Public Health Ontario | Santé publique Ontario

ENHANCED EPIDEMIOLOGICAL SUMMARY

# COVID-19 in Ontario – A Focus on Neighbourhood Diversity, February 26, 2020 to December 31, 2022

**2nd Edition: May 2023**

Please visit the interactive Ontario COVID-19 Data Tool to explore recent COVID-19 data by public health unit, age group, sex, and trends over time. Additional Enhanced Epidemiological Reports are available on the Public Health Ontario website.

## Purpose

This report is part of a two-part series focused on neighbourhood-level trends related to health equity among laboratory-confirmed COVID-19 cases reported in Ontario, excluding those who reside in long-term care (LTC) settings. It focuses on the "ethnic concentration" dimension of the Ontario Marginalization Index (ON-Marg). Throughout the report, for easier understanding, the term "neighbourhood diversity" is used when referring to the ethnic concentration of a geographic area, with high diversity equating to higher levels of ethnic concentration and low diversity equating to lower levels of ethnic concentration. The second report in this series explores trends by neighbourhood-level material deprivation.[1]

The report's findings will improve our understanding of how COVID-19 impacts neighbourhoods differently in Ontario, particularly those with greater diversity that may already experience marginalization related to racism and discrimination. This information could also be used to inform planning and equitable prioritization of public health and health system resources and interventions. While this report does not include individual-level race information, a report by Ontario Health describes race-based data collected by public health units (PHUs) during the earlier phase of the COVID-19 pandemic.[2]

## Highlights

- The most diverse neighbourhoods in Ontario generally experienced higher rates of COVID-19 during the period between February 26, 2020 to December 31, 2022. The age adjusted incidence rate of COVID-19 in the most diverse neighbourhoods was 1.6 times higher than the rate in the least diverse neighbourhoods (Table 1).

- People living in the most diverse neighbourhoods were also more likely to experience severe outcomes than people living in the least diverse neighbourhoods. When standardized for age, hospitalization rate was approximately 2.0 times higher (Table 2); ICU admission rate was 2.0 times higher (Table 3); and death rate was 2.6 times higher (Table 4).

- While recent COVID-19 trends (waves 6 and 7) show fewer differences in COVID-19 impact by level of neighbourhood diversity, overall, the most diverse neighbourhoods have experienced a disproportionate burden of severe outcomes during the COVID-19 pandemic.

# Background

Over the course of the pandemic, trends in the incidence of COVID-19 were likely impacted by individual and societal level factors, differential uptake of the COVID-19 vaccine[3], history of previous infection, the circulating SARS-CoV-2 variant, as well as changes in the public health measures put in place to protect against COVID-19. Seroprevalence studies have shown that racialized populations in Canada have consistently higher infection-acquired COVID-19 antibodies than white Canadians, suggesting possible differences in the risk of exposure.[4] These differential risks can moderate the positive impacts of public health measures, with racialized populations benefiting less due to structural factors that influence housing (e.g. multi-generational), employment (i.e., essential) and less choice in use of public transportation.[5]

# Methods

## ON-Marg and "Neighbourhood Diversity"

Neighbourhood diversity in this report is measured using the "ethnic concentration" dimension of the ON-Marg, which uses data from the Canadian census to assess neighbourhoods in the province based on: (1) the proportion of non-white and non-Indigenous residents (i.e., based on Statistics Canada's visible minority variable, which is defined as 'persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.'), (2) the proportion of immigrants that arrived in Canada within the past five years, or (3) both.[6] The populations and other demographic characteristics of the neighbourhoods that comprise each quintile of this dimension are included in the appendix (Table A1).

In this report, "neighbourhoods" are based on the census dissemination areas (DA). These areas are the smallest geographic units for which Canadian census data are available, and have on average 400-700 residents. ON-Marg assigns neighbourhoods to one of five levels or quintiles of ethnic concentration so that each grouping contains 20% of Ontario neighbourhoods. The quintiles are ordered from quintile 1 (Q1) which has the lowest level of neighbourhood diversity (least diverse) to quintile 5 (Q5) which has the highest level of neighbourhood diversity (most diverse). Cases were assigned to neighbourhoods and then quintiles based on their postal code of residence, using version 7E of the Postal Code Conversion File Plus (PCCF+). As a neighbourhood-level measure of marginalization, diversity describes the general characteristics of a given area. Therefore trends highlighted in this report apply only to the neighbourhoods from which they arise and cannot be used to characterize individual members of a given area.

## Cases in this Report

A total of 1,550,063 laboratory confirmed cases of COVID-19 were reported in Ontario from February 26, 2020 to December 31, 2022. Of those, 1,401,843 (90.4%) cases were included in this report, following these exclusions:

- Persons that reside in long-term care settings, as they are not included in the census data from which the ethnic concentration component of ON-Marg is determined (n=98,543). Although these cases represent a large number of the overall cases and deaths, their exclusion ensures appropriate comparisons at the neighbourhood level.
- Cases without a reported postal code because postal code is required to assign cases to a neighbourhood-level quintile of neighbourhood diversity (n=16,257).
- Cases that reside in regions of the province where census data are not available because they are suppressed by Statistics Canada to protect respondent's confidentiality or due to incomplete enumeration of Indigenous communities living on reserves (n= 33,420). Indigenous individuals living off reserves are included in this analysis, however, Indigeneity data are not currently collected or captured in dimensions of ON-Marg.

