



***COVID-19 Laboratory Testing in
Ontario: Patterns of Testing and
Characteristics of Individuals Tested,
as of April 30, 2020***

May 2020



Publication Information

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This study made use of the Johns Hopkins ACG® System (Version 10).

About ICES

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About This Report

This report was developed as part of a multi-pronged strategy to provide timely and meaningful data on COVID-19 testing in Ontario to decision-makers at the Ontario Ministry of Health and Public Health Ontario, clinicians, researchers, the public and others interested in the characteristics of individuals tested and confirmed positive for COVID-19 in Ontario.

This report is the first of its kind to use COVID-19 laboratory test results from the Ontario Laboratories Information System (OLIS) database to identify individuals who were tested for COVID-19 linked with sociodemographic and health-related administrative data within the ICES Data Repository. The report takes a person-based (rather than a test-based) approach to provide information about both those tested and those confirmed positive for COVID-19, in place of providing simply overall numbers of tests. It also highlights some of the geographic areas, residential settings, and sociodemographic and clinical sub-groups associated with higher rates of COVID-19 testing and infection.

It is important to emphasize that the report describes the characteristics of those who have been tested for COVID-19, which reflects the evolving guidelines and practices for testing selected populations such as those living in long-term care settings. The report underlines the known substantial impact of COVID-19 in the long-term care sector and presents data separately for this important population. Subsequent reports will provide more details regarding testing and outcomes in additional vulnerable populations and settings.

The OLIS data are derived from clinical laboratory reports. Our OLIS test cleaning algorithm was developed in collaboration with our partners to identify testing episodes and positive tests. This algorithm may continue to evolve as we receive additional data.

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Exhibit 1.0

Overview of COVID-19 testing in Ontario, as of April 30, 2020

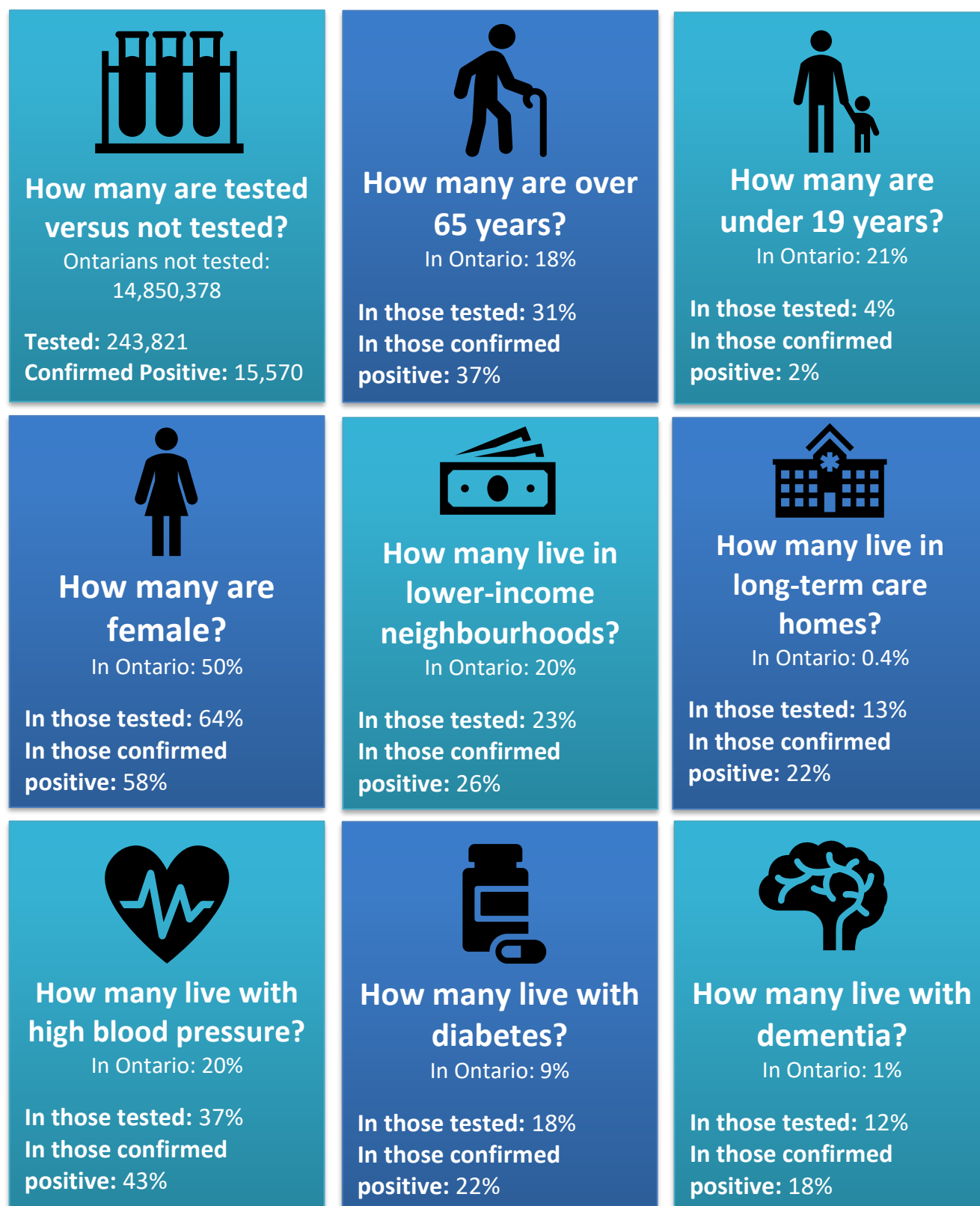
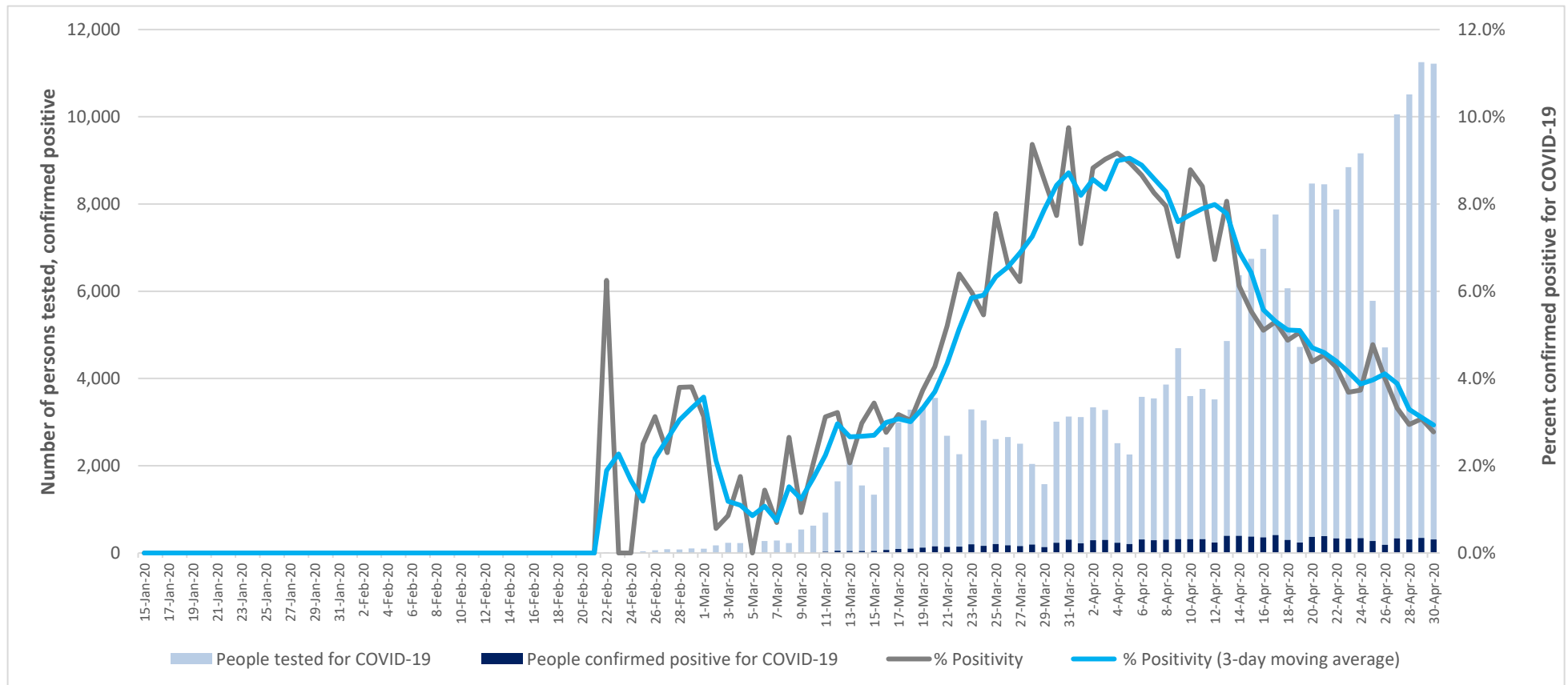


Exhibit 2.1.1

Daily number of individuals in Ontario not residing in long-term care homes tested, and confirmed positive, for COVID-19, January 15–April 30, 2020¹

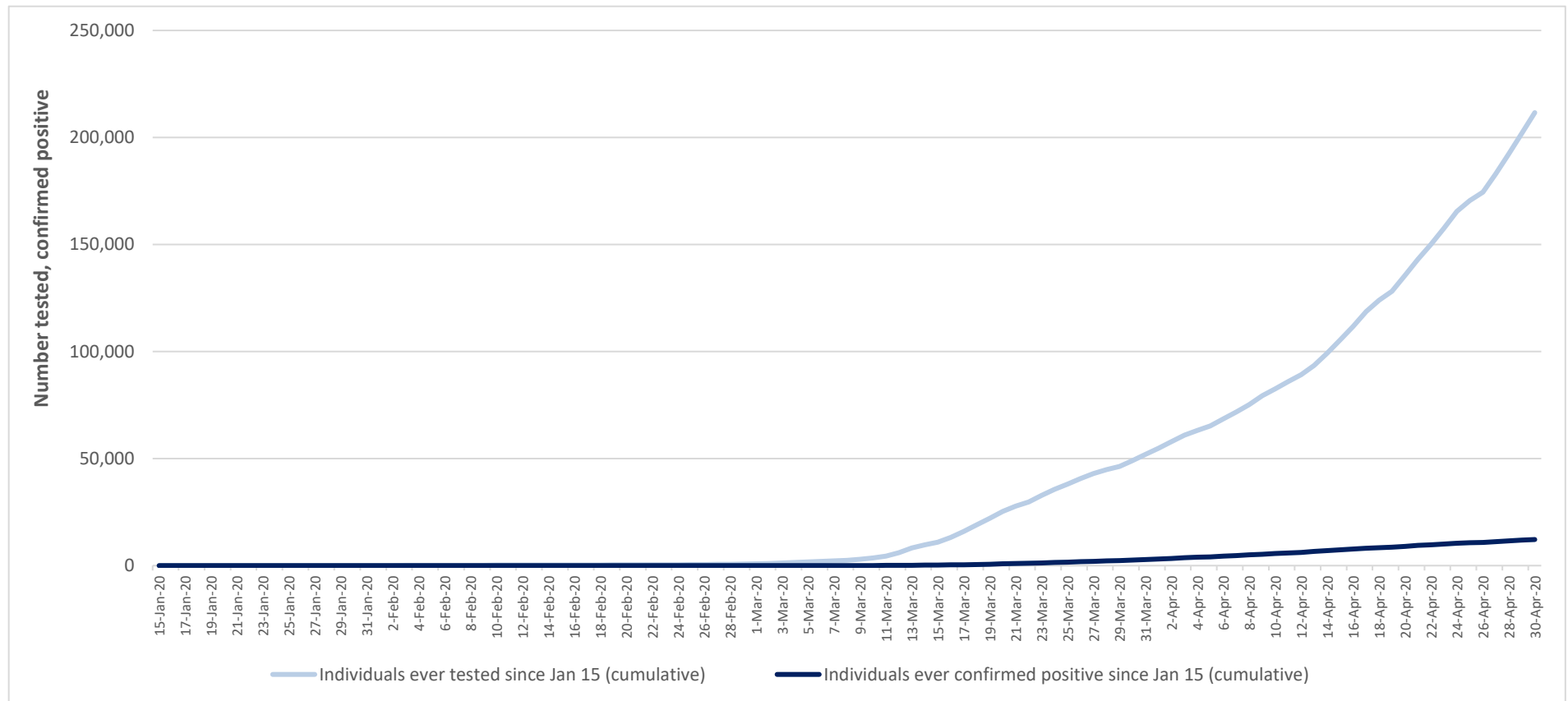


Key Finding: The largest number of individuals confirmed positive for COVID-19 in a single day, among those not residing in long-term care homes, occurred on April 17, 2020 (411 confirmed positive). The daily percentage of individuals confirmed positive for COVID-19 was greatest between March 28 and April 13, 2020 (7%–9% confirmed positive).

