Enhanced Epidemiological Summary

COVID-19 in Ontario – A Focus on Diversity

This report includes the most current information available from the integrated Public Health Information System (iPHIS) as of **4 p.m. May 14, 2020**, and from the Toronto Public Health Coronavirus Rapid Entry System (CORES) and the Ottawa Public Health COVID-19 Ottawa Database (The COD) as of **2 p.m. May 14, 2020**. All data in this report are preliminary and may change as more case reports and case details are received.

Purpose

This report aims to explore neighbourhood-level trends among laboratory-confirmed COVID-19 cases reported in Ontario who do not reside in long term care (LTC) from a health equity perspective. It combines individual case data with neighbourhood-level data on race and immigration as measured by the "ethnic concentration" dimension of the Ontario Marginalization Index (ON-Marg). Throughout the report, for easier understanding, the term "diversity" is used when referring to the ethnic concentration of an area, with high diversity equating to higher levels of ethnic concentration and low diversity equating to lower levels of ethnic concentration.

The report findings 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 be used to inform planning and equitable prioritization of public health and health system resources and interventions.

Details on the overall status of COVID-19 cases in Ontario are provided on Public Health Ontario's COVID-19 web page.

Highlights

- The most ethno-culturally diverse neighbourhoods in Ontario, primarily those concentrated in large urban areas, are experiencing disproportionately higher rates of COVID-19 and related deaths compared to neighbourhoods that are the less diverse.

- After adjusting for differences in the age structure between neighbourhoods, the rate of COVID-19 infections in the most diverse neighbourhoods was three times higher than the rate in the least diverse neighbourhoods.

- People living in the most diverse neighbourhoods were also more likely to experience severe outcomes (hospitalizations, ICU admissions and deaths) than people living in the least diverse neighbourhoods:

  - hospitalization rates were four times higher;

  - ICU admission rates were four times higher; and

  - death rates were twice as high.

Methods

ON-Marg and "Ethnic Concentration"

The "ethnic concentration" dimension of ON-Marg 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] (2) the proportion of immigrants that arrived in Canada within the past five years, or (3) both.[1] The populations and other demographic characteristics of the neighbourhoods that comprise each quintile of the ethnic concentration index is included in Appendix A.

In this report, "neighbourhoods" are based on the census dissemination areas (DA). These areas are the smallest geographic units for which Canadian census data is 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 ethnic concentration (least diverse) to quintile 5 (Q5) which has the highest level of ethnic concentration (most diverse). Cases were assigned to neighbourhoods and then quintiles based on their postal code of residence, using the Postal Code Conversion File Plus (PCCF+) version 7B.

As a neighbourhood-level measure of marginalization, ethnic concentration describes the general characteristics of a given area and is used as a proxy for individual-level data when these data are unavailable. 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. In order to gain a better understanding of the complex relationship between COVID-19 and ethno-cultural characteristics at the individual level, further data collection and analysis are needed.

Cases in this Report

All cases of COVID-19 reported in Ontario from January 15, 2020 to May 14, 2020 were included in this report, with the following exclusions:

- Cases 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. Although these cases represent a large number of the overall cases and deaths, their exclusion ensures appropriate comparisons since long-term care residents are excluded from the ethnic concentration index. A separate report on COVID-19 among cases in long-term care homes will be released.

- Cases without a reported postal code because postal code is required to assign cases to a neighbourhood-level quintile of ethnic concentration.

- Cases that reside in regions of the province where census data are suppressed and therefore not available.

This report therefore includes 16,169 (73.8%) of the 21,922 laboratory confirmed cases of COVID-19 reported in Ontario from January 15 to May 14, 2020. Included among these cases are 2,079 of 2,779 hospitalizations (74.8%), 533 of 633 ICU admissions (84.2%), and 722 of 1,825 deaths (39.6%) reported

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[i] Based on the Statistics Canada visible minority variable, which is defined as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour."
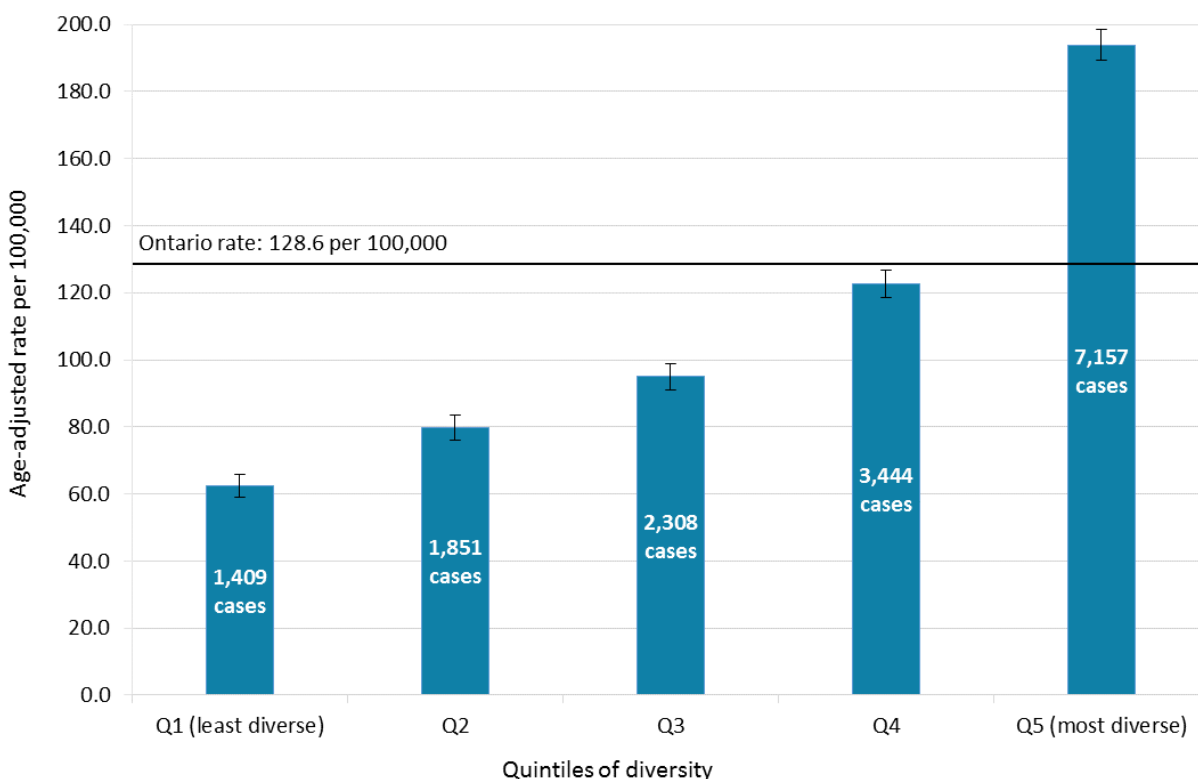
during this period. Appendix B provides information on the number of cases reported during this period and the number of cases summarized in this report.