The number of cases and incidence rates for each quintile of neighbourhood diversity are presented in this report. Where appropriate, rates have been age-standardized to remove the influence of age on trends and to allow for appropriate comparisons between neighbourhoods with varying levels of diversity. A map of the Ontario census geographies that make up the five quintiles of neighbourhood diversity is shown in the appendix (Figure A1).

# Results

## COVID-19 Cases and Neighbourhood Diversity

- Among reported COVID-19 cases summarized in this report 24.3% resided in neighbourhoods with the lowest levels of diversity (quintiles 1 and 2), whereas 59.3% resided in neighbourhoods with the highest levels of diversity (quintiles 4 and 5). The remaining 16.4% of cases resided in neighbourhoods with moderate levels of diversity (quintile 3) (Table 1).
- Age-standardized rates of COVID-19 showed a gradient effect, with a steady increase in incidence rate as the level of neighbourhood diversity increased (Table 1). Cases residing in the most diverse neighbourhoods (quintile 5), accounted for 36.9% of cases which corresponds to an age-standardized incidence rate of approximately 12,051 cases per 100,000 population. This was 1.6 times the rate in the least diverse neighbourhoods (quintile 1), which accounted for 11.0% of cases for an age-standardized incidence rate of approximately 7,418 cases per 100,000 population.

**Table 1. Summary of confirmed cases of COVID-19 for each neighbourhood diversity quintile: Ontario, February 26, 2020 to December 31, 2022 (n=1,401,843)**

| Quintiles of neighbourhood diversity | Cumulative case count | Percent of all COVID-19 cases (%) | Age- standardized cumulative rate per 100,000 population | Rate relative to least diverse |
|---|---|---|---|---|
| Quintile 1 (least diverse) | 154,131 | 11.0 | 7,418 | Reference |
| Quintile 2 | 186,401 | 13.3 | 8,175 | 1.1 |
| Quintile 3 | 229,939 | 16.4 | 9,056 | 1.2 |
| Quintile 4 | 314,497 | 22.4 | 10,170 | 1.4 |
| Quintile 5 (most diverse) | 516,875 | 36.9 | 12,051 | 1.6 |

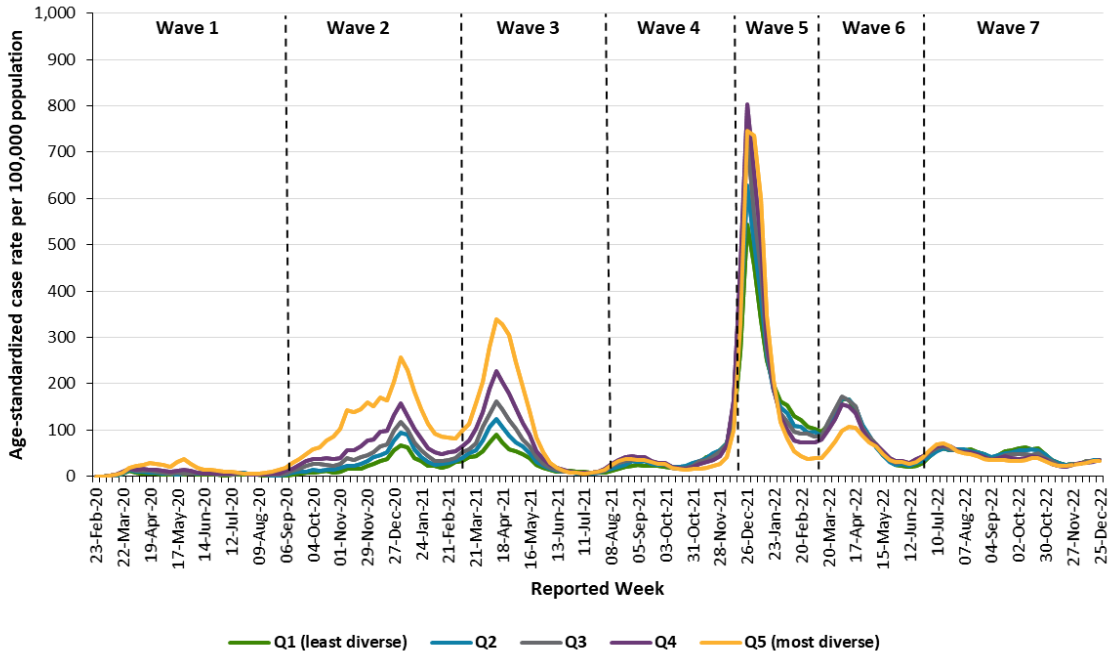
**Note:** Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization.
**Data Source**: CCM, ON-Marg 2016

## Temporal Trends by Waves

The distribution of cases over time is presented in Figure 1 and is based on public health unit reported week, the date on which local public health units are first notified of a case, and waves.

- Across waves 1 through 7, the most diverse neighbourhoods (quintiles 4 and 5) generally reported the highest number of COVID-19 infections, with the exception of a brief period between the end of wave 5 and beginning of wave 6.
- Toward the end of wave 6 and throughout wave 7, differences in the incidence of COVID-19 decreased and trends converge across all neighbourhoods.