¹ Once an individual is confirmed positive, subsequent tests for that individual are excluded from the daily totals.

Exhibit 2.1.2

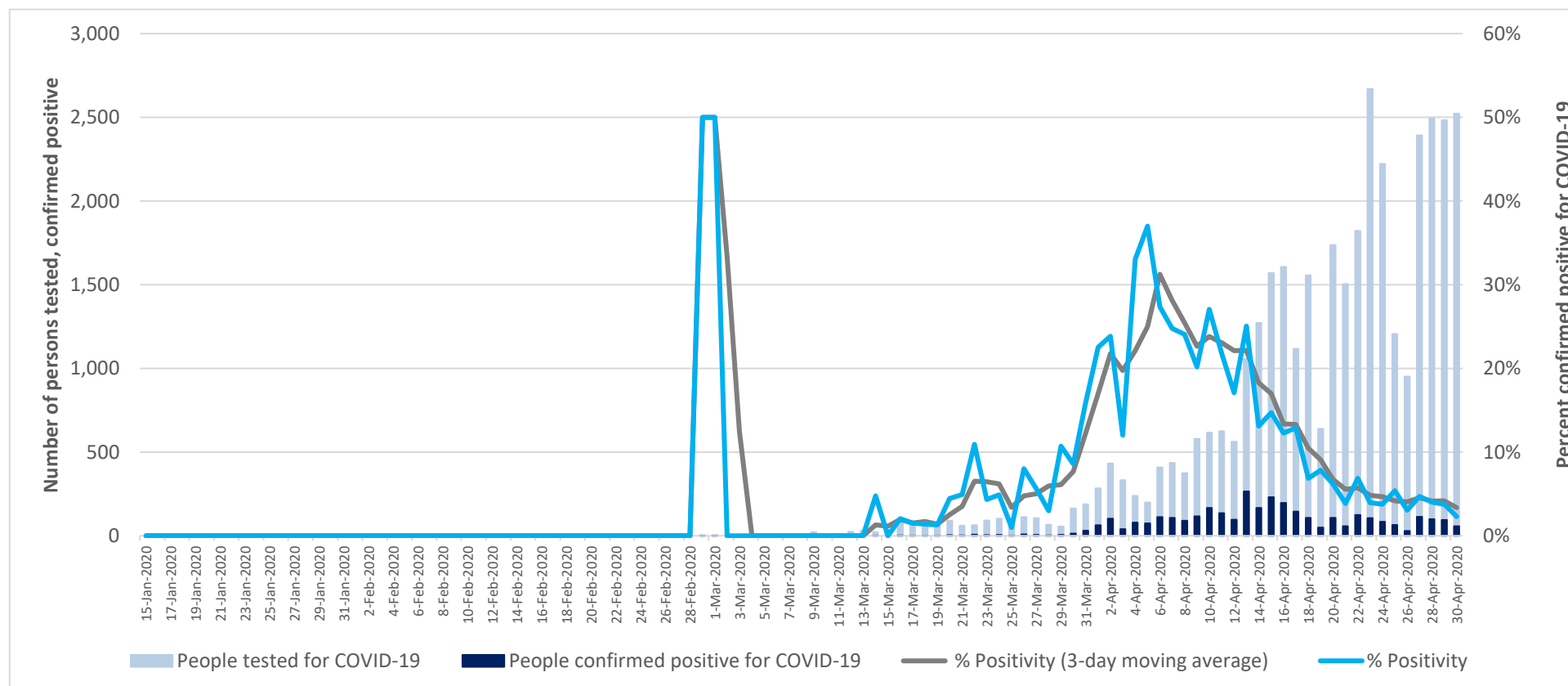
Cumulative number of individuals in Ontario not residing in long-term care homes tested, and confirmed positive, for COVID-19, January 15–April 30, 2020



Key Finding: As of April 30, 2020, a total of 211,603 individuals not residing in long-term care homes were tested for COVID-19 in Ontario, with a cumulative total of 12,184 individuals confirmed positive.

Exhibit 2.2.1

Daily number of individuals in Ontario residing in long-term care homes tested, and confirmed positive, for COVID-19, January 15–April 30, 2020²

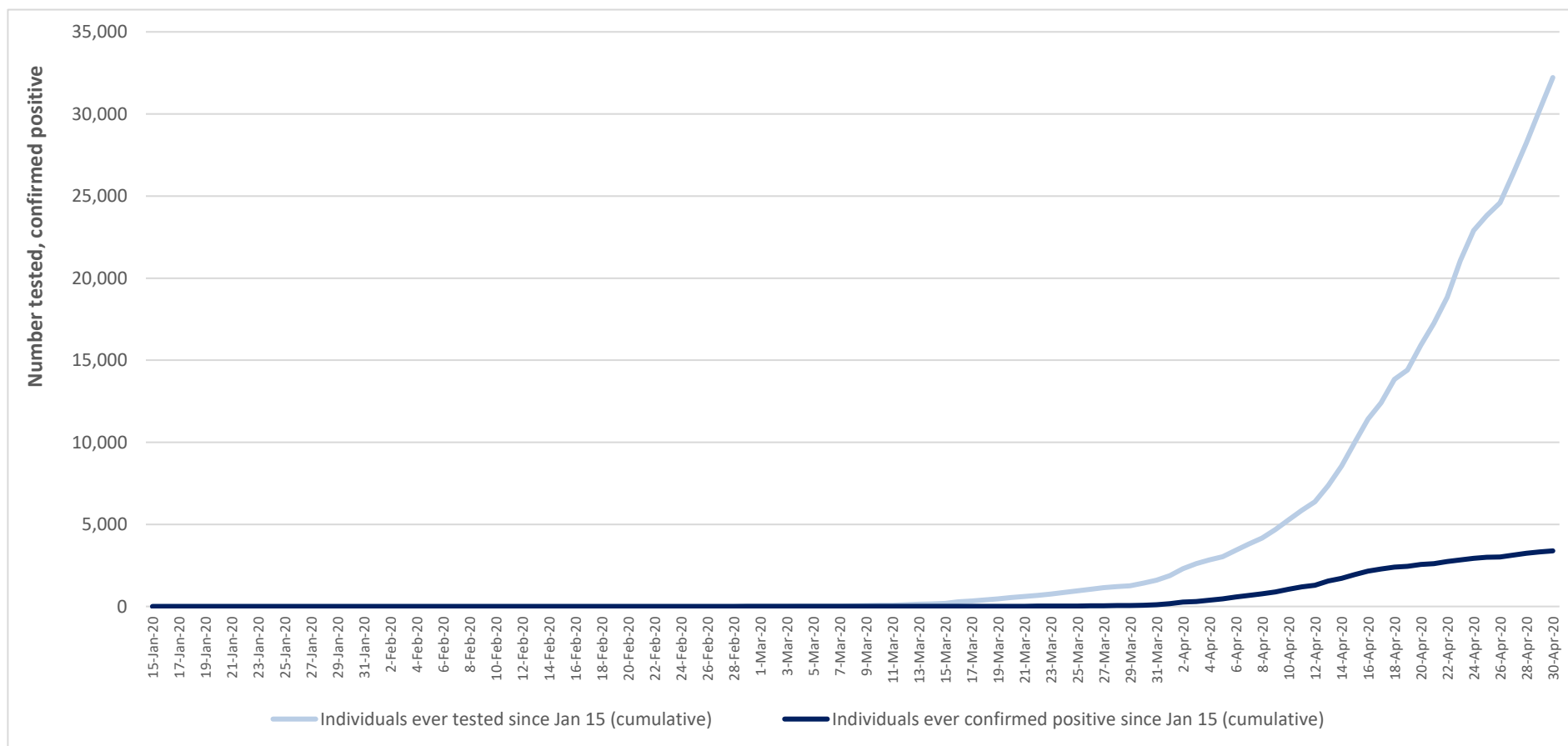


Key Finding: The largest number of tests confirmed positive for COVID-19 in a single day, among residents of long-term care homes, occurred on April 13 (265 confirmed positives). The daily percentage of individuals confirmed positive for COVID-19 was greatest between April 4 and April 13 (17%–37%).

² Once an individual is confirmed positive, subsequent tests for that individual are excluded from the daily totals.

Exhibit 2.2.2

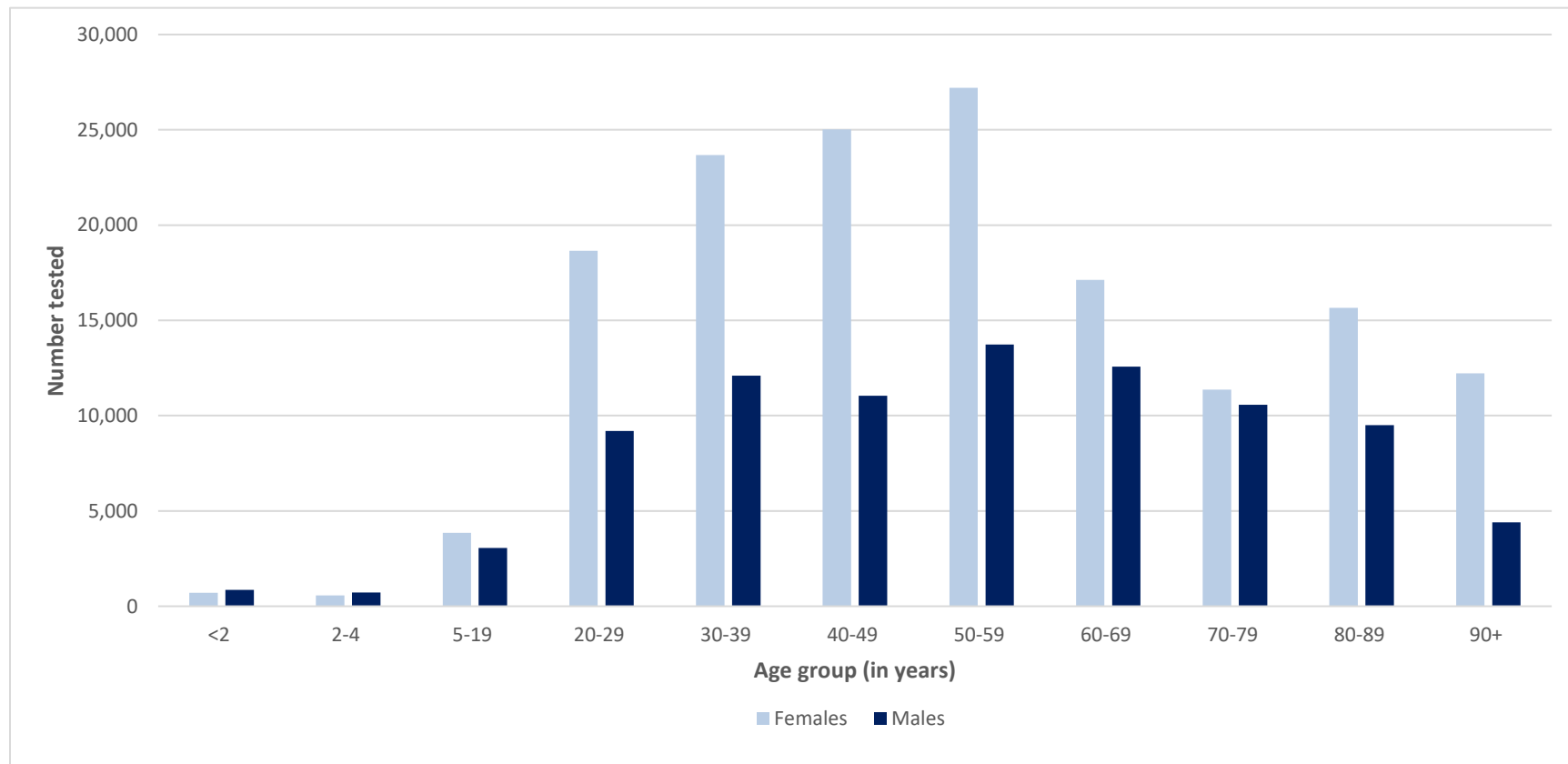
Cumulative number of individuals in Ontario residing in long-term care homes who were tested, and confirmed positive, for COVID-19, January 15–April 30, 2020



Key Finding: As of April 30, 2020, a total of 32,218 long-term care residents were tested for COVID-19 in Ontario, with a cumulative total of 3,386 residents confirmed positive.