The number of cases and incidence rates for each quintile of ethnic concentration are presented in this report. Where appropriate, rates have been age-adjusted to remove the influence of age on trends and to allow for appropriate comparisons between neighbourhoods with varying levels of ethnic concentration. A map of the Ontario census geographies that make up the five ethnic concentration quintiles is shown in Appendix C.

COVID-19 Cases and Diversity

- From January 15 to May 14, 2020, 21,922 confirmed cases of COVID-19 were reported in Ontario. Among reported COVID-19 cases summarized in this report (n=16,169), 20.2% resided in neighbourhoods with the lowest levels of diversity (quintiles 1 and 2), whereas 65.6% resided in neighbourhoods with the highest levels of diversity (quintiles 4 and 5). The remaining 14.3% of cases resided in neighbourhoods with moderate levels of diversity.

- Age-adjusted rates of COVID-19 showed a gradient effect, with a steady increase in incidence rate as the level of ethnic concentration increased (Figure 1). Cases residing in the most diverse neighbourhoods (quintile 5), accounted for 44.3% of cases which corresponds to an age-adjusted incidence rate of 193.8 cases per 100,000 population. This was over three times the rate in the least diverse neighbourhoods (quintile 1), which accounted for 8.7% of cases for an age-adjusted incidence rate of 62.4 cases per 100,000 population. For Ontario, the overall age-adjusted rate of COVID-19 after excluding cases that reside in long-term care settings was 128.6 cases per 100,000 population.

Figure 1. Age-adjusted rate and number of confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020

Rates per 100,000 population (bar heights) are adjusted for the size and age structure of the population. The upper and lower caps of the lines on each bar show the upper and lower limits (respectively) within which the corresponding rate would occur 95% of the times.
Horizontal line represents the age-adjusted rate for Ontario excluding cases that reside in long-term care settings. Cases that reside in long-term care settings are not included in this analysis.
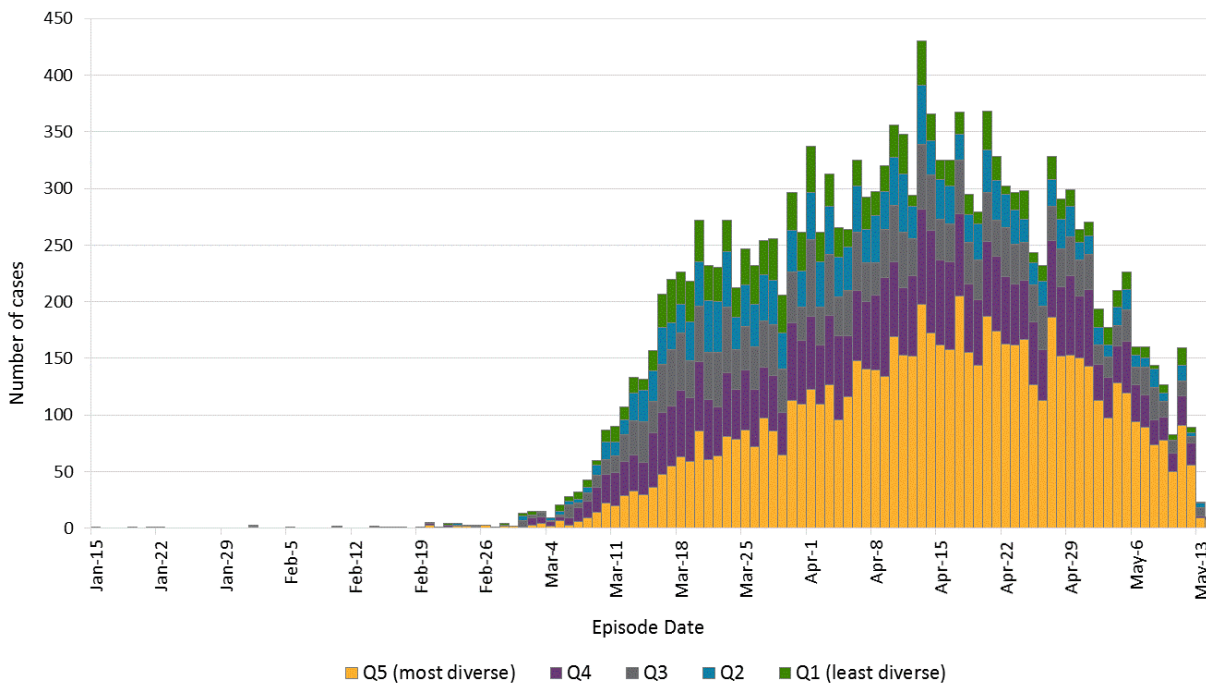**Data Source:** integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Temporal Trends

The distribution of cases over time is presented based on episode date, an estimate of the date symptoms began. The distribution of these dates over time shows how cases are trending and provides an indication of the period over which cases may have been exposed to SARS-CoV-2, the virus that causes COVID-19.