**Figure 1. Confirmed cases of COVID-19 for each neighbourhood diversity quintile by reported week: Ontario, February 26, 2020 to December 31, 2022**

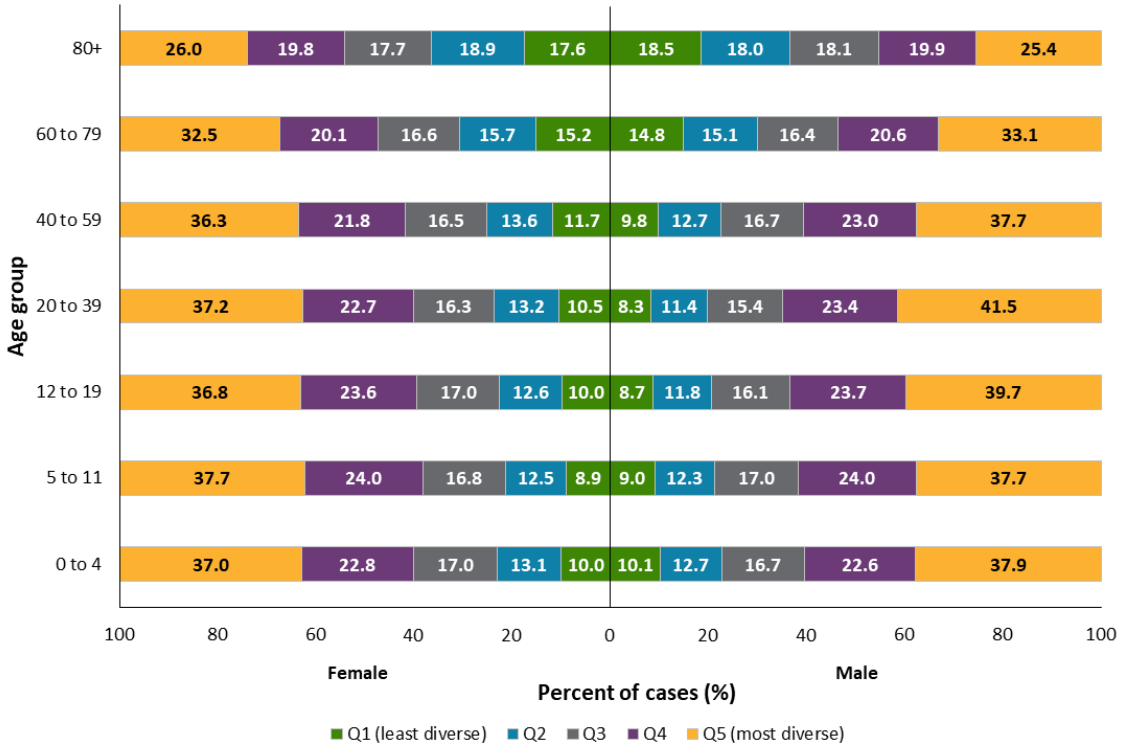



**Note:** Wave 7 includes data on cases reported up to December 31, 2022.
**Data Source**: CCM, ON-Marg 2016

## Age and Sex Distribution

- The most diverse neighbourhood (quintile 5) had the largest proportion of COVID-19 cases (Table 1). This trend persisted among males and females across all age groups with proportions ranging from 25.4% to 41.5% and 26.0% to 37.7%, respectively (Figure 2).

**Figure 2. Confirmed cases of COVID-19 for each neighbourhood diversity quintile by sex and age group: Ontario, February 26, 2020 to December 31, 2022**




**Data Source**: CCM, ON-Marg 2016

# Severe outcomes

## HOSPITALIZATIONS

- A total of 55,679 COVID-19 hospitalizations were reported among the five quintiles of neighbourhood diversity within the examined time frame. Median age was highest at 73 years among hospitalized cases in quintile 1 (least diverse) and lowest at 66 years among hospitalized cases in quintile 5 (most diverse) quintile (Table 2).