Exhibit 3.1.1

Number of individuals in Ontario tested for COVID-19, by age group and sex, as of April 30, 2020³

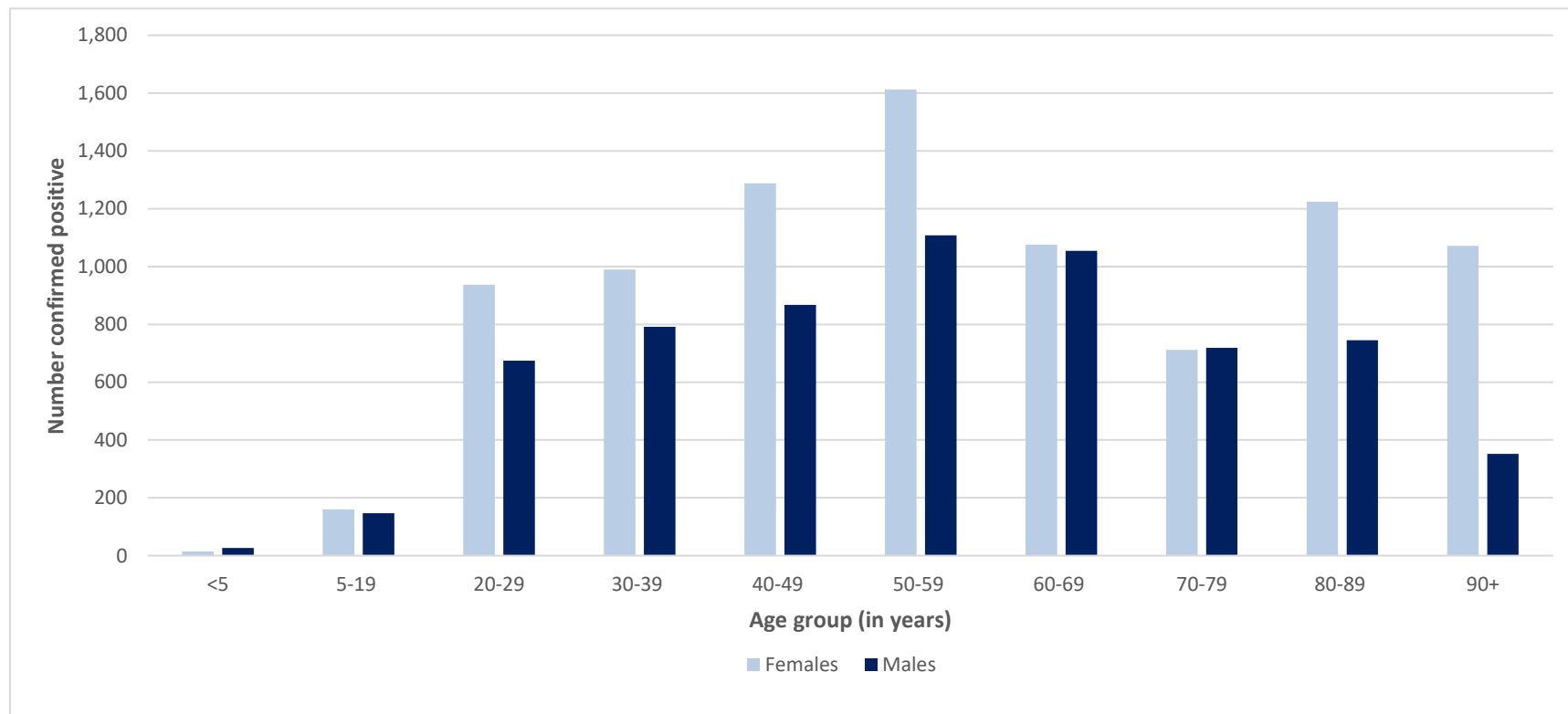


Key Finding: Females represent the majority of those tested for COVID-19, particularly among individuals aged 20 to 59 years.

³ Excludes a small number of newborns who were tested but not yet entered into the OHIP Registered Persons Database.

Exhibit 3.1.2

Number of individuals in Ontario confirmed positive for COVID-19, by age group and sex, as of April 30, 2020⁴

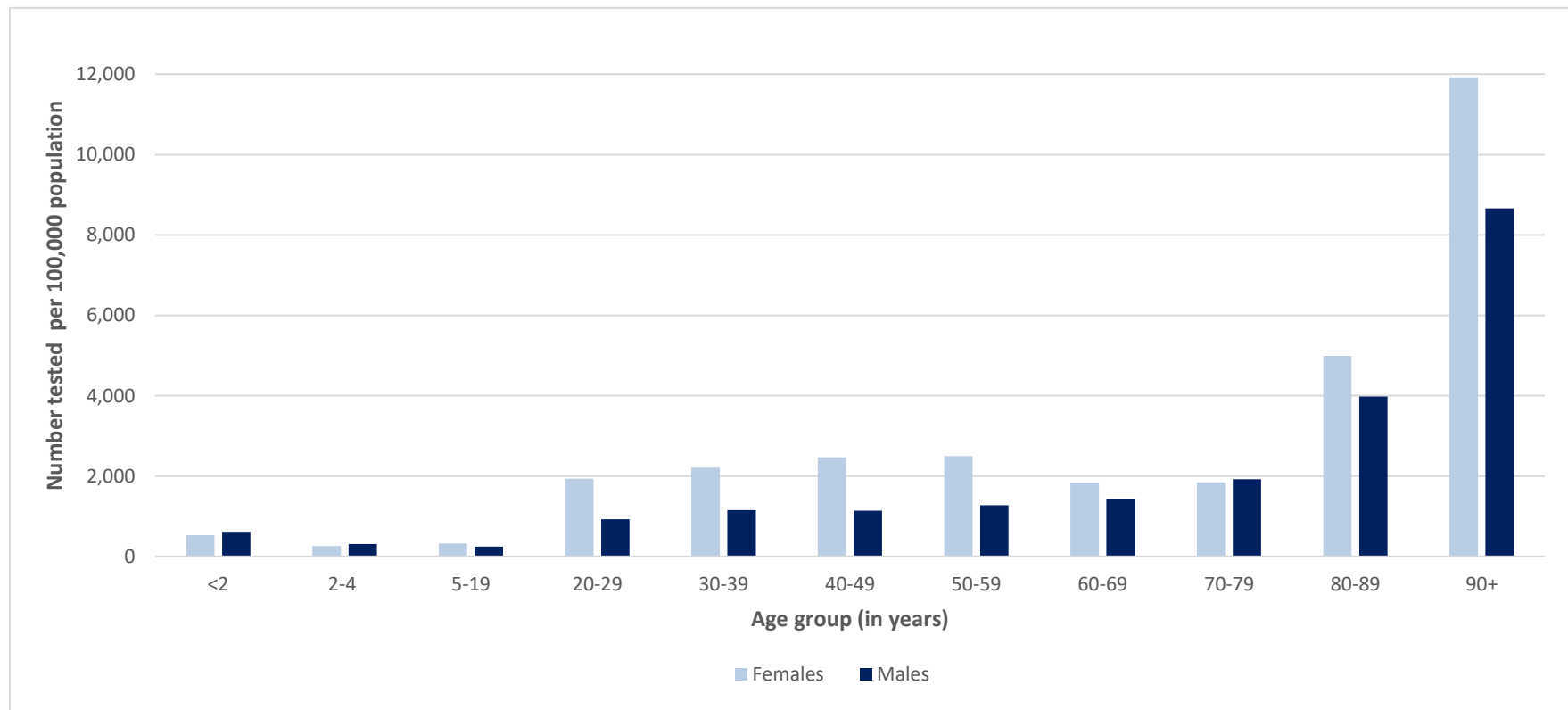


Key Finding: Relatively more females than males were confirmed positive for COVID-19, particularly among those aged 20–59 and those aged 80 years and older.

⁴ Excludes a small number of newborns who were tested but not yet entered into the OHIP Registered Persons Database.

Exhibit 3.2.1

Number of individuals in Ontario tested for COVID-19 per 100,000 population, by age group and sex, as of April 30, 2020⁵

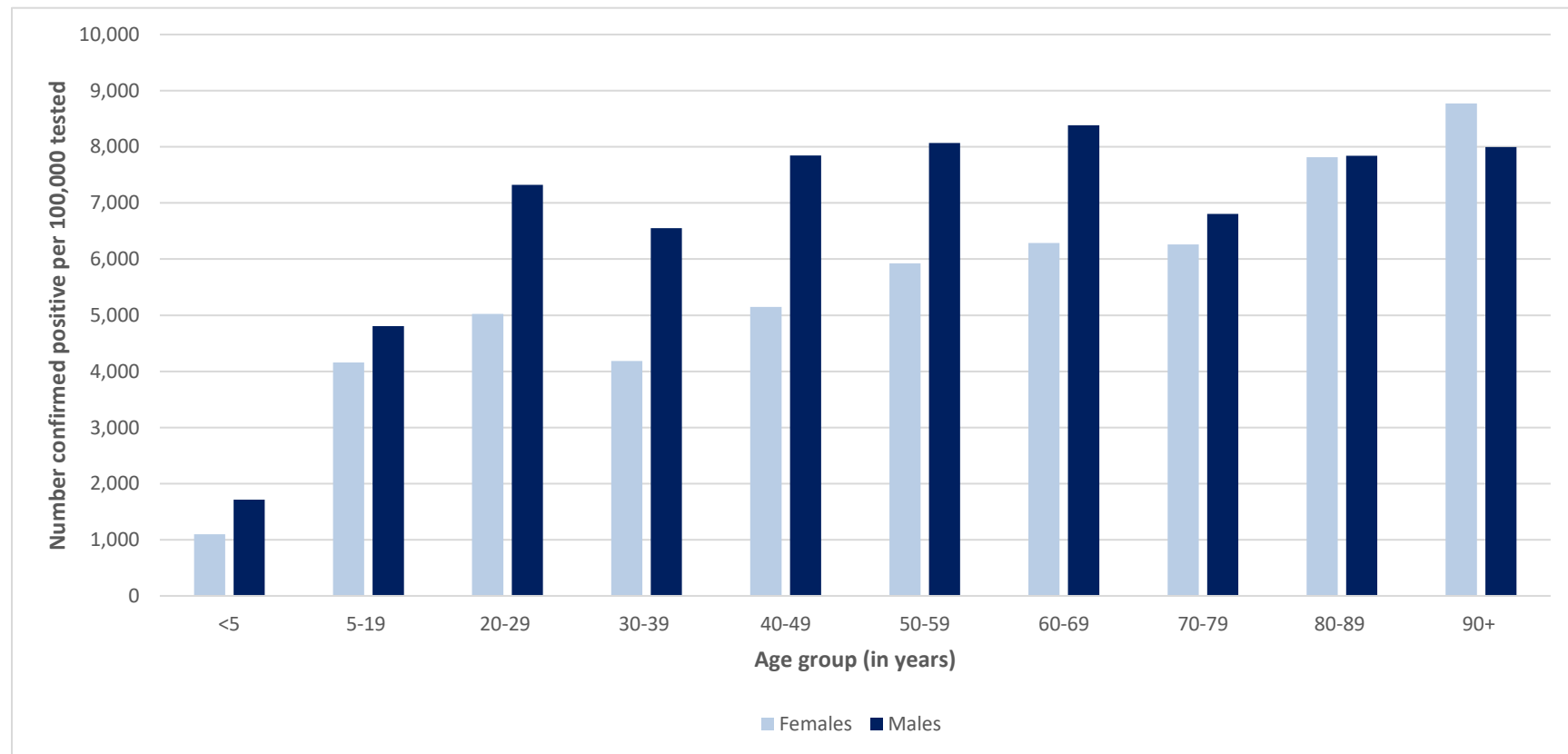


Key Finding: Compared with males, females had relatively higher per capita rates of testing for COVID-19 across most age groups. Overall, those aged 80 years and older had the highest per capita rates of testing.