- Figure 2 shows the daily number of confirmed COVID-19 cases that occurred in Ontario from January 15 to May 14, 2020 by quintiles of ethnic concentration (16,169 cases). The growth rate for COVID-19 appears to plateau after the third week of March 2020 for quintiles 1 to 4 but continued to increase until mid-April for quintile 5 (most diverse).

Figure 2. Cumulative number of confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020 (n=16,169 cases)

Q1 to Q5 represents the five quintiles of ethnic concentration with Q1 being the least diverse and Q5 being the most diverse.

The episode date is an estimate of a case's symptom onset date based on either the date of symptom onset, specimen collection/test date, or the date reported to public health.

Cases that reside in long-term care settings are not included in this analysis.

Interpret case counts for the most recent days (approximately 14 days) with caution due to reporting lags.

Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Age and Sex Distribution

- No clear trend emerged for associations between gender and neighbourhood-level diversity. Overall, males accounted for fewer cases than females with the proportion of cases accounted for by males ranging from 40.4% in quintile 3 to 45.1% in quintile 5 (Table 1).

- There is a gradient in the proportion of cases aged 60 years and older across quintiles of neighbourhood-level diversity (Table 1). Cases in the least diverse neighbourhoods (quintile 1) tended to be older, with 45.7% of cases age 60 years and older, compared to 24.0% of cases in the most diverse neighbourhoods (quintile 5).

Table 1. Age and sex of confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020

Quintiles of ethnic concentrations	Number of cases	Median age (years)	% of cases ≥ 60 years	% male cases
Quintile 1 (Least diverse)	1,409	57	45.7%	44.6%
Quintile 2	1,851	54	40.2%	41.2%
Quintile 3	2,308	51	31.0%	40.4%
Quintile 4	3,444	49	27.7%	43.3%
Quintile 5 (Most diverse)	7,157	48	24.0%	45.1%

Does not include six cases with missing/unknown age; denominators for calculating % male includes all cases of all sex (i.e., male, female, unknown and unspecified).
Minimum age for cases in all five quintiles was <1 year while the maximum age in all five quintiles ranged from 100-104 years.
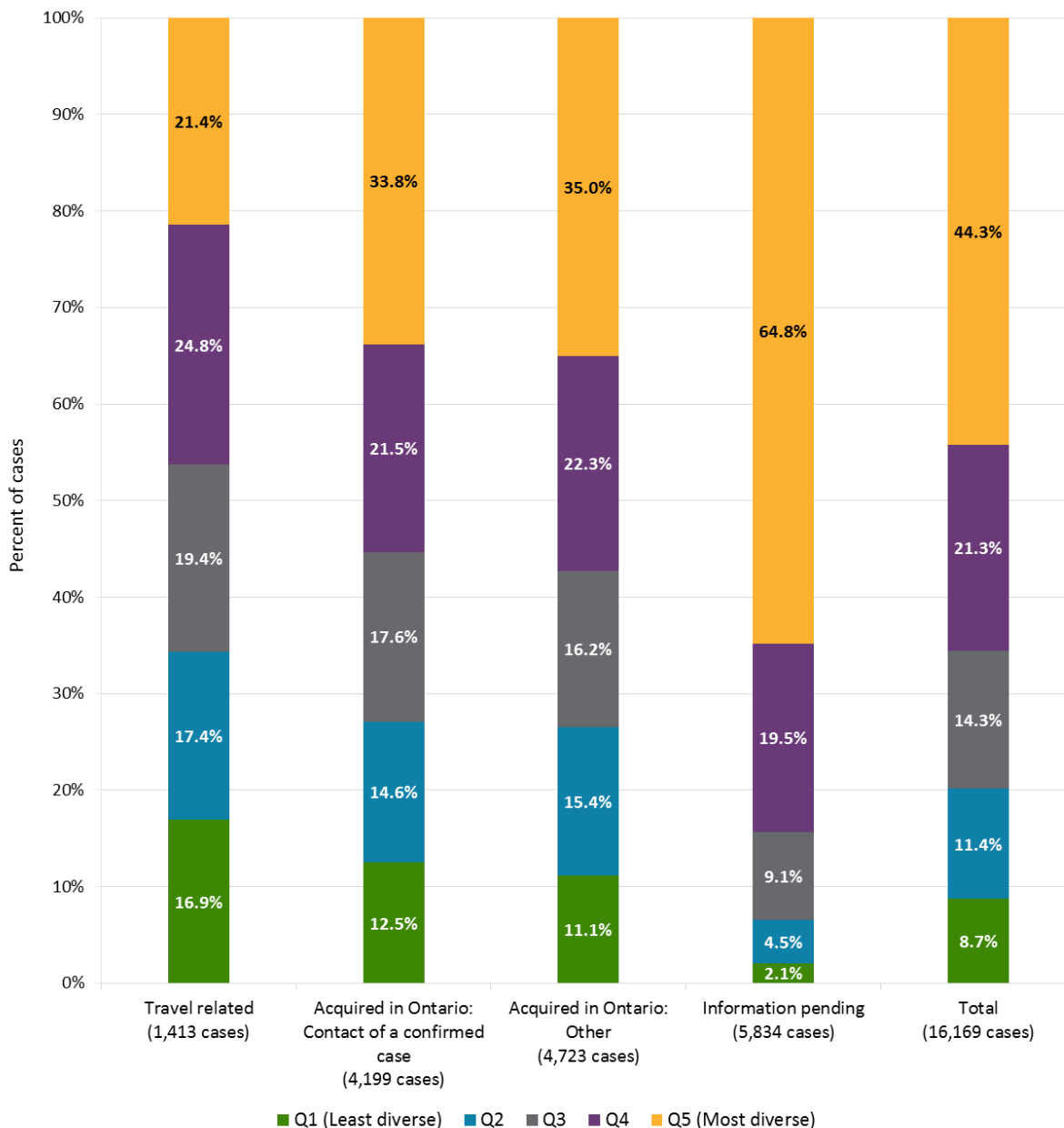Cases that reside in long-term care settings are not included in this analysis.
Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Exposures

Exposures reported by COVID-19 cases are indicative of potential sources of infection. In the early stages of the pandemic, the majority of cases occurred among Ontarians returning from international travel and among their close contacts, whereas more recently more cases are reporting acquisition in Ontario. Although exposure data are not available for all cases, it is possible to elucidate trends in disease acquisition that can inform public health approaches.