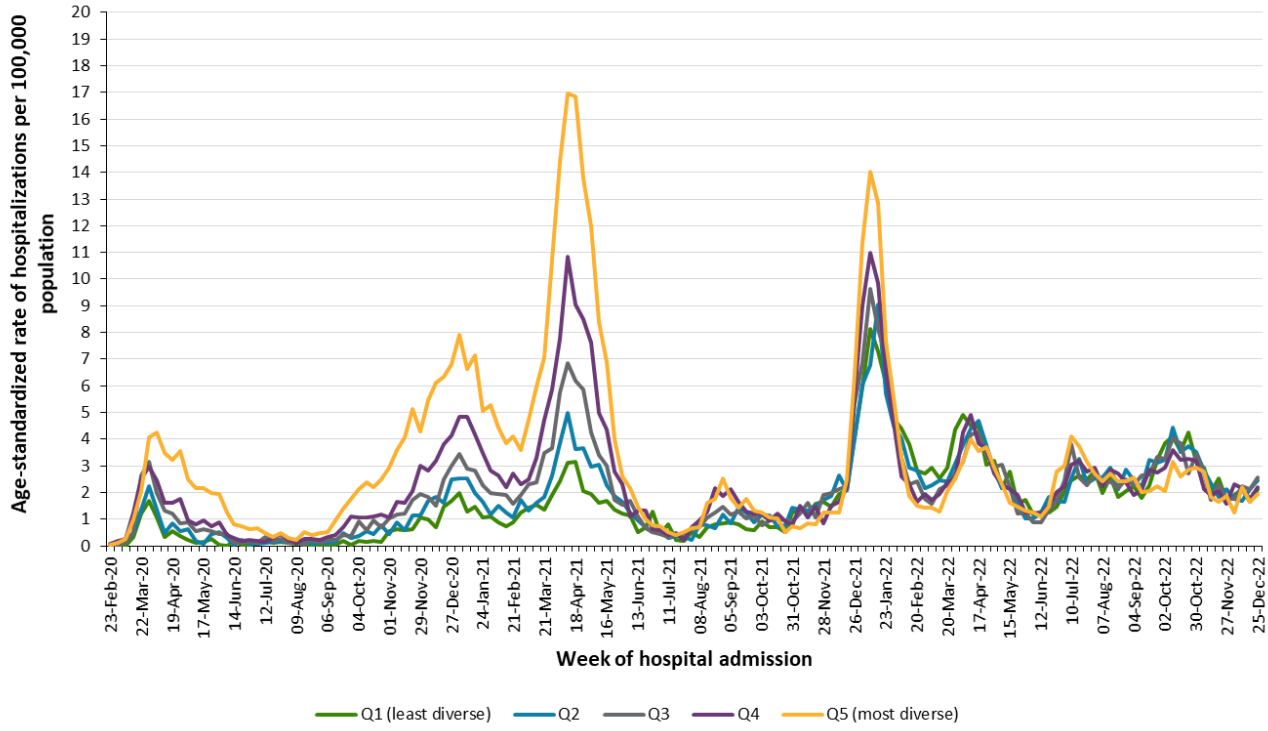
- The age-adjusted hospitalization rates for COVID-19 showed a trend of increasing hospitalizations with increasing neighbourhood diversity (Table 2). Across the examined time frame, age-standardized rates of hospitalization were generally observed to be higher among more diverse neighbourhoods compared to less diverse neighbourhoods (Figure 3). The age-adjusted hospitalization rate for neighbourhoods with the most diversity (473.6 admissions per 100,000 population in quintile 5) was approximately 2.0 times higher than the corresponding rates for neighbourhoods with the least diversity (241.6 admissions per 100,000 population in quintile 1).

**Table 2. Summary of hospitalizations among confirmed cases of COVID-19 for each neighbourhood diversity quintile: Ontario, February 26, 2020 to December 31, 2022 (n=55,679)**

| Quintiles of neighbourhood diversity | Median age (years) | Number of hospitalizations | Crude rate cumulative per 100,000 population | Age-standardized cumulative rate per 100,000 population | Rate relative to least diverse |
|---|---|---|---|---|---|
| Quintile 1 (least diverse) | 73 | 7,529 | 339.2 | 241.6 | Reference |
| Quintile 2 | 72 | 8,173 | 344.5 | 267.8 | 1.1 |
| Quintile 3 | 71 | 9,058 | 349.3 | 300.5 | 1.2 |
| Quintile 4 | 69 | 11,572 | 373.0 | 355.0 | 1.5 |
| Quintile 5 (most diverse) | 66 | 19,347 | 450.3 | 473.6 | 2.0 |

**Note:** Age-standardized and crude rates are calculated using population counts from the 2019/20 RPDB population data. Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization.
**Data Source**: CCM, ON-Marg 2016

**Figure 3. Age-standardized rate of hospitalizations among confirmed cases of COVID-19 for each neighbourhood diversity quintile by public health reported week: Ontario, February 26, 2020 to December 31, 2022**




**Note: Age-standardized** and crude rates are calculated using population counts from the 2019/20 RPDB population data. Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization. Cases with a hospital admission date after December 31, 2022 are not shown in this figure as they occurred outside the presented time range. However, they are captured throughout the rest of the report, having met the definition of a hospitalized case.
**Data Source**: CCM, ON-Marg 2016

## ICU ADMISSIONS

- Among the 8,881 COVID-19 cases that were admitted to an intensive care unit (ICU) within the examined time frame, the median age ranged from 64-68 years of age. Among ICU admissions, median age was highest at 68 years in quintile 1 (least diverse) and lowest at 64 years in quintile 5 (most diverse).