⁵ Excludes a small number of newborns who were tested but not yet entered into the OHIP Registered Persons Database.

Exhibit 3.2.2

Number of individuals in Ontario confirmed positive for COVID-19 per 100,000 tested, by age group and sex, as of April 30, 2020⁶



Key Finding: Overall, males had relatively higher per capita rates of COVID-19 positivity. Females had relatively higher COVID-19 positivity rates only among those aged 90 years and older.

⁶ Excludes a small number of newborns who were tested but not yet entered into the OHIP Registered Persons Database.

Exhibit 4.1.1

Number of individuals in Ontario tested for COVID-19, by Public Health Unit of residence, as of April 30, 2020

Key Finding: The Public Health Units with the greatest number of residents tested for COVID-19 are Toronto Public Health and Peel Public Health, followed by Ottawa Public Health, Hamilton Public Health, Durham Region Health Department, and York Region Public Health.

Public Health Unit (PHU) Name

- 1 Windsor-Essex County Health Unit
- 2 Chatham-Kent Health Unit
- 3 Lambton Health Unit
- 4 Middlesex-London Health Unit
- 5 Southwestern Health Unit
- 6 Haldimand-Norfolk Health Unit
- 7 Brant County Health Unit
- 8 Region of Waterloo Public Health
- 9 Huron Perth Health Unit
- 10 Grey Bruce Health Unit
- 11 Wellington-Dufferin-Guelph Health Unit
- 12 Hamilton Public Health Services
- 13 Niagara Region Public Health Department
- 14 Halton Region Health Department
- 15 Peel Public Health
- 16 Toronto Public Health
- 17 York Region Public Health Services
- 18 Simcoe Muskoka District Health Unit
- 19 Haliburton, Kawartha, Pine Ridge District Health Unit
- 20 Durham Region Health Department
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- 32 Porcupine Health Unit
- 33 Thunder Bay District Health Unit
- 34 Northwestern Health Unit

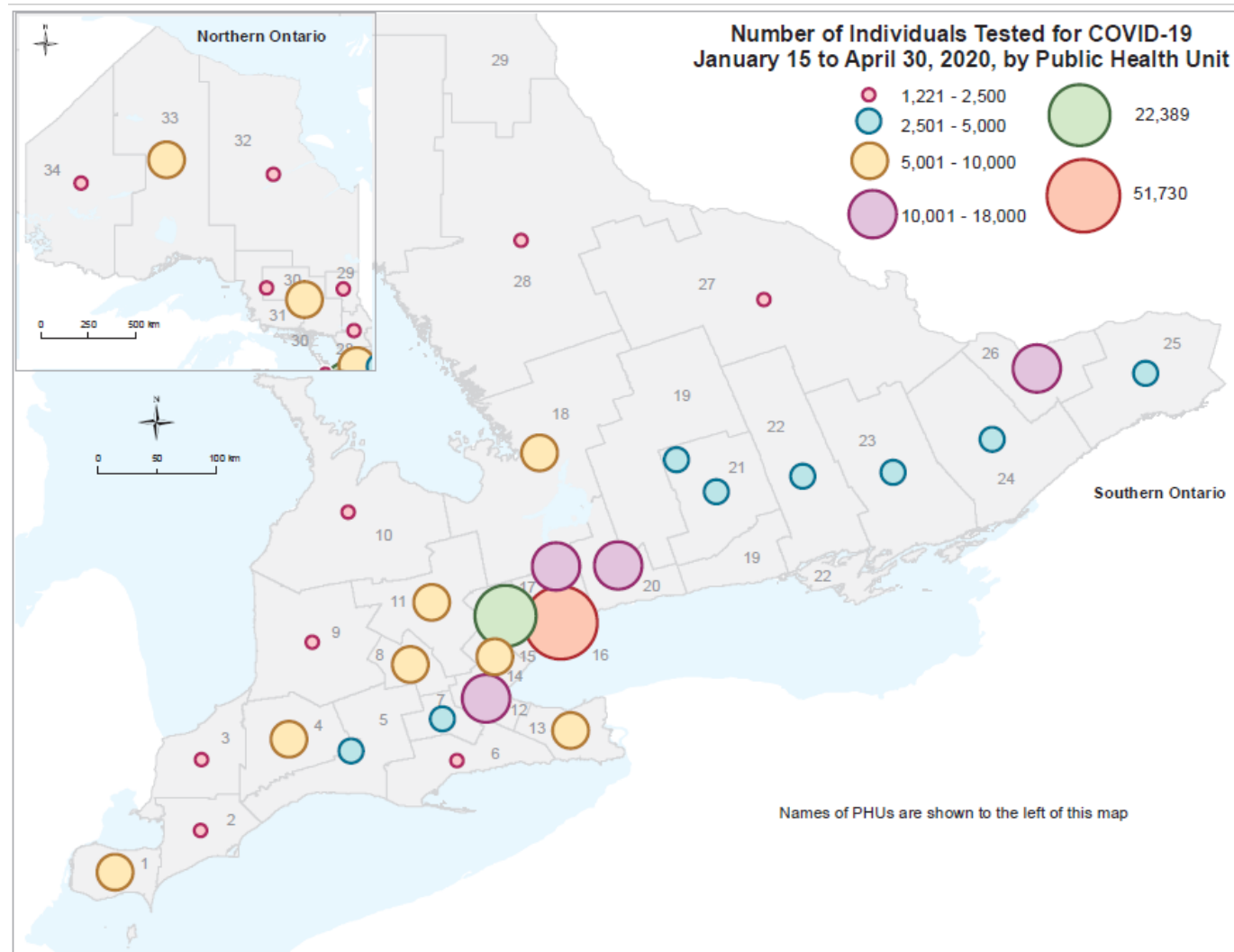


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- 11 Wellington-Dufferin-Guelph Health Unit
- 12 Hamilton Public Health Services
- 13 Niagara Region Public Health Department
- 14 Halton Region Health Department
- 15 Peel Public Health
- 16 Toronto Public Health
- 17 York Region Public Health Services
- 18 Simcoe Muskoka District Health Unit
- 19 Haliburton, Kawartha, Pine Ridge District Health Unit
- 20 Durham Region Health Department
- 21 Peterborough Public Health Unit
- 22 Hastings and Prince Edward Counties Health Unit
- 23 Kingston, Frontenac and Lennox & Addington Health Unit
- 24 Leeds, Grenville and Lanark District Health Unit
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- 33 Thunder Bay District Health Unit
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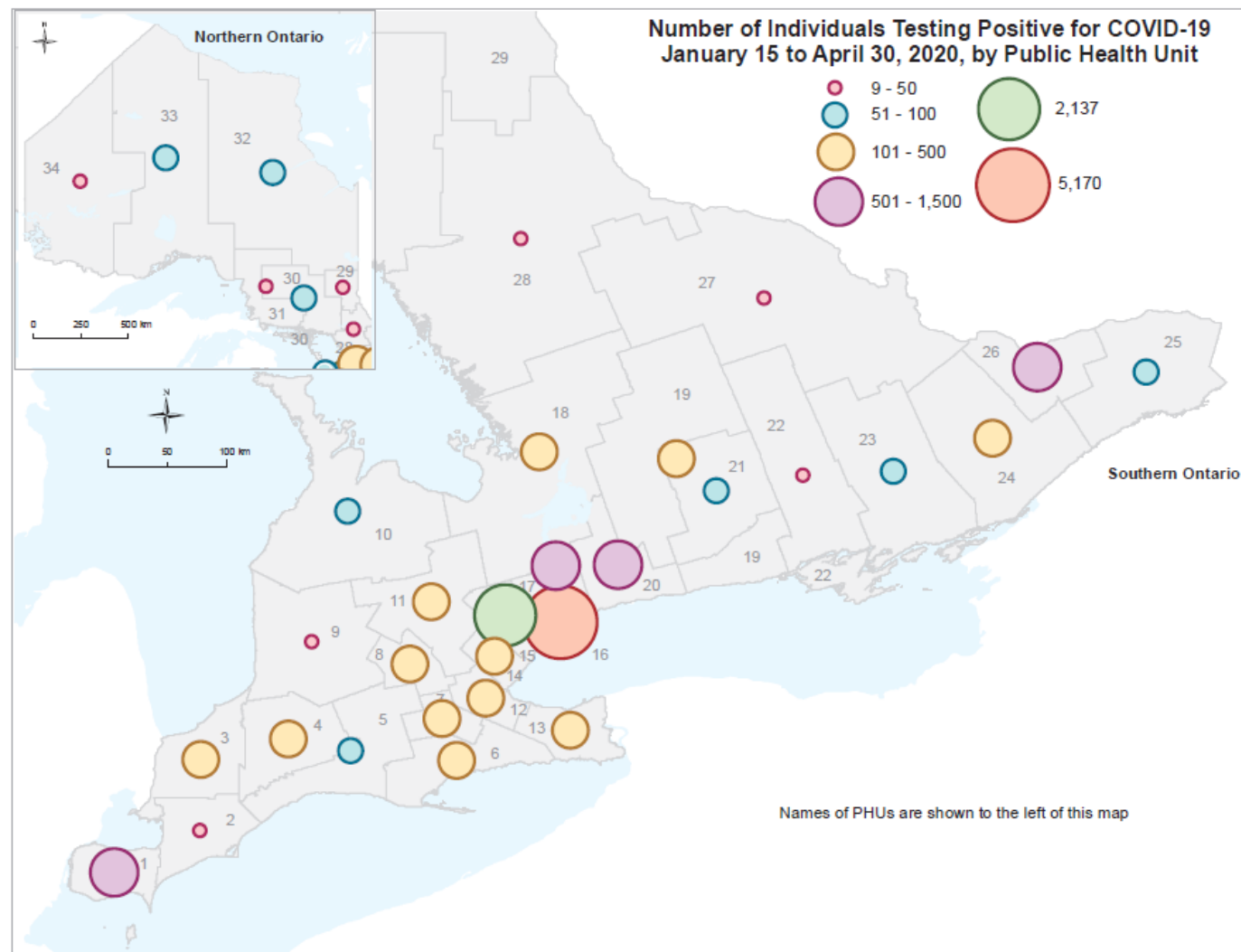


Exhibit 4.2.1

Number of individuals in Ontario tested for COVID-19 per 100,000 population, by Public Health Unit of residence, as of April 30, 2020

Key Finding: The Public Health Units with the greatest number of residents tested for COVID-19 per capita are Peterborough Public Health, Hastings and Prince Edward Counties Health Unit, Timiskaming Health Unit, Sudbury and District Health Unit, and Thunder Bay District Health Unit.