- Cases in the most diverse neighbourhoods (quintiles 4 and 5) accounted for the highest proportion of travel-related exposures, exposures due to contact with a confirmed case and other exposures that have occurred in the province. The opposite was true for cases that reside in the least diverse neighbourhoods (quintile 1) where the proportion of cases reporting these exposures was consistently the lowest (Figure 3). However, compared to the their overall proportions, cases in quintiles 1, 2 and 3 had higher than expected proportions of cases that reported travel outside Ontario, contact with a confirmed case and other acquired-in-Ontario exposures. The difference between the proportion of travel-related exposures (16.9%) and the proportion of total COVID-19 cases (8.7%) was most notable in quintile 1. In constrast, cases in the two most diverse quintiles (4 and 5) accounted for lower than their respective proprotion of reported exposures, with the most marked exception being cases in quintile 5 who accounted for 44.3% of all cases but just 21.4% of all travel-related exposures.

- Exposure Information was not available for 36.1% of cases. Residents of the most diverse neighbourhoods (quintile 5) made up 64.8% of these cases, compared to 2.1% of cases residing in the least diverse neighbourhoods (quintile 1).

Figure 3. Exposures reported for confirmed cases of COVID-19 by quintiles of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020

Q1 to Q5 represents the five quintiles of ethnic concentration with Q1 being the least diverse and Q5 being the most diverse.

Exposure status is determined hierarchically where multiple exposures have been reported: Travel-related → Close contact of a confirmed case → Acquired in Ontario → Information pending.

Travel outside of Ontario within the 14 days prior to becoming ill.

Cases that were acquired in Ontario either reported being a contact of a confirmed case or other risk factors or exposures related to settings or occupation that could have resulted in disease acquisition.

Cases that reside in long-term care settings are not included in this analysis.

Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Severe Outcomes

Emerging data from the United States[2,3,4] and the United Kingdom[5] indicate a disproportionate burden of severe illness and deaths due to COVID-19 among racial and ethnic minority groups. This section of the report will focus on hospitalization and deaths among COVID-19 cases across the five quintiles of ethnic concentration. Due to delays in reporting, details about hospitalization and deaths are incomplete, for the most recent cases and so observed trends should be interpreted with caution.

Hospitalizations

- The proportion of cases that was hospitalized in each of the five neighbourhood quintiles did not vary markedly, ranging from a low of 11.0% for the most diverse neighbourhoods (quintile 5) to a high of 15.5% for neighbourhoods with a moderate level of diversity (quintile 3).

- In contrast, the age-adjusted hospitalization rates for COVID-19 showed a trend of increasing hospitalizations with increasing neighbourhood-level diversity. Neighbourhoods of Ontario that were more diverse had the highest age-adjusted hospitalization rates for COVID-19 (Figure 4). The hospitalization rate for these neighbourhoods (23.6 admissions per 100,000 population in quintile 5) was more than two times higher than the corresponding rates for neighbourhoods with the least diversity (quintiles 1 and 2). The lowest age-adjusted hospitalization rates were found in the least diverse neighbourhoods of the province with rates of 6.3 admissions per 100,000 population for quintile 1 and 9.9 admissions per 100,000 population for quintile 2. For Ontario, the age-adjusted hospitalization rate of COVID-19 after excluding cases that reside in long-term care settings was 15.9 admissions per 100,000 population.

Figure 4. Age-adjusted rate and number of hospitalizations among confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020
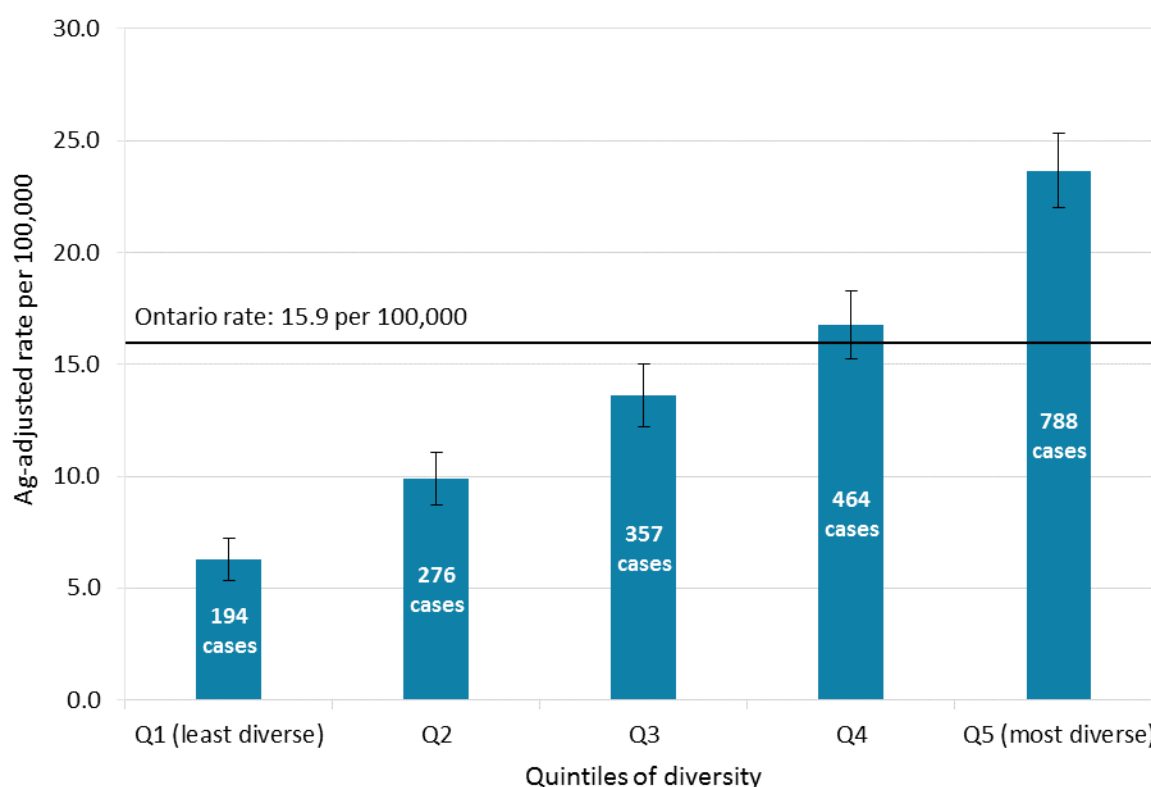
Includes all cases that have been admitted to hospital or treated in an ICU and includes cases that have been discharged or are currently hospitalized.