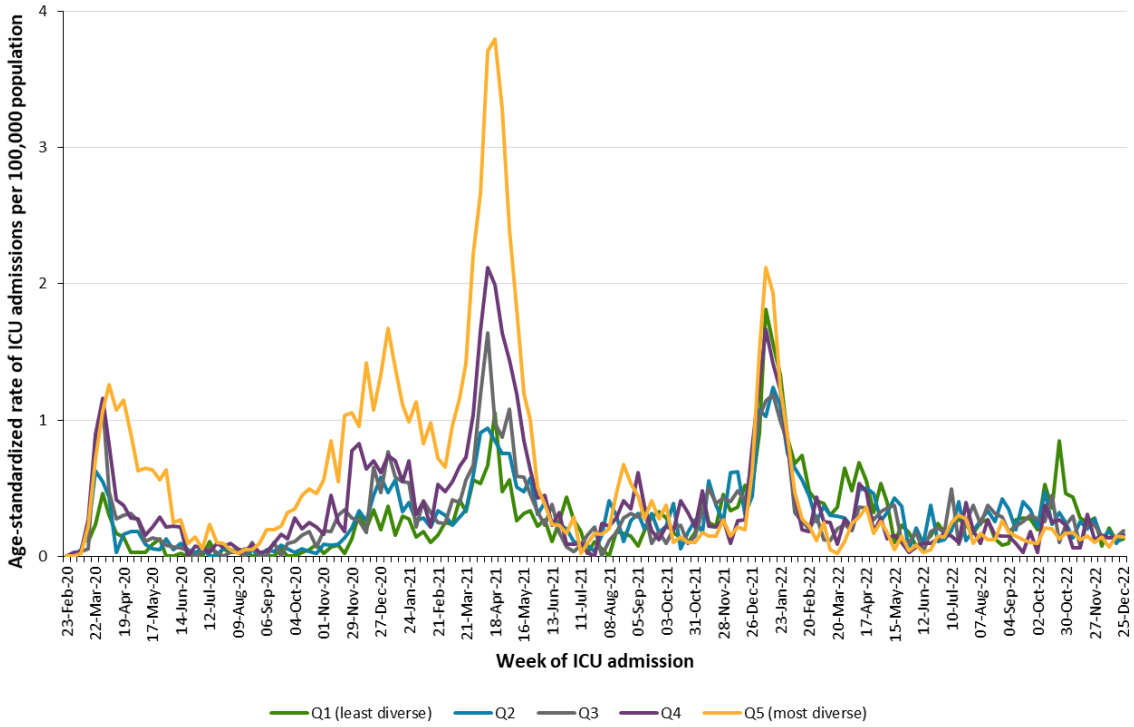
- After adjusting for age, the overall rates of ICU admission among reported COVID-19 cases showed an increasing trend with increasing neighbourhood diversity, with trends persisting especially during periods of elevated ICU admissions (Table 3, Figure 4). The ICU admission rate for the most diverse neighbourhoods (81.3 ICU admissions per 100,000 population in quintile 5) was 2.0 times higher than the corresponding rate for neighbourhoods with the least diversity (40.0 ICU admissions per 100,000 population in quintile 1).

**Table 3. Summary of ICU admissions among confirmed cases of COVID-19 for each neighbourhood diversity quintile: Ontario, February 26, 2020 to December 31, 2022 (n=8,881)**

| Quintiles of neighbourhood diversity | Median age (years) | Number of ICU admissions | Crude rate cumulative per 100,000 population | Age-standardized cumulative rate per 100,000 population | Rate relative to least diverse |
|---|---|---|---|---|---|
| Quintile 1 (least diverse) | 68 | 1,203 | 54.2 | 40.0 | Reference |
| Quintile 2 | 66 | 1,255 | 52.9 | 43.3 | 1.1 |
| Quintile 3 | 65 | 1,339 | 51.6 | 45.6 | 1.1 |
| Quintile 4 | 65 | 1,784 | 57.5 | 55.6 | 1.4 |
| Quintile 5 (most diverse) | 64 | 3,300 | 76.8 | 81.3 | 2.0 |

**Note:** Age-standardized and crude rates are calculated using population counts from the 2019/20 RPDB population data. Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization.
**Data Source**: CCM, ON-Marg 2016

**Figure 4. Age-standardized rate of ICU admissions among confirmed cases of COVID-19 for each neighbourhood diversity quintile by public health reported week: Ontario, February 26, 2020 to December 31, 2022**




Note: Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization. Cases with an ICU admission date after December 31, 2022 are not shown in this figure as they occurred outside the presented time range. However, they are captured throughout the rest of the report, having met the definition of a hospitalized case.

## DEATHS

- Among the 8,896 COVID-19 deaths that were reported within the examined time frame, fatal cases from neighbourhoods in quintile 5 (most diverse) were younger than fatal cases from all other neighbourhoods (quintiles 1-4) across Ontario (median age of 77 years vs. 79 years) (Table 4).

- Over 50% of COVID-19 deaths that were reported within the examined time frame occurred in the most diverse neighbourhoods (20.2% and 36.3% in quintiles 4 and 5, respectively).

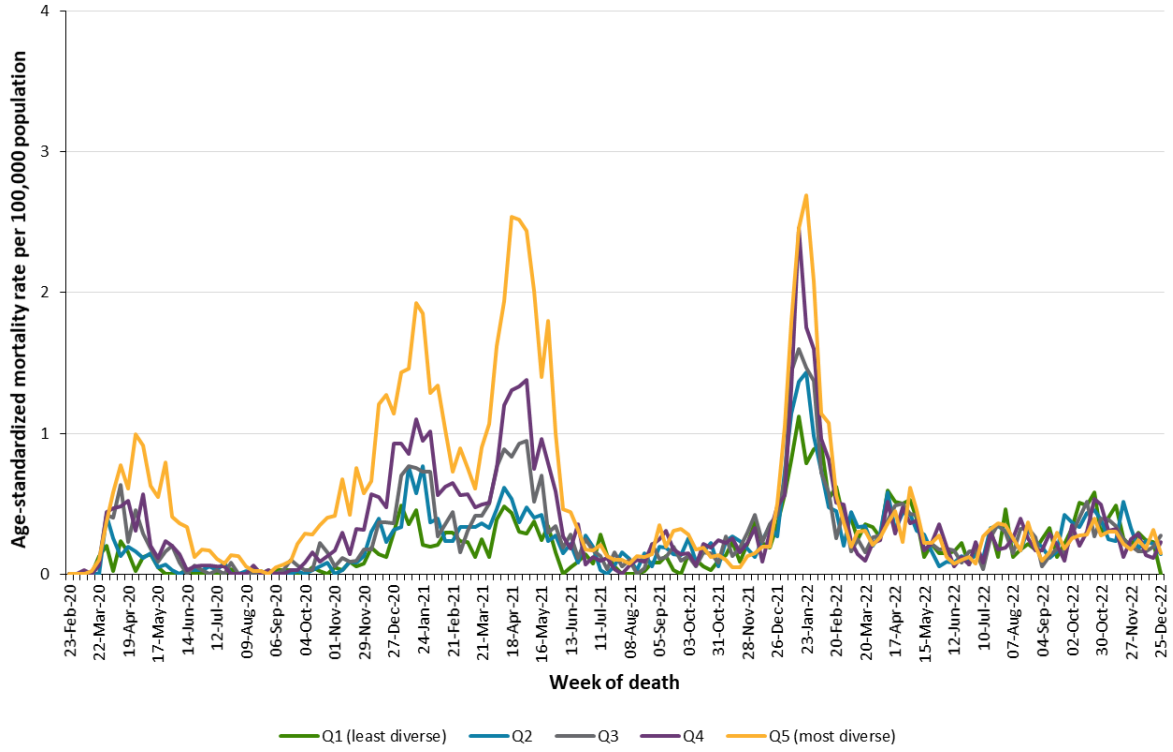
- The age-adjusted mortality rate for COVID-19 showed a trend of increasing deaths with increasing neighbourhood diversity (Table 4). Across the examined time frame, age-standardized mortality rates were generally observed to be higher among more diverse neighbourhoods compared to less diverse neighbourhoods (Figure 5). The most diverse neighbourhoods (quintile 5) had the highest age-adjusted hospitalization rates for COVID-19 at 80.1 deaths per 100,000 population, which was 2.6 times greater than the rate of 31.2 deaths per 100,000 population in the least diverse neighbourhoods in quintile 1.