Public Health Unit (PHU) Name

- 1 Windsor-Essex County Health Unit
- 2 Chatham-Kent Health Unit
- 3 Lambton Health Unit
- 4 Middlesex-London Health Unit
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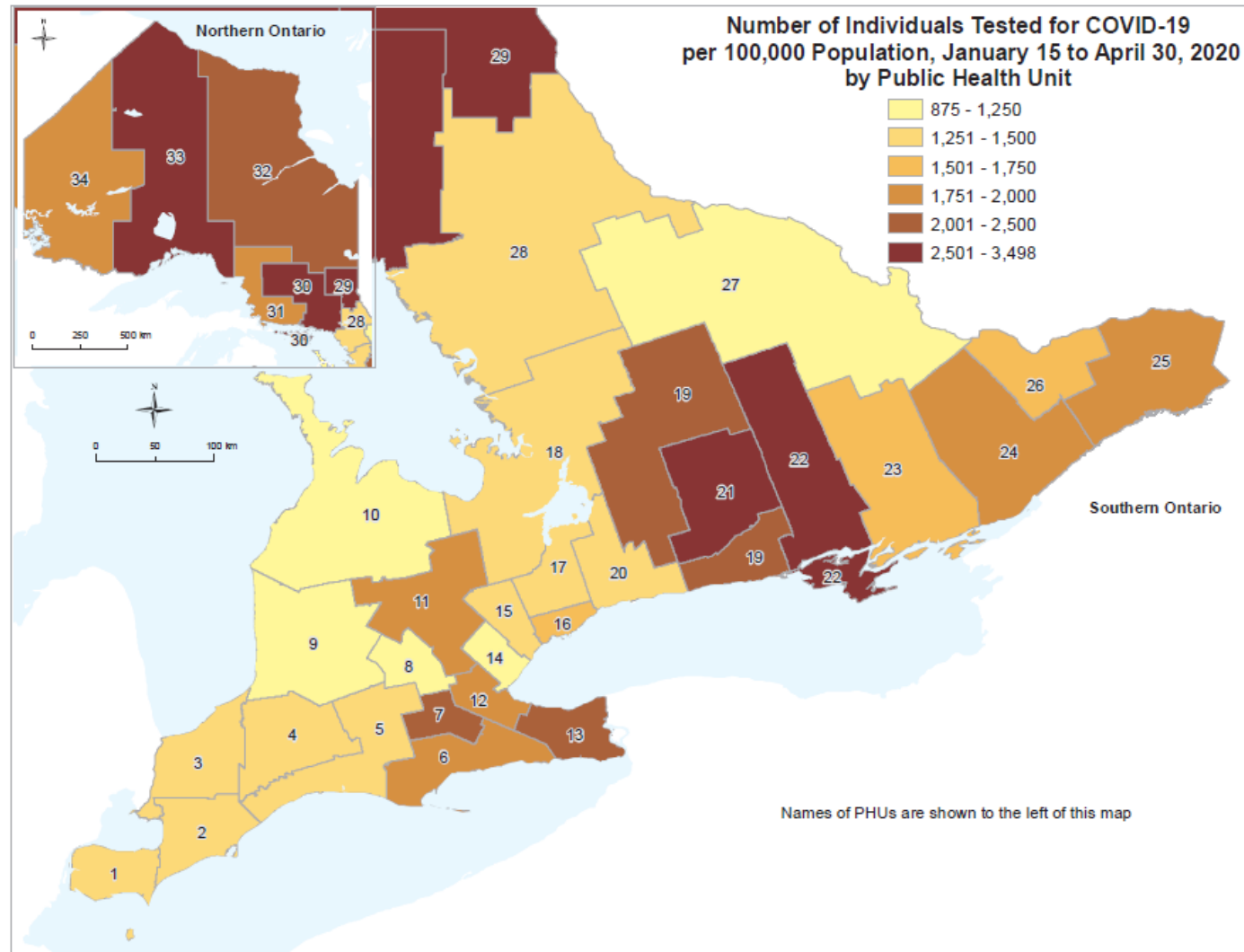


Exhibit 4.2.2

Number of individuals in Ontario confirmed positive for COVID-19 per 100,000 population, by Public Health Unit of residence, as of April 30, 2020

Key Finding: The Public Health Units with the greatest number of residents confirmed positive for COVID-19 per capita are Haldimand-Norfolk Health Unit, Peel Public Health, Toronto Public Health, Durham Region Health Department, and Leeds, Grenville and Lanark District Health Unit.

Public Health Unit (PHU) Name

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- 2 Chatham-Kent Health Unit
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- 4 Middlesex-London Health Unit
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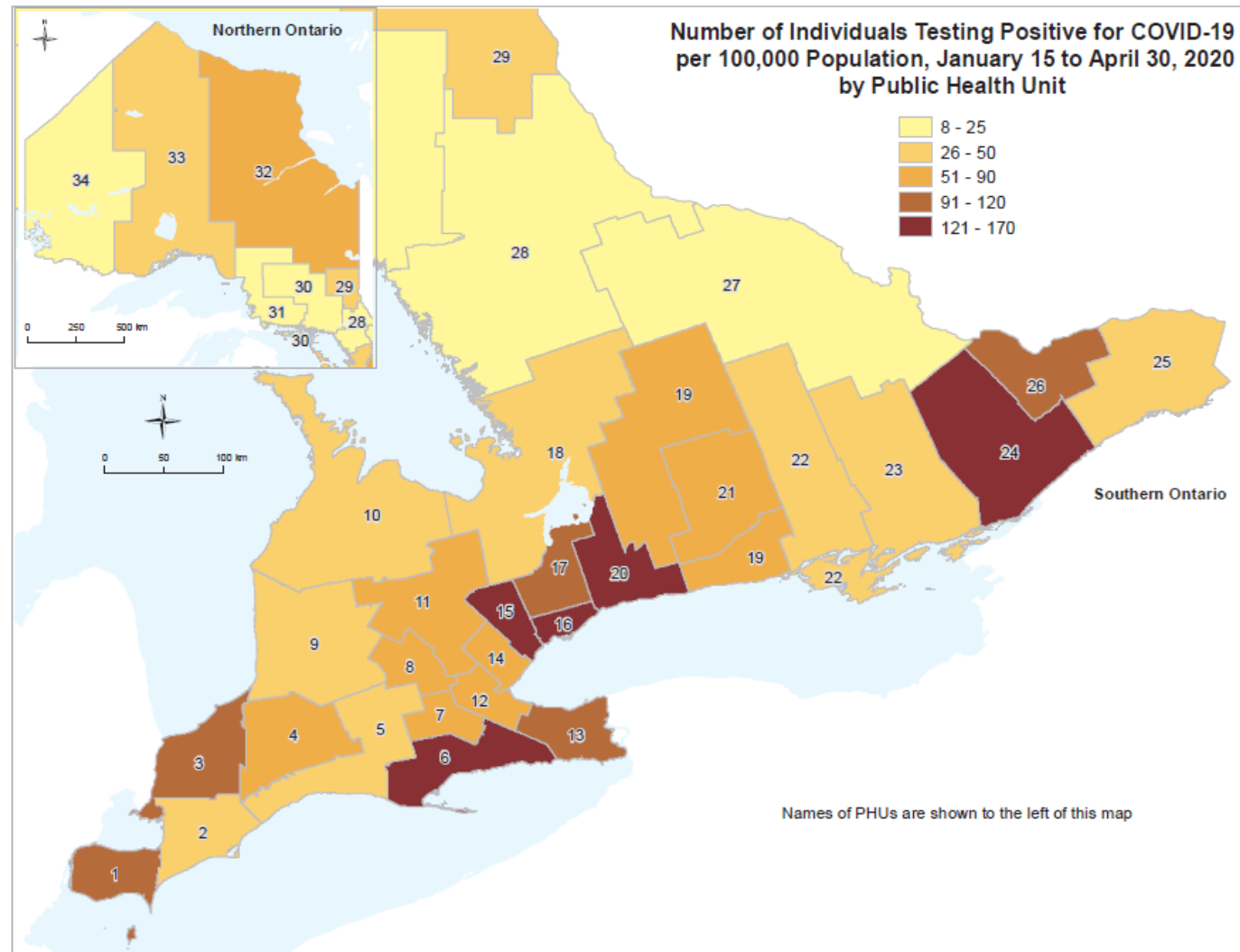


Exhibit 4.3

Number of individuals confirmed positive for COVID-19 in Ontario per 100,000 persons tested, by Public Health Unit of residence, as of April 30, 2020

Key Finding: The Public Health Units with the highest COVID-19 positivity rates are Windsor-Essex County Health Unit, Region of Waterloo Public Health, Peel Public Health, Toronto Public Health, York Region Public Health Services, and Durham Region Health Department.

Public Health Unit (PHU) Name

- 1 Windsor-Essex County Health Unit
- 2 Chatham-Kent Health Unit
- 3 Lambton Health Unit
- 4 Middlesex-London Health Unit
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- 6 Haldimand-Norfolk Health Unit
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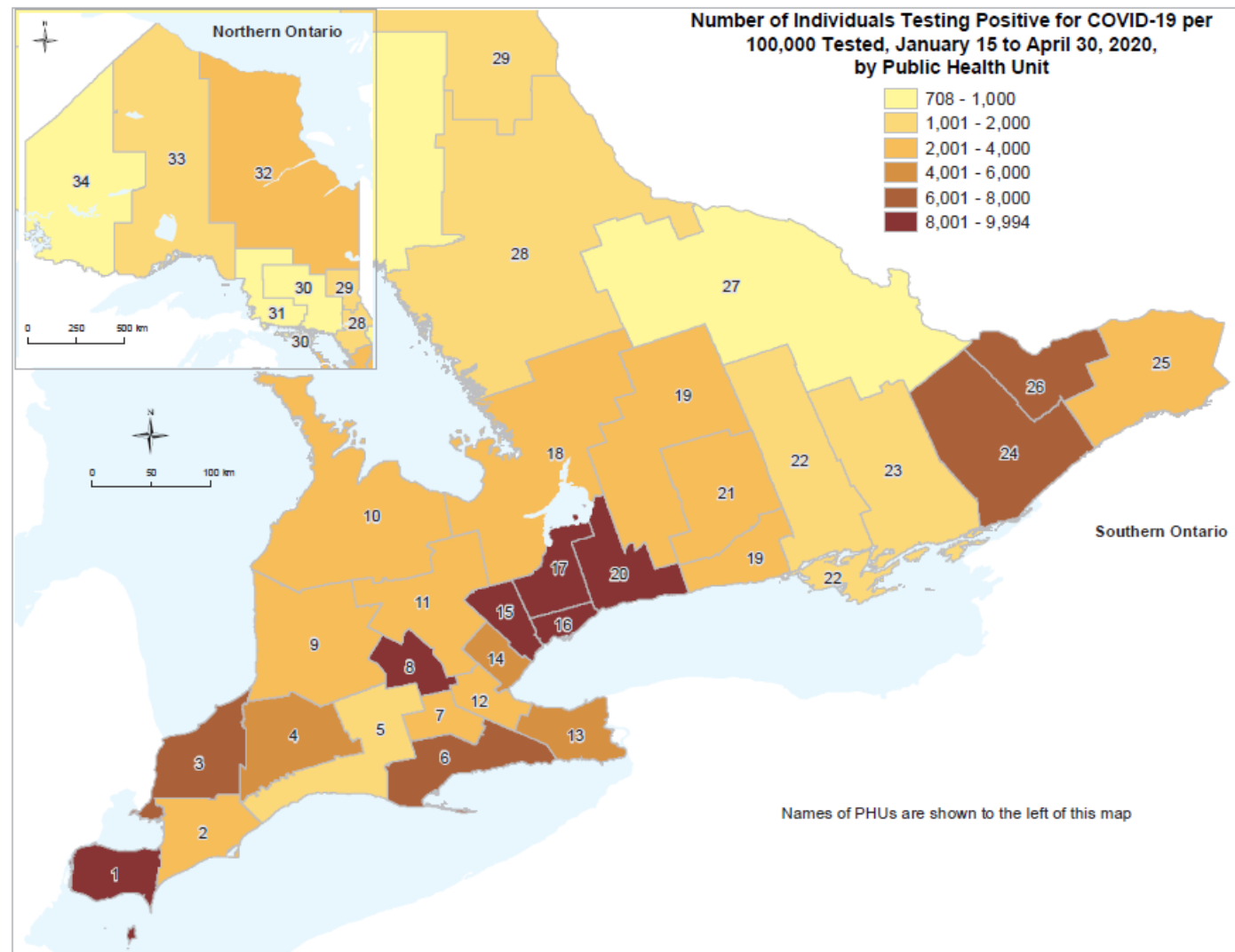
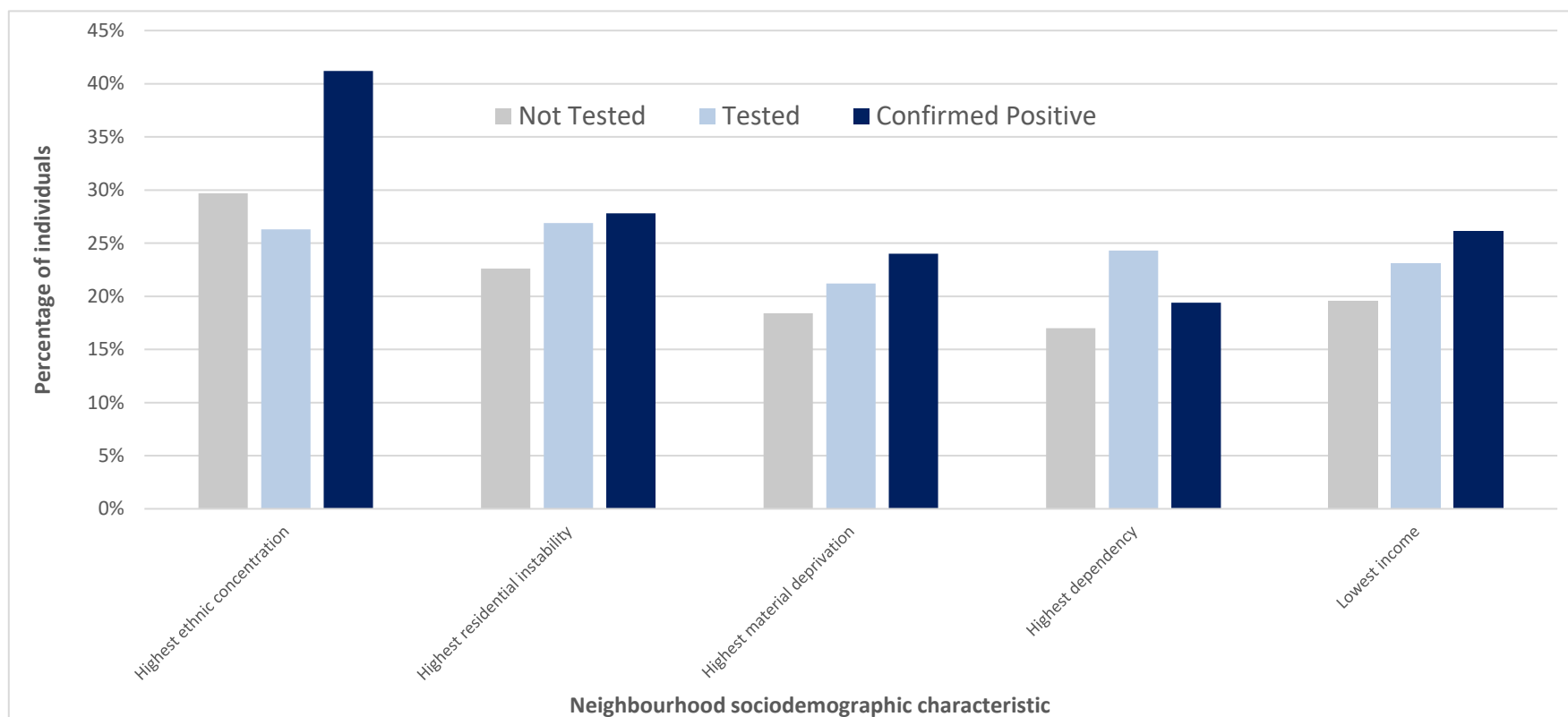