Rates per 100,000 population (bar heights) are adjusted for the size and age structure of the population. The upper and lower caps of the lines on each bar show the upper and lower limits (respectively) within which the corresponding rate would occur 95% of the times.
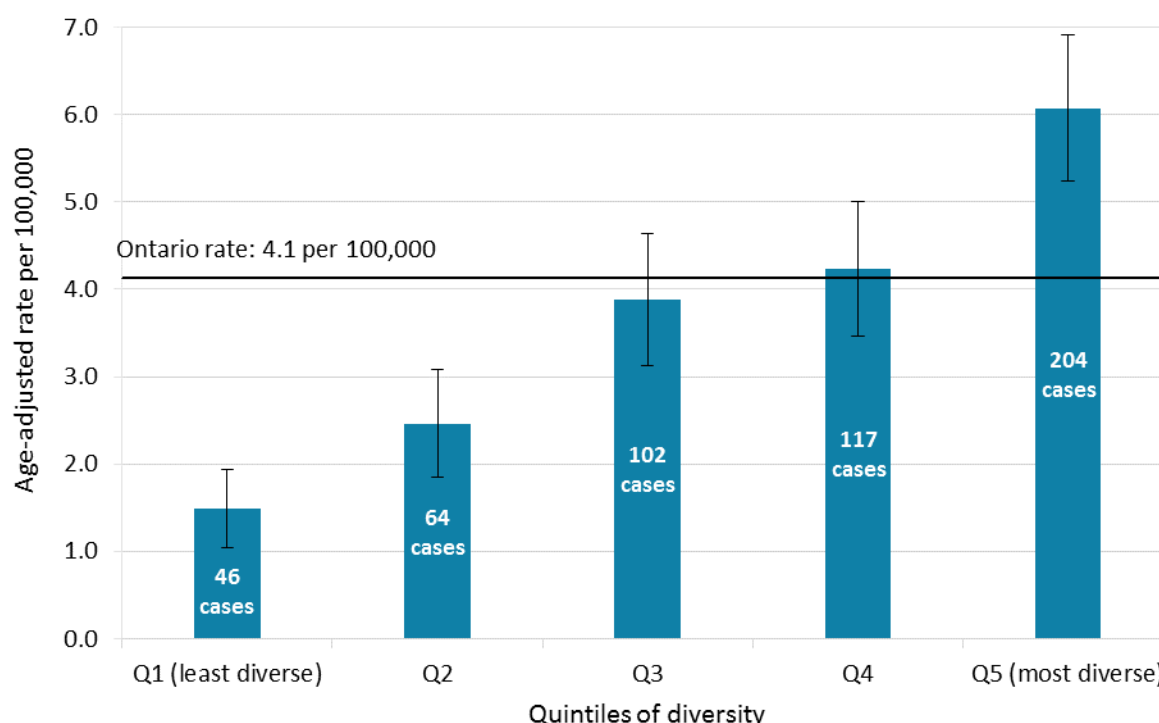
Horizontal line represents the age-adjusted rate for Ontario excluding cases that reside in long-term care settings. Cases that reside in long-term care settings are not included in this analysis.

Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

ICU Admissions

- At least one-fifth of all hospitalized cases in each of the five neighbourhood quintiles were treated in an intensive care unit (ICU).

- After adjusting for age, the rates of ICU admission showed a gradient effect with a steady increase in rates as neighbourhood-level diversity increased (Figure 5). Quintile 5 (most diverse) had the highest age-adjusted rate of COVID-19 ICU admissions at 6.1 admissions per 100,000 population compared to quintile 1 (least diverse) with 1.5 admissions per 100,000 population. For the province as a whole, the age-adjusted ICU admission rate of COVID-19 after excluding cases that reside in long-term care settings was 4.1 admissions per 100,000 population.

Figure 5. Age-adjusted rate and number of ICU admissions among confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020

Includes all cases that have been treated or are currently being treated in an ICU.
Rates per 100,000 population (bar heights) are adjusted for the size and age structure of the population. The upper and lower caps of the lines on each bar show the upper and lower limits (respectively) within which the corresponding rate would occur 95% of the times.
Horizontal line represents the age-adjusted rate for Ontario excluding cases that reside in long-term care settings. Cases that reside in long-term care settings are not included in this analysis.
Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Deaths

- COVID-19 deaths described in this report represent only 39.6% of the deaths reported during the time period under surveillance. As such they are not representative of all deaths reported in Ontario as deaths that have occurred among cases that reside in LTC settings are not included.

- The case fatality rate for COVID-19 decreased with increasing neighbourhood-level of diversity with quintile 1 (least diverse) having the highest case fatality rate at 8.2% compared to quintile 5 (most diverse) which had a case fatality rate of 3.3% (Table 2). However, the age-adjusted mortality rate for COVID-19 in the most diverse neighbourhoods of Ontario (quintile 5) was over two times higher at 7.6 deaths per 100,000 population compared to 3.3 deaths per 100,000 population in the least diverse neighbourhoods (quintile 1). For Ontario as a whole, the age-adjusted mortality rate for COVID-19 after excluding cases that reside in long-term care settings was 5.5 admissions per 100,000 population (Figure 6).