**Table 4. Summary of deaths among confirmed cases of COVID-19 for each neighbourhood diversity quintile: Ontario, February 26, 2020 to December 31, 2022 (n=8,896)**

| Quintiles of neighbourhood diversity | Median age (years) | Number of deaths | Crude cumulative rate per 100,000 population | Age-standardized cumulative rate per 100,000 population | Rate relative to least diverse |
|---|---|---|---|---|---|
| Quintile 1 (least diverse) | 79 | 1,153 | 51.9 | 31.2 | Reference |
| Quintile 2 | 79 | 1,289 | 54.3 | 37.0 | 1.2 |
| Quintile 3 | 79 | 1,418 | 54.7 | 43.5 | 1.4 |
| Quintile 4 | 79 | 1,805 | 58.2 | 53.5 | 1.7 |
| Quintile 5 (most diverse) | 77 | 3,231 | 75.2 | 80.1 | 2.6 |

**Note:** Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization.
2016

**Figure 5. Age-standardized mortality rate among confirmed cases of COVID-19 for each neighbourhood diversity quintile by public health reported week: Ontario, February 26, 2020 to December 31, 2022**




Note: Rates per 100,000 population are standardized to the 2011 census population to account for any age differences between quintiles of marginalization. Cases with a death date after December 31, 2022 are not shown in this figure as they occurred outside the presented time range. However, they are captured throughout the rest of the report, having met the definition of a hospitalized case.
**Data Source**: CCM, ON-Marg 2016

# Technical Notes

Details on data caveats and methods are documented in the Technical Notes of the Ontario COVID-19 Data Tool. For information on data caveats and methods related to the Ontario Marginalization Index (ON-Marg), please visit PHO's ON-Marg webpage.

## Data Sources

- The data for this report were based on information successfully extracted from the Public Health Case and Contact Management Solution (CCM) for all Public Health Units (PHUs) by PHO as of:
    - **January 11, 2023 at 1 p.m**. for cases reported March 1, 2022 onwards
    - **January 9, 2023 at 9 a.m**. for cases reported August 1, 2021 to February 28, 2022
    - **January 9, 2023 at 9 a.m**. for cases reported up to July 31, 2021
- Statistics Canada Postal Code Conversion File Plus (PCCF+), version 7E.
- The health equity (neighbourhood diversity) analyses used data from the 2016 Ontario Marginalization Index.[2]
- The denominators used to derive rates for ON-Marg quintiles were extracted from the Ontario Health Insurance Plan (OHIP) Registered Person Database (RPDB) Cohort Fiscal Year 2019/20 (extracted October 2020). The OHIP RPDB includes only those individuals with a valid Ontario health insurance number, or those receiving support through the Ontario Drug Benefit Program (ODBP). Denominator data were provided by Health Analytics and Insights Branch, Capacity Planning and Analytics Division, Ministry of Health.
- 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.
- The data only represent cases reported to PHUs 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, 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.
- Only cases meeting the confirmed case classification as listed in the MOH Case Definition – Coronavirus Disease (COVID-19) document are included in the reported counts from CCM. This includes persons with:
    - laboratory confirmation by a validated NAAT assay
    - a validated point-of-care (POC) assay deemed acceptable to provide a final result
    - a validated laboratory-based serological assay SARS-CoV-2