Exhibit 5.0

Percentage of individuals in Ontario living in the most marginalized neighbourhoods, by COVID-19 test status, as of April 30, 2020⁷

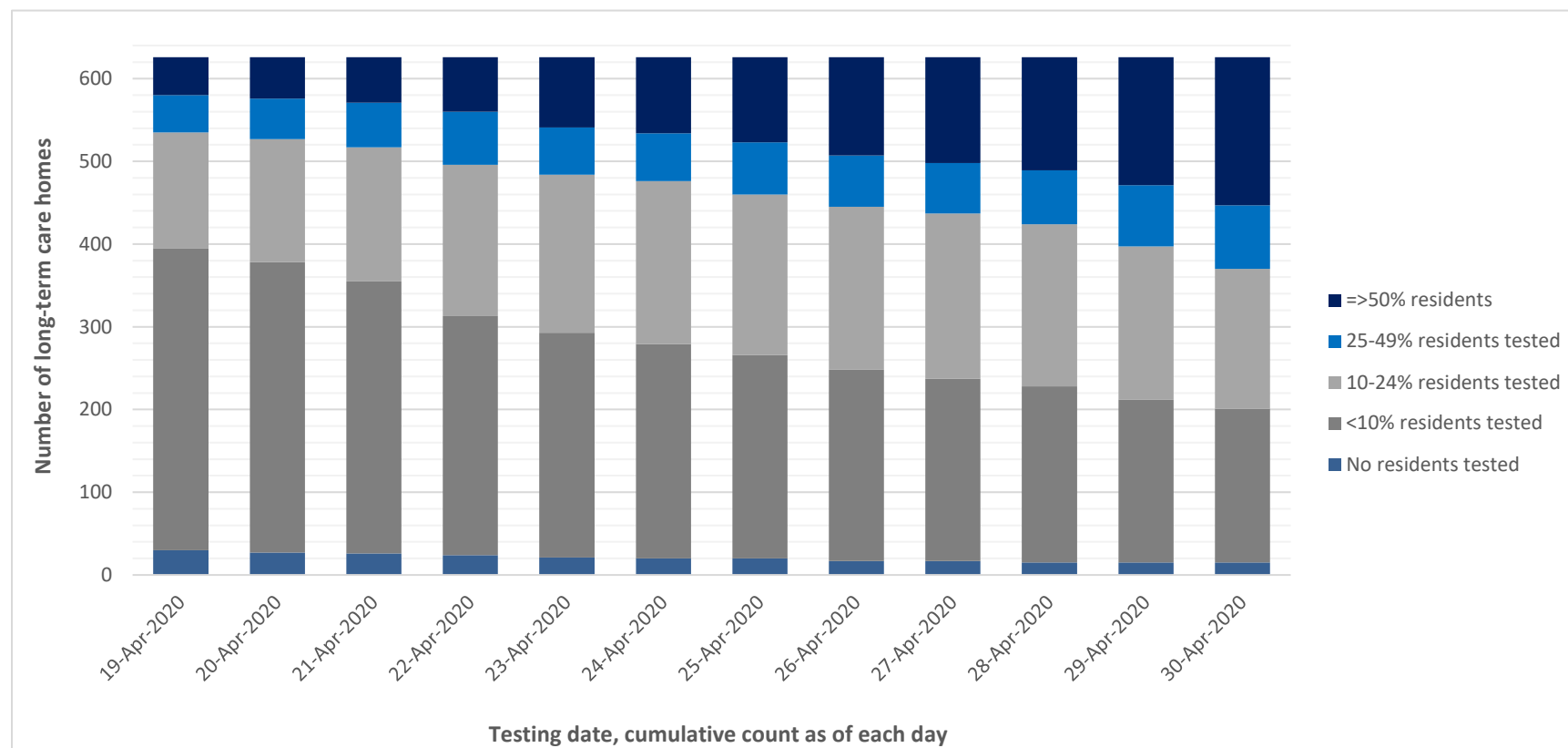


Key Findings: Compared with Ontarians not tested for COVID-19, those tested, and those confirmed positive, were more likely to live in marginalized neighbourhoods with greater residential instability, material deprivation and dependency, and lower income status. Those confirmed positive for COVID-19 also were more likely to live in neighbourhoods with a relatively greater concentration of immigrants and visible minorities.

⁷ Marginalization was measured using the four dimensions of the Ontario Marginalization Index (ON-Marg).¹

Exhibit 6.1

Cumulative percentage of individuals who were tested for COVID-19 at each long-term care home in Ontario, April 19 – April 30, 2020⁸

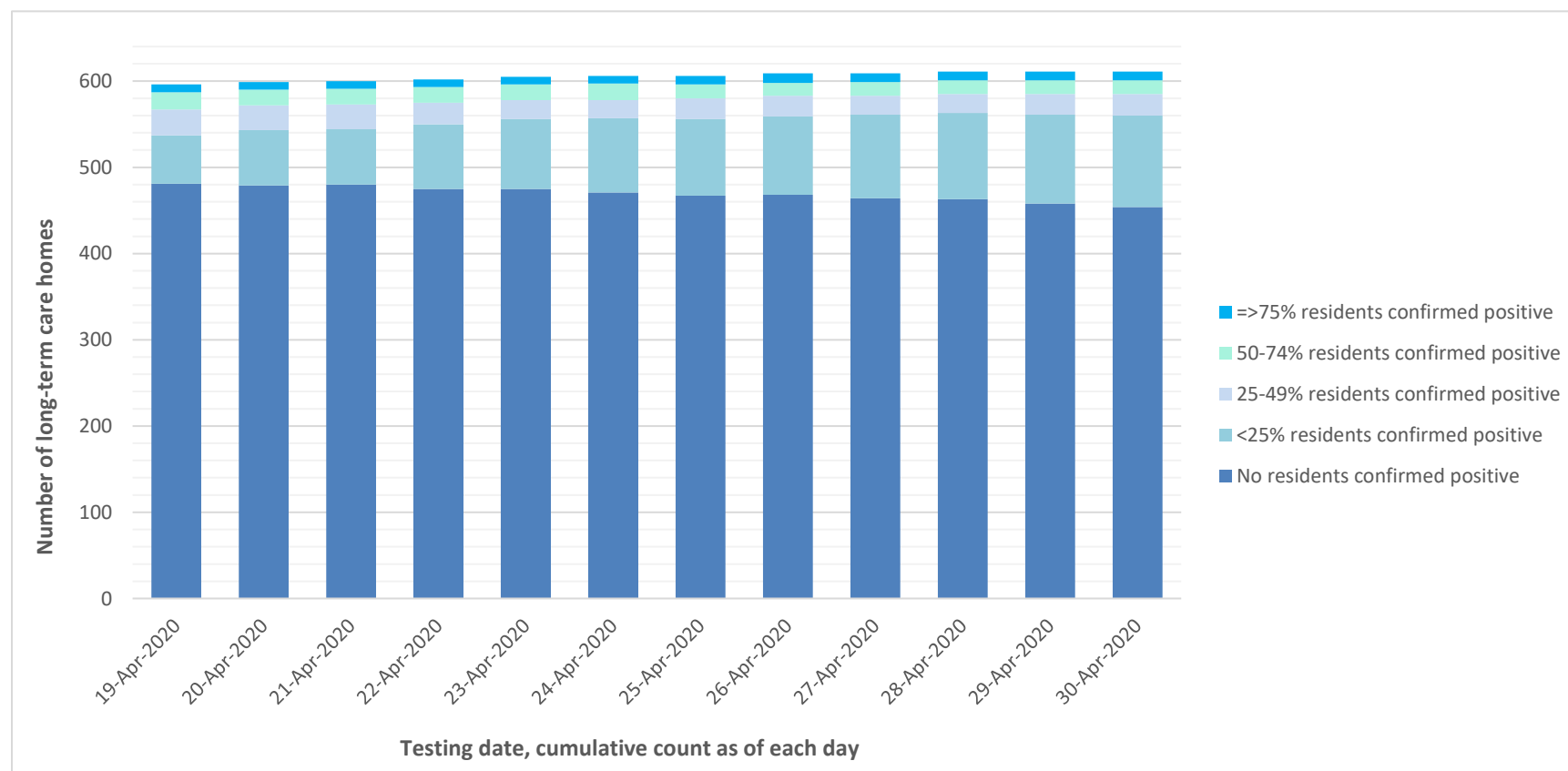


Key Finding: The percentage of long-term care homes where at least 10% of residents had been tested increased in the two-week period between April 19 and April 30, 2020, rising from 37% to 68%. As of the April 30, 2020 testing date, 59% of long-term care homes had tests from fewer than one-quarter of residents.

