVID-19 tests per 100,000 population, averaged across the most recent 7 days of data. An updated Waterloo Region 2020 population estimate from Statistics Canada and Ontario Ministry of Finance projections (Spring 2021) is now used in this calculation (605,232), to better reflect the growing and changing population, and to align with the Waterloo Region COVID-19 Vaccine Distribution Summary dashboard.</p>
Cumulative tests per 100,000 population	<p>The total number of COVID-19 tests that have been done since the first case was reported on March 3, 2020. An updated Waterloo Region 2020 population estimate from Statistics Canada and Ontario Ministry of Finance projections (Spring 2021) is now used in this calculation (605,232), to better reflect the growing and changing population, and to align with the Waterloo Region COVID-19 Vaccine Distribution Summary dashboard.</p>
Per cent positivity	<p>Per cent positivity is calculated as the daily number of positive tests divided by the daily number of tests performed.</p> <p>The data source for per cent positivity and test count data is the Ontario Laboratory Information System (OLIS) which may differ slightly compared to cases reported on the public dashboard. This is because test data is based on specimen collection date (instead of the reported or episode date that is used on the public dashboard). Further, OLIS assigns test results to Waterloo Region based on the address on the health card. As a result, test numbers could include tests done outside of our region if a resident chose to get tested elsewhere or if the address on the health card is incorrect. In addition, tests done on residents without health cards would not be included.</p>

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<p>Median effective reproduction estimate (R_e)</p>	<p>R_e represents the expected number of cases generated by one case in the susceptible population. This indicator can be used to assess whether the epidemic is growing, stable or slowing down in our community. An R_e of greater than one indicates that the epidemic is growing and that there is active community transmission. A R_e of approximately one indicates that the amount of illness in the community is stable, and an R_e of less than one indicates that the epidemic is slowing down.</p> <p>The lighter coloured band around the R_e estimate represents the “95% credible interval” which means that there is 95% probability that the R_e falls within this range.</p> <p>R_e must be interpreted with caution when case numbers are low; as such, estimates prior to March 27, 2020 are not reported due to low case volumes. In addition, R_e represents the average number of cases generated by each case, but can easily be influenced by community outbreaks and the proportion of vaccinated people, and may not accurately represent overall transmission in Waterloo Region.</p>
<p>Cumulative number of COVID-19 cases and severe outcomes prevented by vaccines</p>	<p>The estimated number of cases, hospitalizations and deaths prevented among Waterloo Region residents 18 years and older since December 22, 2020. The estimated number of cases and severe outcomes averted by COVID-19 vaccination was estimated using the same methods used by Public Health Ontario (PHO) and developed by Public Health England. For more details on methodology, refer to their report’s Technical Notes, Methods: Vaccination Program Impact section, at: https://www.publichealthontario.ca/-/media/documents/ncov/epi/covid-19-vaccine-uptake-ontario-epi-summary.pdf?</p>
<p>Comparison of COVID-19 infection and hospitalization rates by vaccination status</p>	<p>This is a comparison for all Ontario residents of the rate of COVID-19 infections and hospitalizations per 100,000 person-days in unvaccinated vs. unvaccinated individuals over the past 30 days. For more details on methodology, refer to PHO report’s Technical Notes, Methods section at: https://www.publichealthontario.ca/-/media/documents/ncov/epi/covid-19-epi-confirmed-cases-post-vaccination.pdf?la=en</p>
<p>Cumulative number of COVID-19 hospital and ICU admissions by vaccination status</p>	<p>The number of Waterloo residents of all ages admitted to local hospitals that are confirmed cases of COVID-19. Hospitalizations includes both admissions to the ICU and non-ICU units since December 22, 2020. Admissions to local hospitals from individuals residing outside of Waterloo Region are not included.</p>

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