- Cases of confirmed reinfection, as defined in the provincial case definitions, are counted as unique investigations.
- Reported date is the date the case was reported to the public health unit.
- Data on hospital admissions, ICU 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.
- Hospitalization/ICU data may be incomplete or missing for records where information was not gathered, reported to public health units or entered in CCM.
- Hospitalization includes all cases hospitalized (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 hospitalized. Includes Intensive Care Unit (ICU) cases but not emergency room visits. Hospitalizations 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 reported date is used.
- Cases admitted to an ICU include all cases for which an ICU admission date was reported at the time of data extraction. It includes cases that have been treated or that are currently being treated in an ICU. Cases admitted to an ICU are a subset of cases hospitalized. However, ICU admission counts may include cases admitted to ICU that are not included in hospitalization counts if the initial hospital admission date for a case occurred prior December 12, 2021.
    - ICU admission date refers to the first admission date recorded on the case record (i.e., the first ICU admission date would be used if a case was readmitted).
    - If ICU admission date is missing, reported date is used as a proxy.
- For surveillance purposes, a COVID-19 death is defined as a death resulting from a clinically compatible illness unless there is a clear alternative cause of death that cannot be related to COVID-19 (e.g., trauma, medically assisted death). There should be no period of complete recovery from COVID-19 between illness and 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'.
    - 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.
- Cases with unknown or missing ages were excluded from age-specific analyses.

- 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.

- COVID-19 waves refer to COVID-19 cases reported week using the following dates:

    - Wave 1: February 26, 2020 to August 31, 2020 (length of wave 188 days)

        - The week starting February 23, 2020 presented in Figure 1 contains data from February 26 on.

    - Wave 2: September 1, 2020 to February 28, 2021 (length of wave 181 days)

    - Wave 3: March 1, 2021 to July 31, 2021 (length of wave 153 days)

    - Wave 4: August 1, 2021 to December 14, 2021 (length of wave 136 days)

    - Wave 5: December 15, 2021 to February 28, 2022 (length of wave 76 days)

    - Wave 6: March 1, 2022 to June 18, 2022 (length of wave 110 days)

    - Wave 7: June 19, 2022 to December 31, 2022, (ongoing)

## Data Caveats – ON-Marg

- ON-Marg is a data tool that combines a wide range of demographic indicators into multiple distinct dimensions of marginalization. It is an area-based index which assigns a measure of marginalization based on neighbourhood versus individual characteristics. As such, the broader demographic trends of an area may not reflect all residents of a neighbourhood owing to the inherent heterogeneity of demographic characteristics which can vary substantially especially across large rural geographies. For more information, please visit PHO's ON-Marg website.

- RPDB data includes individuals alive and eligible for OHIP. Postal codes were assigned to individuals according to the most recent residential address available. Residents of Ontario who do not have a health card number, individuals aged less than 65 years who have not had any health care system activity in the past seven years, and individuals aged 65 and older who have not had any health care system activity in the past two years are excluded from the population counts. Quintile specific rates per 100,000 were age-standardized to the 2011 census population to account for any age differences between quintiles of neighbourhood diversity.[7]