⁸ Includes only long-term care residents who reside in a home for which an institution number could be identified using the study data.

Exhibit 6.2

Cumulative percentage of individuals who were confirmed positive for COVID-19 at each long-term care home in Ontario, April 19 – April 30, 2020⁹

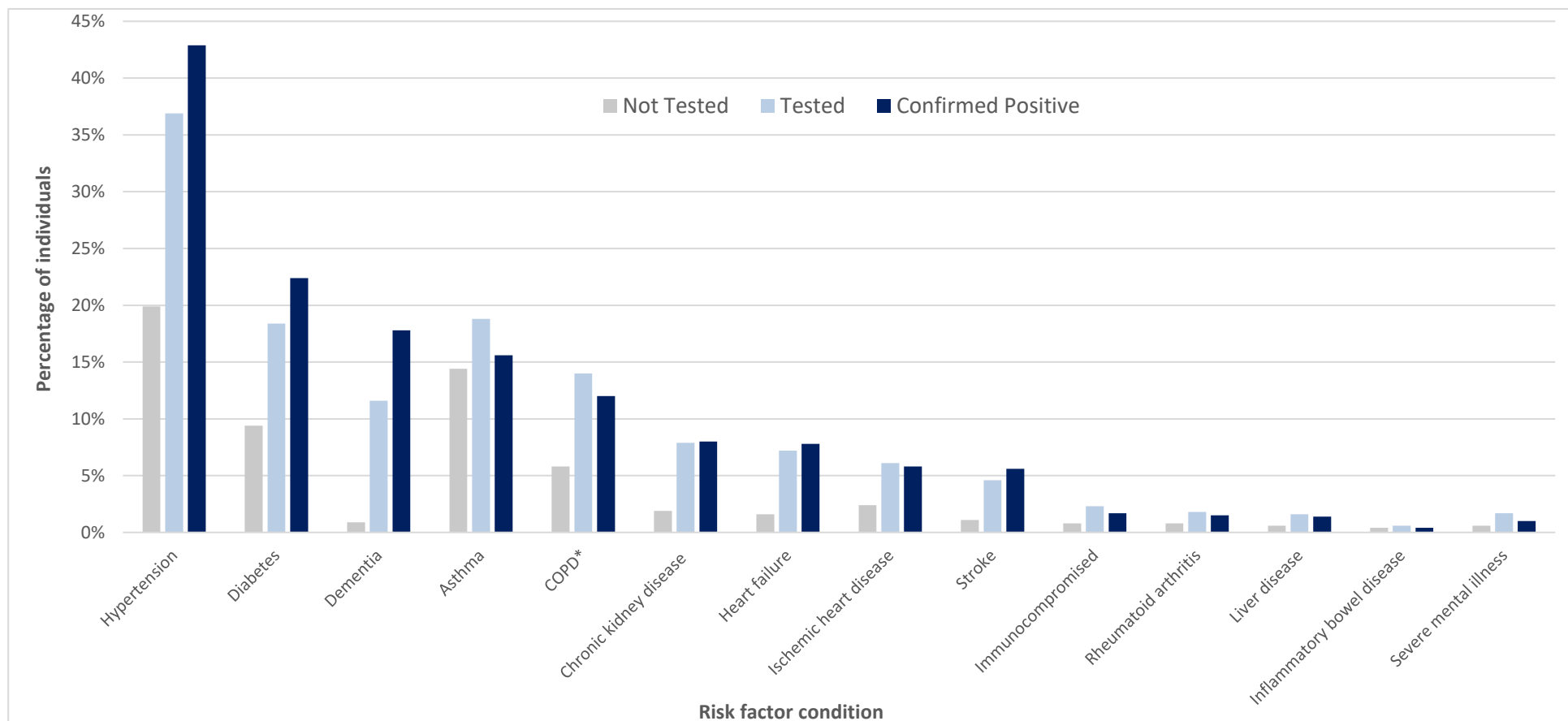


Key Finding: As of the April 30, 2020 testing date, 26% of long-term care homes in Ontario had at least one resident confirmed positive for COVID-19.

⁹ Includes only long-term care residents who reside in a home where an institution number and at least one resident tested.

Exhibit 7.0

Prevalence of COVID-19 risk factor conditions in Ontario, by COVID-19 test status, as of April 30, 2020¹⁰



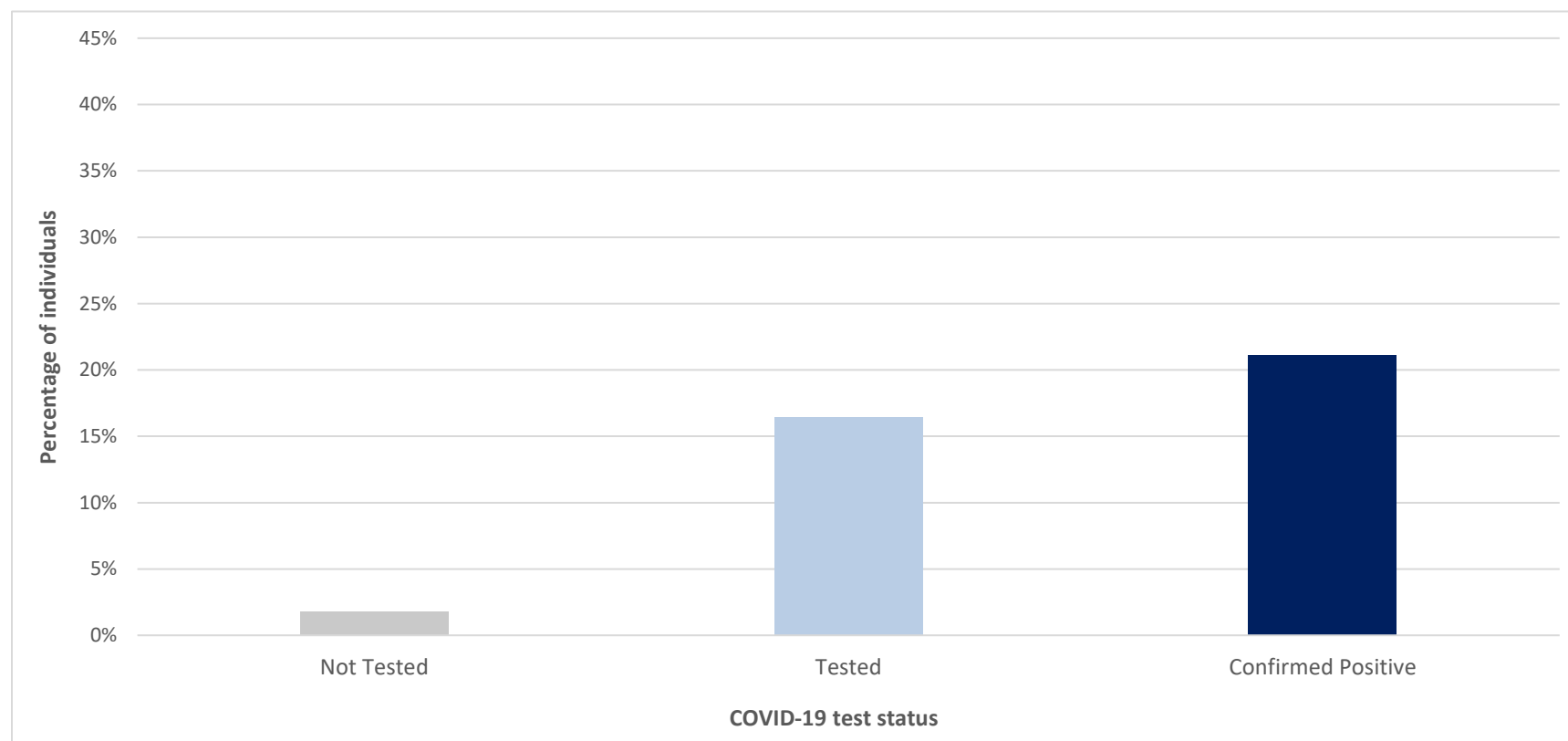
Key Finding: Compared with Ontarians not tested for COVID-19, those who were tested and those confirmed positive were much more likely to have chronic health conditions that can increase the severity of COVID-19, such as hypertension, diabetes, and dementia.

¹⁰ Most chronic conditions were identified using validated algorithms in the ICES data holdings. The latest diagnosis date was March 31, 2019.

* COPD: Chronic Obstructive Pulmonary Disease

Exhibit 8.0

Percentage of individuals in Ontario with medical conditions associated with frailty, by COVID-19 test status, as of April 30, 2020¹¹



Key Finding: Whereas fewer than 2% of Ontarians had medical conditions associated with frailty (e.g., history of falls, visual impairment), such individuals comprised 16% of those tested and 21% of those confirmed positive for COVID-19.

¹¹ Frailty was measured using the Johns Hopkins Adjusted Clinical Groups (ACG®) System medically frail condition marker.

Appendix 1.1 Characteristics of individuals in Ontario tested versus not tested for COVID-19 as of April 30, 2020

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
	N	%	N	%	
SOCIODEMOGRAPHIC CHARACTERISTICS					
Age					
Mean ± SD	53.72 ± 22.44		41.06 ± 22.98		0.56
Median (IQR)	53 (36-71)		41 (23-59)		0.53
0-<2 years*	1,563	0.6%	272,017	1.8%	0.11
0-2 weeks*	14	0.0%	420	0.0%	0
2-<5 years	1,292	0.5%	451,517	3.0%	0.19
5-19 years	6,907	2.8%	2,437,615	16.4%	0.47
20-29 years	27,853	11.4%	1,931,663	13.0%	0.05
30-39 years	35,764	14.7%	2,083,470	14.0%	0.02
40-49 years	36,076	14.8%	1,951,287	13.1%	0.05
50-59 years	40,942	16.8%	2,123,553	14.3%	0.07
60-69 years	29,694	12.2%	1,789,214	12.0%	0
70-79 years	21,939	9.0%	1,145,513	7.7%	0.05
80-89 years	25,165	10.3%	527,815	3.6%	0.27
90+ years	16,626	6.8%	136,714	0.9%	0.31
65+ years	76,203	31.3%	2,625,128	17.7%	0.32
85+ years	30,086	12.3%	341,517	2.3%	0.39
Sex					
Females	156,060	64.0%	7,491,865	50.4%	0.28
Males	87,761	36.0%	7,358,513	49.6%	0.28
Sex x Age group					
Female, age <20 years	5,125	2.1%	1,539,528	10.4%	0.35
Female, age 20-64 years	104,922	43.0%	4,535,384	30.5%	0.26

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
Female, ≥65+ years	46,013	18.9%	1,416,953	9.5%	0.27
Male, age <20 years	4,637	1.9%	1,621,621	10.9%	0.37
Male, age 20-64 years	52,934	21.7%	4,528,717	30.5%	0.2
Male, ≥65+ years	30,190	12.4%	1,208,175	8.1%	0.14
Public Health Unit of residence					
Missing information	708	0.3%	43,678	0.3%	0
Public Health Unit: Toronto Region					
Toronto Public Health	51,730	21.2%	3,003,527	20.2%	0.02
Public Health Unit: Central East Region					
Durham Region Health Department	10,048	4.1%	714,943	4.8%	0.03
Haliburton, Kawartha, Pine Ridge District Health Unit	4,562	1.9%	190,322	1.3%	0.05
Peel Public Health	22,389	9.2%	1,567,157	10.6%	0.05
Peterborough Public Health Unit	4,403	1.8%	146,251	1.0%	0.07
Simcoe Muskoka District Health Unit	8,823	3.6%	601,289	4.0%	0.02
York Region Public Health Services	17,787	7.3%	1,245,726	8.4%	0.04
Public Health Unit: Central West Region					
Brant County Health Unit	3,660	1.5%	149,311	1.0%	0.04
Haldimand-Norfolk Health Unit	2,447	1.0%	120,933	0.8%	0.02
Halton Region Health Department	7,560	3.1%	618,816	4.2%	0.06
Hamilton Public Health Services	11,182	4.6%	578,737	3.9%	0.03
Niagara Region Public Health Department	9,767	4.0%	479,980	3.2%	0.04
Region of Waterloo Public Health	5,198	2.1%	591,579	4.0%	0.11
Wellington-Dufferin-Guelph Health Unit	6,046	2.5%	311,073	2.1%	0.03
Public Health Unit: Eastern Region					
Hastings and Prince Edward Counties Health Unit	4,671	1.9%	172,149	1.2%	0.06
Kingston, Frontenac and Lennox & Addington Health Unit	3,541	1.5%	204,484	1.4%	0.01
Leeds, Grenville and Lanark District Health Unit	3,557	1.5%	180,563	1.2%	0.02
Ottawa Public Health	16,926	6.9%	1,056,654	7.1%	0.01