Table 2. Age-adjusted mortality rate and number of deaths among confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020

Quintiles of ethnic concentration	Number of cases	Number of reported deaths	Case fatality rate	Age-adjusted mortality rate
Q1 (Least diverse)	1,409	116	8.2%	3.3
Q2	1,851	126	6.8%	4.0
Q3	2,308	121	5.2%	4.3
Q4	3,444	124	3.6%	4.5
Q5 (Most diverse)	7,157	235	3.3%	7.6

Includes all COVID-19 cases reported as 'Fatal'.

Rates per 100,000 population (bar heights) are adjusted for the size and age structure of the population.

Cases that reside in long-term care settings are not included in this analysis.

Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Figure 6. Age-adjusted mortality rate and number of deaths among confirmed cases of COVID-19 for each quintile of ethnic concentration: Ontario, January 15, 2020 to May 14, 2020
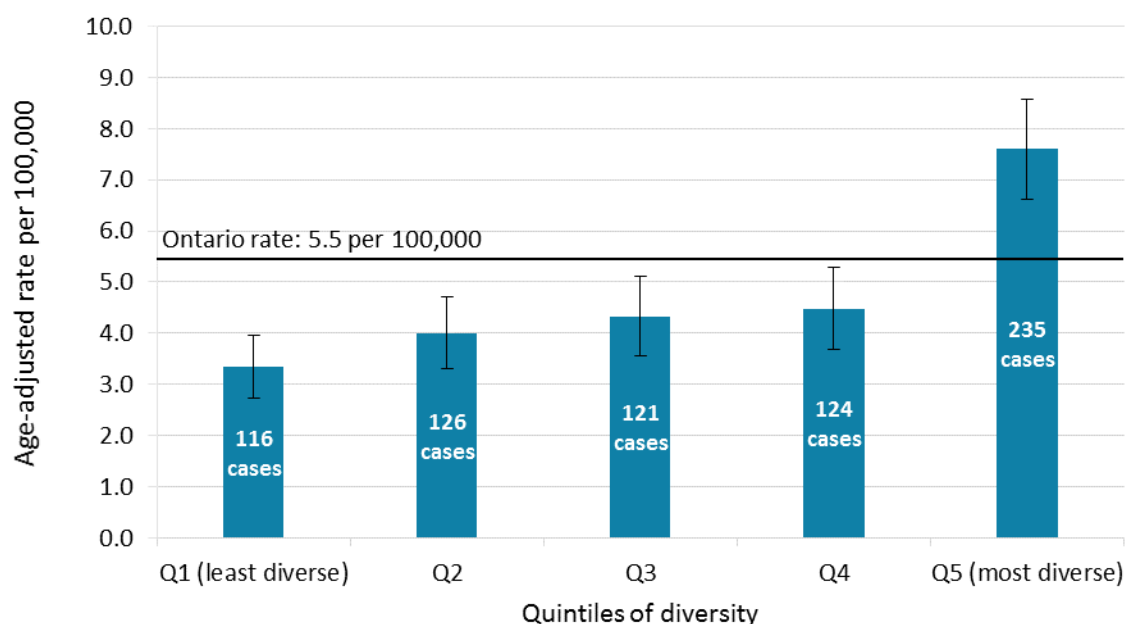

Includes all COVID-19 cases reported as 'Fatal'.

Rates per 100,000 population (bar heights) are adjusted for the size and age structure of the population. The upper and lower caps of the lines on each bar show the upper and lower limits (respectively) within which the corresponding rate would occur 95% of the times.

Horizontal line represents the age-adjusted rate for Ontario excluding cases that reside in long-term care settings. Cases that reside in long-term care settings are not included in this analysis.

Data Source: integrated Public Health Information System (iPHIS) database, Coronavirus Rapid Entry System (CORES) database, The COVID-19 Ottawa Database (The COD), ON-Marg 2016.

Technical Notes

Data Sources

- This report is based on data extracted from the Ontario Ministry of Health (MOH) integrated Public Health Information System (iPHIS) database on **May 14, 2020 at 4 p.m.** and the Toronto Public Health Coronavirus Rapid Entry System (CORES) and the Ottawa Public Health COVID-19 Ottawa Database (The COD) on **May 14, 2020 at 2 p.m.**

- iPHIS is used by all 34 public health units in Ontario. Additionally, Toronto and the City of Ottawa use separate databases to record cases that are also reported centrally to the province. These disease reporting systems are dynamic, which allows ongoing updates to data previously entered. As a result, data extracted from iPHIS represent a snapshot at the time of extraction and may differ from previous or subsequent reports.

- Age-adjusted rates were calculated using population counts from the Statistics Canada 2016 Canadian census dissemination area profiles.

Data Caveats and Methods – Case Data

- This report includes cases that meet the Ontario Ministry of Health confirmed case definition for COVID-19 that do not report living in a long-term care facility.

- The episode date is an estimate of a case's symptom onset date based on either the date of first symptom, specimen collection/test date, or the date reported to public health.

- Observed trends in incidence over time should be interpreted with caution for the most recent 14-day period due to reporting and/or data entry lags.

- The data only represent cases reported to public health and recorded in iPHIS or CORES. As a result, the number of reported cases as well as case details (e.g., comorbidities) are subject to underreporting owing to factors such as illness awareness, illness severity, medical care seeking behaviour, clinical practice, laboratory testing algorithms and reporting practices.

- 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 iPHIS.

- The hospitalization measure of illness severity includes all cases for which a hospital admission date was reported at the time of data extraction. It includes cases that have been discharged from hospital as well as cases that are currently hospitalized. Emergency room visits are not included in the number of reported hospitalizations.

- ICU admission is a measure of illness severity that includes all cases for which an ICU admission date was reported at the time of data extraction. It is a subset of the count of hospitalized cases. It includes cases that have been treated or that are currently being treated in an ICU.

- Death is a measure of illness severity that includes all cases for which an outcome of fatal was reported at the time of data extraction.