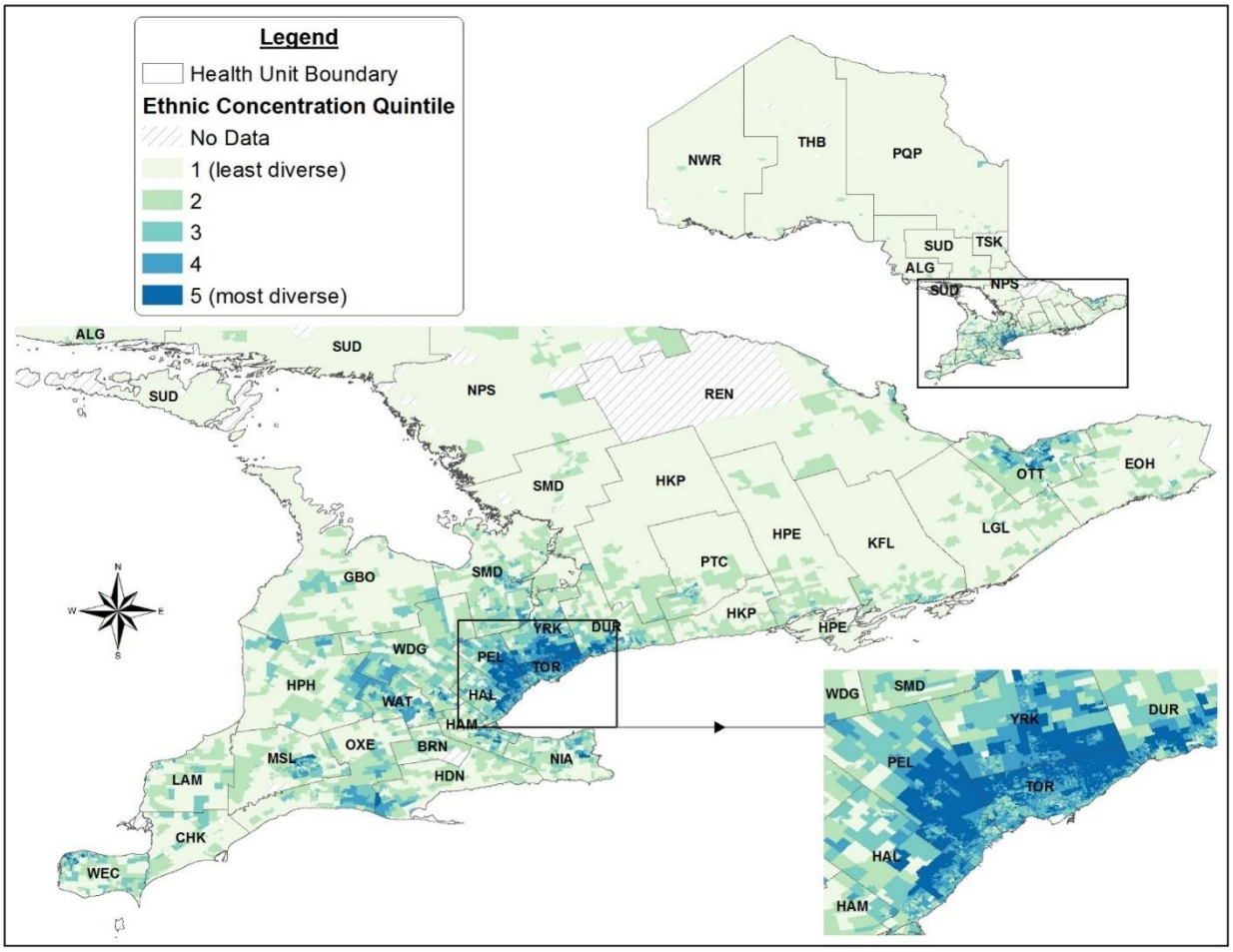
# Appendix A

**Table A1. Demographic characteristics for neighbourhood diversity quintiles (ON-Marg 2016)**

| Population characteristic | Quintile 1 (least diverse) | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (most diverse) |
|---|---|---|---|---|---|
| Population | 2,075,031 | 2,209,550 | 2,393,497 | 2,838,290 | 3,874,794 |
| Proportion of the population | 15.4% | 16.4% | 17.8% | 21.1% | 28.8% |
| Non-White, non-Indigenous | 2.5% | 5.7% | 12.9% | 28.9% | 67.6% |
| Black | 0.6% | 1.2% | 2.3% | 4.7% | 10.5% |
| East and Southeast Asian | 0.9% | 2.1% | 4.7% | 10.3% | 22.3% |
| Latino | 0.2% | 0.5% | 1.1% | 2.1% | 2.5% |
| Middle Eastern | 0.2% | 0.5% | 1.3% | 3.2% | 6.0% |
| South Asian | 0.4% | 1.1% | 2.6% | 6.5% | 22.7% |
| Recent immigrant (<5 years) | 0.2% | 0.5% | 1.3% | 3.2% | 8.8% |
| Cannot speak English or French | 0.3% | 0.6% | 1.2% | 2.4% | 5.6% |
| Seniors (age 65+) | 25.2% | 20.5% | 17.1% | 14.2% | 11.8% |
| Low income | 12.0% | 10.8% | 11.2% | 13.2% | 20.7% |
| Without high school diploma | 20.0% | 17.9% | 16.3% | 15.7% | 17.9% |
| Lone-parent families | 28.2% | 27.7% | 27.5% | 27.9% | 28.9% |
| Dwellings that are apartment buildings | 12.1% | 14.1% | 18.5% | 24.0% | 34.6% |
| Average number of persons per dwelling | 2.3 persons | 2.5 persons | 2.6 persons | 2.7 persons | 3.1 persons |

**Note:** The sum of the population of all quintiles is less than the total Ontario population because not all areas could be assigned to an ON-Marg quintile.
The non-White, non-Indigenous population includes the included ethno-racial groups along with persons that identify as being of mixed ethnicity/race and "other".
**Data Source:** Statistics Canada[8]

## Figure A1. Ontario census geographies and the Ontario Marginalization Index (ON-Marg): Neighbourhood diversity




See Table A3 for the full names for health units shown on this map.
**Data source**: ON-Marg 2016[9], Statistics Canada[10]

**Table A2. Ontario public health units (PHUs)**

| Code | Health Unit Name |
|---|---|
| ALG | The District of Algoma Health Unit |
| BRN | Brant County Health Unit |
| CHK | Chatham-Kent Health Unit |
| DUR | Durham Regional Health Unit |
| EOH | The Eastern Ontario Health Unit |
| GBO | Grey Bruce Health Unit |
| HAL | Halton Regional Health Unit |
| HAM | City of Hamilton Health Unit |
| HDN | Haldimand-Norfolk Health Unit |
| HKP | Haliburton, Kawartha, Pine Ridge District Health Unit |
| HPE | Hastings and Prince Edward Counties Health Unit |
| HPH | Huron Perth Health Unit |
| KFL | Kingston, Frontenac and Lennox And Addington Health Unit |
| LAM | Lambton Health Unit |
| LGL | Leeds, Grenville and Lanark District Health Unit |
| MSL | Middlesex-London Health Unit |
| NIA | Niagara Regional Area Health Unit |
| NPS | North Bay Parry Sound District Health Unit |
| NWR | Northwestern Health Unit |
| OTT | City of Ottawa Health Unit |
| OXE | Oxford Elgin St. Thomas Health Unit |
| PEL | Peel Regional Health Unit |
| PQP | Porcupine Health Unit |
| PTC | Peterborough County-City Health Unit |

| Code | Health Unit Name |
|---|---|
| REN | Renfrew County and District Health Unit |
| SMD | Simcoe Muskoka District Health Unit |
| SUD | Sudbury and District Health Unit |
| THB | Thunder Bay District Health Unit |
| TOR | City of Toronto Health Unit |
| TSK | Timiskaming Health Unit |
| WAT | Waterloo Health Unit |
| WDG | Wellington-Dufferin-Guelph Health Unit |
| WEC | Windsor-Essex County Health Unit |
| YRK | York Regional Health Unit |

# References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