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

- Cases were assigned to a single exposure type which was determined hierarchically for cases with multiple exposures. The hierarchy assigned cases in the following order: Travel-related (in last 14 days) > Close contact of a confirmed case > Community transmission > Information pending.

Data Caveats and Methods – ON-Marg

- ON-Marg was used as a proxy for individual-level data in this report because complete data on immigration status and ethnicity are not available in iPHIS.

- ON-Marg is an area-based index which assigns a measure of socio-economic status based on neighbourhood characteristics, not individual characteristics. Not all individuals in a given area will reflect the broader demographic trends of the area they live in. This means that not every individual who lives in an area of high ethnic concentration is a recent immigrant and/or belongs to a visible minority group. Heterogeneity of demographic characteristics can vary substantially, especially across large rural geographies.

- Cases were assigned to quintiles of ethnic concentration based on postal code of residence. The Postal Code Conversion File Plus (PCCF+) version 7B was used to match postal codes to Statistics Canada disseminations area geographies, which were subsequently assigned to a quintile of ethnic concentration using the Ontario Marginalization Index (ON-Marg).

- People who reside in long-term settings are not represented in Canadian census data from which the ethnic concentration component of ON-Marg is calculated. Therefore cases that reported residency in long-term care settings or that have a postal code that maps to a long-term care facility were excluded from this report. Cases with invalid or missing postal codes were also excluded because postal code is required to assign cases to an area-level quintile of ethnic concentration.

Appendix A: Demographic Characteristics of the Population of the Ethnic Concentration Quintiles

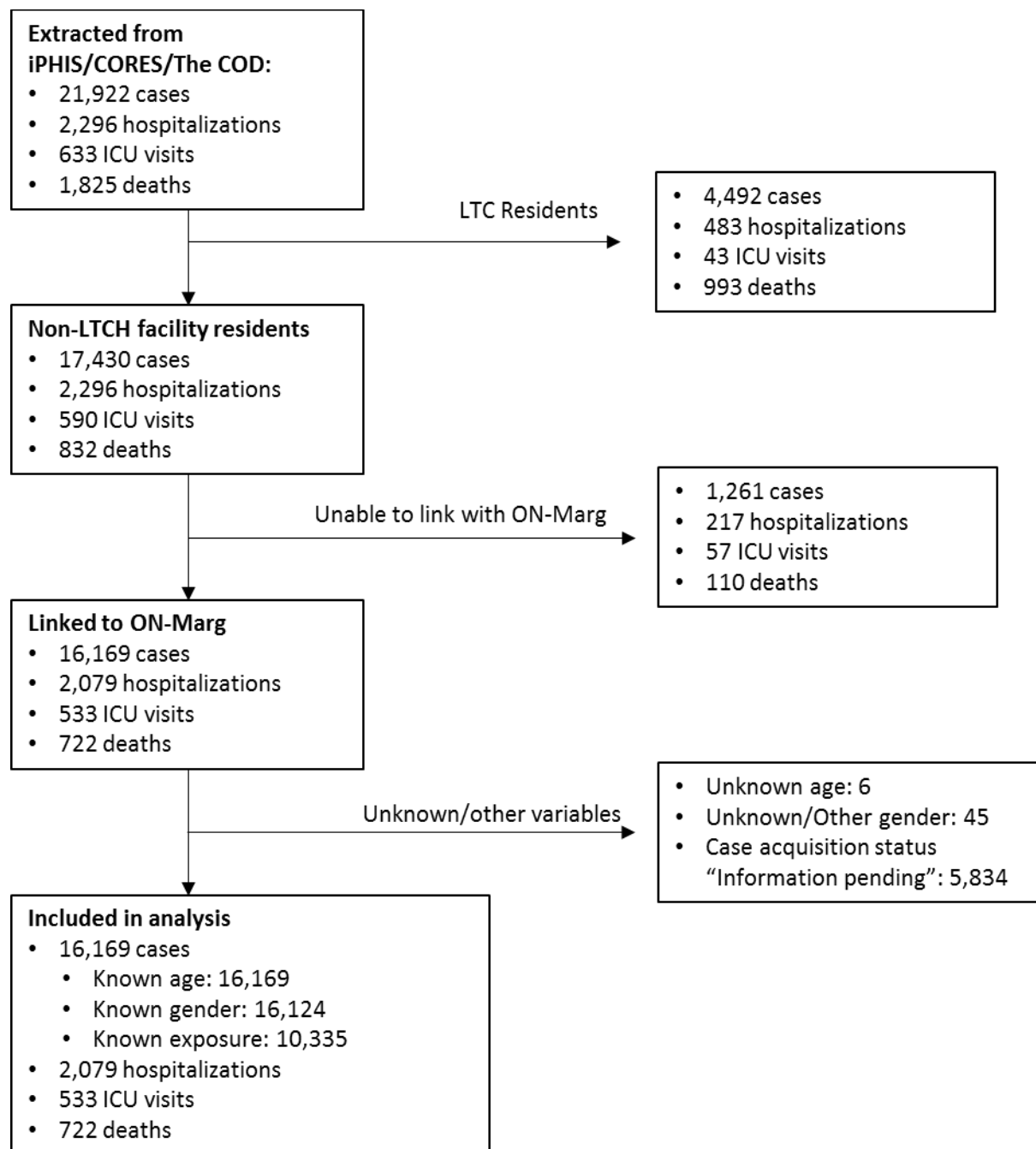| Population characteristic	Quintile 1 (least diverse)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (most diverse)
Population	2,075,031	2,209,550	2,393,497	2,838,290	3,874,794
Proportion of the population	15.4%	16.4%	17.8%	21.1%	28.8%
Non-White, non-Indigenous	2.5%	5.7%	12.9%	28.9%	67.6%
Black	0.6%	1.2%	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

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".
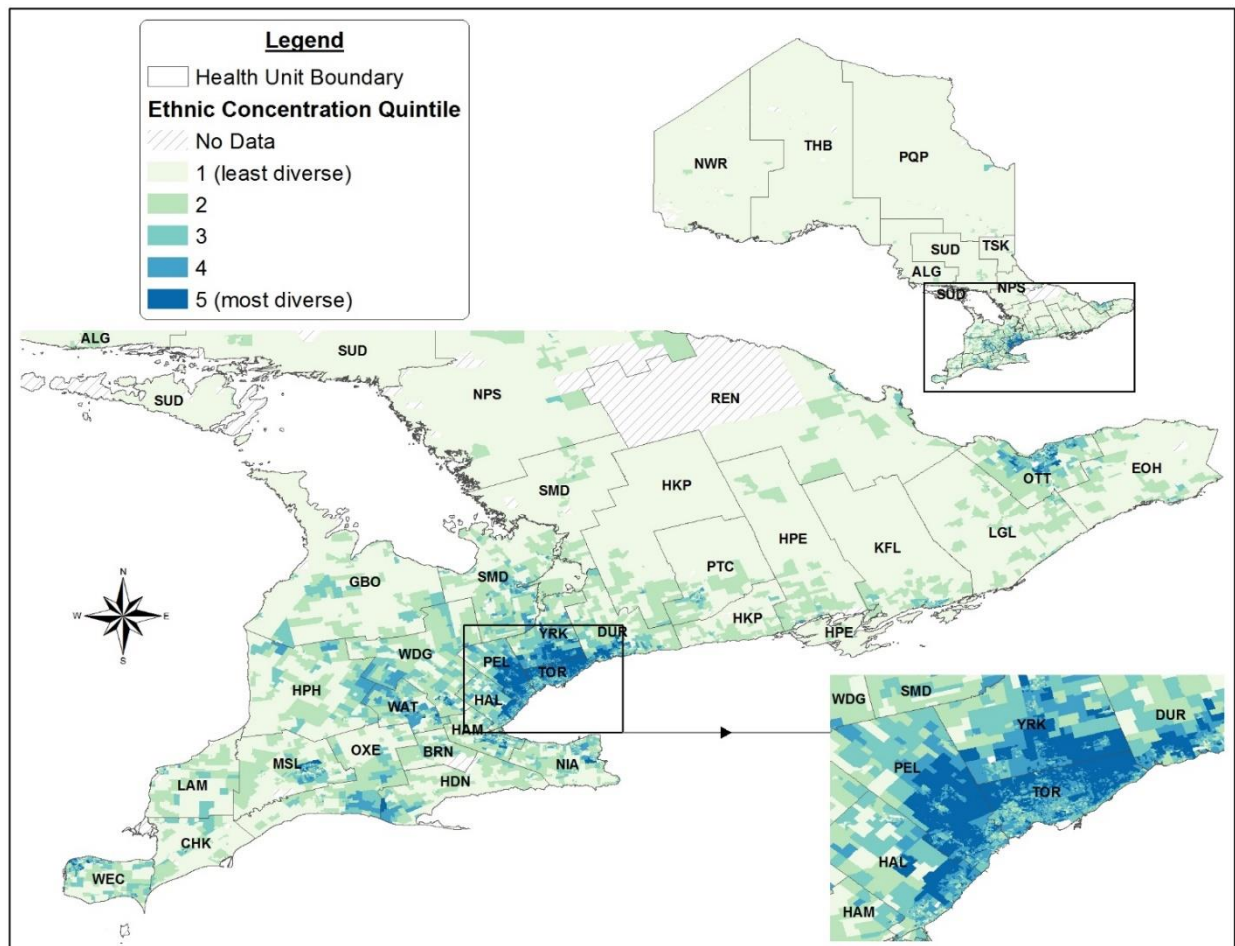
Data Source: Statistics Canada. Census of Population, 2006: Profile for Canada, Provinces, Territories, Census Divisions, Census Subdivisions and Dissemination Areas. Retrieved from: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/download-telecharger/comp/GetFile.cfm?Lang=E&FILETYPE=CSV&GEONO=044_ONTARIO

Appendix B: COVID-19 Cases Reported in Ontario up to May 14, 2020 and Included in this Report

Extracted from iPHIS/CORES/The COD:
- 21,922 cases
- 2,296 hospitalizations
- 633 ICU visits
- 1,825 deaths

LTC Residents →
- 4,492 cases
- 483 hospitalizations
- 43 ICU visits
- 993 deaths

Non-LTCH facility residents
- 17,430 cases
- 2,296 hospitalizations
- 590 ICU visits
- 832 deaths

Unable to link with ON-Marg →
- 1,261 cases
- 217 hospitalizations
- 57 ICU visits
- 110 deaths

Linked to ON-Marg
- 16,169 cases
- 2,079 hospitalizations
- 533 ICU visits
- 722 deaths

Unknown/other variables →
- Unknown age: 6
- Unknown/Other gender: 45
- Case acquisition status "Information pending": 5,834

Included in analysis
- 16,169 cases
  - Known age: 16,169
  - Known gender: 16,124
  - Known exposure: 10,335
- 2,079 hospitalizations
- 533 ICU visits
- 722 deaths

Appendix C: Ontario Census Geographies and the Ontario Marginalization Index Ethnic Concentration Dimension

See Appendix D for the full names for health units shown on this map.
Data source:
Statistics Canada. Dissemination area boundary files, census year 2016. Catalogue no. 92-169-X2016001 [Internet]. Ottawa, ON: Statistics Canada; 2016 Nov 16 [extracted 2018 Nov 13]. Available from: https://www150.statcan.gc.ca/n1/en/catalogue/92-169-X2016001
Matheson FI; van Ingen T. 2016 Ontario marginalization index [Internet]. Toronto, ON: St.Michael's Hospital; 2018 [cited 2020 May 12]. Available from: https://www.publichealthontario.ca/en/data-and-analysis/health-equity/ontario-marginalization-index

Appendix D: Ontario Public Health Units

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

Code	Health Unit Name
PTC	Peterborough County-City Health Unit
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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For Further Information

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