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
Renfrew County and District Health Unit	1,271	0.5%	107,365	0.7%	0.03
Public Health Unit: South West Region					
Eastern Ontario Health Unit	4,283	1.8%	219,550	1.5%	0.02
Southwestern Health Unit	3,080	1.3%	219,701	1.5%	0.02
Grey Bruce Health Unit	1,927	0.8%	172,753	1.2%	0.04
Huron Perth Health Unit	1,805	0.7%	143,210	1.0%	0.02
Chatham-Kent Health Unit	1,403	0.6%	108,495	0.7%	0.02
Lambton Health Unit	2,016	0.8%	133,981	0.9%	0.01
Middlesex-London Health Unit	7,304	3.0%	500,042	3.4%	0.02
Windsor-Essex County Health Unit	6,219	2.6%	446,596	3.0%	0.03
Public Health Unit : North Region					
Algoma Public Health	2,354	1.0%	117,593	0.8%	0.02
North Bay Parry Sound District Health Unit	1,724	0.7%	134,032	0.9%	0.02
Northwestern Health Unit	1,746	0.7%	88,437	0.6%	0.01
Porcupine Health Unit	2,047	0.8%	86,645	0.6%	0.03
Sudbury and District Health Unit	5,376	2.2%	203,593	1.4%	0.06
Thunder Bay District Health Unit	5,040	2.1%	157,460	1.1%	0.08
Timiskaming Health Unit	1,221	0.5%	33,753	0.2%	0.05
LHIN of residence					
Missing information	217	0.1%	13,467	0.1%	0
01 Erie St. Clair	9,606	3.9%	685,890	4.6%	0.03
02 South West	14,114	5.8%	1,029,960	6.9%	0.05
03 Waterloo Wellington	9,805	4.0%	842,964	5.7%	0.08
04 Hamilton Niagara Haldimand Brant	29,198	12.0%	1,522,780	10.3%	0.05
05 Central West	16,344	6.7%	1,056,944	7.1%	0.02
06 Mississauga Halton	18,876	7.7%	1,319,374	8.9%	0.04
07 Toronto Central	22,554	9.3%	1,358,563	9.1%	0
08 Central	32,416	13.3%	2,037,152	13.7%	0.01

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
09 Central East	29,262	12.0%	1,689,926	11.4%	0.02
10 South East	10,934	4.5%	508,910	3.4%	0.05
11 Champlain	23,575	9.7%	1,446,827	9.7%	0
12 North Simcoe Muskoka	7,331	3.0%	512,584	3.5%	0.03
13 North East	12,794	5.2%	578,476	3.9%	0.06
14 North West	6,795	2.8%	246,561	1.7%	0.08
Rurality					
Rural	25,081	10.3%	1,491,383	10.0%	0.01
Urban	218,032	89.4%	13,315,317	89.7%	0.01
Unknown	708	0.3%	43,678	0.3%	0
Neighbourhood income quintile					
Missing information	711	0.3%	44,019	0.3%	0
1 (lowest)	56,318	23.1%	2,911,517	19.6%	0.09
2	50,683	20.8%	2,899,633	19.5%	0.03
3	48,148	19.7%	2,993,197	20.2%	0.01
4	45,353	18.6%	3,004,350	20.2%	0.04
5 (highest)	42,608	17.5%	2,997,662	20.2%	0.07
ODB seniors co-payment program enrollee (% denominator in 65+)***	13,256	17.4%	294,145	11.2%	0.18
Ontario Marginalization Index - Dependency quintile					
Missing information	2,352	1.0%	130,416	0.9%	0.01
5 (most marginalized)	59,251	24.3%	2,523,809	17.0%	0.18
4	40,484	16.6%	2,443,898	16.5%	0
3	40,943	16.8%	2,553,588	17.2%	0.01
2	45,266	18.6%	3,022,019	20.3%	0.05
1 (least marginalized)	55,525	22.8%	4,176,648	28.1%	0.12

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
Ontario Marginalization Index - Material Deprivation quintile					
Missing information	2,352	1.0%	130,416	0.9%	0.01
5 (most marginalized)	51,576	21.2%	2,737,532	18.4%	0.07
4	47,397	19.4%	2,663,726	17.9%	0.04
3	45,783	18.8%	2,795,377	18.8%	0
2	47,528	19.5%	3,106,833	20.9%	0.04
1 (least marginalized)	49,185	20.2%	3,416,494	23.0%	0.07
Ontario Marginalization Index - Ethnic Concentration quintile					
Missing information	2,352	1.0%	130,416	0.9%	0.01
5 (most marginalized)	64,074	26.3%	4,416,525	29.7%	0.08
4	49,005	20.1%	3,142,632	21.2%	0.03
3	43,957	18.0%	2,592,376	17.5%	0.01
2	43,899	18.0%	2,360,372	15.9%	0.06
1 (least marginalized)	40,534	16.6%	2,208,057	14.9%	0.05
Ontario Marginalization Index - Residential Instability quintile					
Missing information	2,352	1.0%	130,416	0.9%	0.01
5 (most marginalized)	65,477	26.9%	3,352,218	22.6%	0.1
4	49,302	20.2%	2,614,464	17.6%	0.07
3	43,819	18.0%	2,665,674	18.0%	0
2	42,243	17.3%	2,801,250	18.9%	0.04
1 (least marginalized)	40,628	16.7%	3,286,356	22.1%	0.14
Contact with LTC in the 90 days prior to testing date (or end of testing period)	32,218	13.2%	52,947	0.4%	0.53
Residing in a retirement home at the time of testing¹	9,187	3.8%	N/A	N/A	N/A
Recent experience with homelessness	1,635	0.7%	16,152	0.1%	0.09
CLINICAL CHARACTERISTICS					

VARIABLE NAME	Tested (N=243,821)		Not tested (N=14,850,378)		STANDARDIZED DIFFERENCE**
Preterm (gestational age < 32 weeks) (% denominator in 0-<2 years)	41	2.6%	2,305	0.8%	0.14
Chronic conditions					
Asthma****	45,872	18.8%	2,133,138	14.4%	0.12
Chronic kidney disease (including chronic dialysis)	19,357	7.9%	285,673	1.9%	0.28
Chronic obstructive pulmonary disease****	34,201	14.0%	862,021	5.8%	0.28
Dementia****	28,281	11.6%	129,630	0.9%	0.45
Diabetes****	44,814	18.4%	1,393,267	9.4%	0.26
Heart failure****	17,560	7.2%	232,369	1.6%	0.28
History of TIA/stroke	11,331	4.6%	158,033	1.1%	0.22
Hypertension****	90,061	36.9%	2,953,885	19.9%	0.38
Immunocompromised	5,709	2.3%	117,880	0.8%	0.12
Inflammatory bowel disease****	1,423	0.6%	52,735	0.4%	0.03
Ischemic heart disease	14,992	6.1%	355,657	2.4%	0.19
Liver disease	3,977	1.6%	89,634	0.6%	0.1
Rheumatoid arthritis****	4,327	1.8%	115,661	0.8%	0.09
Severe mental illness	4,163	1.7%	85,550	0.6%	0.11
Sickle cell disease	174	0.1%	4,111	0.0%	0.02
Persons with medical conditions associated with frailty					
Johns Hopkins ACG System Medically Frail Condition Marker	40,043	16.4%	261,743	1.8%	0.53
Resource utilization bands					
0 (non-users)	7,042	2.9%	2,042,685	13.8%	0.4
1 (healthy)	6,623	2.7%	903,479	6.1%	0.16
2 (low)	25,984	10.7%	2,902,061	19.5%	0.25
3	111,966	45.9%	6,559,091	44.2%	0.04
4	47,386	19.4%	1,794,324	12.1%	0.2
5 (high)	44,820	18.4%	648,738	4.4%	0.45

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

Appendix 1.2 Characteristics of individuals in Ontario with versus without a confirmed positive test result for COVID-19 as of April 30, 2020

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
	N	%	N	%	
SOCIODEMOGRAPHIC CHARACTERISTICS					
Age					
Mean ± SD	57.41 ± 22.18		53.47 ± 22.44		0.18
Median (IQR)	56 (40-76)		52 (36-70)		0.17
0-<2 years*	20	0.1%	1,543	0.7%	0.09
0-2 weeks*	0	0.0%	14	0.0%	0.01
2-<5 years	21	0.1%	1,271	0.6%	0.07
5-19 years	307	2.0%	6,600	2.9%	0.06
20-29 years	1,611	10.3%	26,242	11.5%	0.04
30-39 years	1,782	11.4%	33,982	14.9%	0.10
40-49 years	2,155	13.8%	33,921	14.9%	0.03
50-59 years	2,720	17.5%	38,222	16.7%	0.02
60-69 years	2,130	13.7%	27,564	12.1%	0.05
70-79 years	1,431	9.2%	20,508	9.0%	0.01
80-89 years	1,969	12.6%	23,196	10.2%	0.08
90+ years	1,424	9.1%	15,202	6.7%	0.09
65+ years	5,682	36.5%	70,521	30.9%	0.12
85+ years	2,478	15.9%	27,608	12.1%	0.11
Sex					
Females	9,085	58.3%	146,975	64.4%	0.12
Males	6,485	41.7%	81,276	35.6%	0.12
Sex x Age group					

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
Female, age <20 years	174	1.1%	4,951	2.2%	0.08
Female, age 20-64 years	5,480	35.2%	99,442	43.6%	0.17
Female, ≥65+ years	3,431	22.0%	42,582	18.7%	0.08
Male, age <20 years	174	1.1%	4,463	2.0%	0.07
Male, age 20-64 years	4,060	26.1%	48,874	21.4%	0.11
Male, ≥65+ years	2,251	14.5%	27,939	12.2%	0.07
Public Health Unit of residence					
Missing information	49	0.3%	659	0.3%	0.00
Public Health Unit: Toronto Region					
Toronto Public Health	5,170	33.2%	46,560	20.4%	0.29
Public Health Unit: Central East Region					
Durham Region Health Department	974	6.3%	9,074	4.0%	0.10
Haliburton, Kawartha, Pine Ridge District Health Unit	146	0.9%	4,416	1.9%	0.08
Peel Public Health	2,137	13.7%	20,252	8.9%	0.15
Peterborough Public Health Unit	96	0.6%	4,307	1.9%	0.11
Simcoe Muskoka District Health Unit	273	1.8%	8,550	3.7%	0.12
York Region Public Health Services	1,425	9.2%	16,362	7.2%	0.07
Public Health Unit: Central West Region					
Brant County Health Unit	112	0.7%	3,548	1.6%	0.08
Haldimand-Norfolk Health Unit	158	1.0%	2,289	1.0%	0.00
Halton Region Health Department	380	2.4%	7,180	3.1%	0.04
Hamilton Public Health Services	403	2.6%	10,779	4.7%	0.11
Niagara Region Public Health Department	471	3.0%	9,296	4.1%	0.06
Region of Waterloo Public Health	499	3.2%	4,699	2.1%	0.07
Wellington-Dufferin-Guelph Health Unit	235	1.5%	5,811	2.5%	0.07
Public Health Unit: Eastern Region					
Hastings and Prince Edward Counties Health Unit	50	0.3%	4,621	2.0%	0.16
Kingston, Frontenac and Lennox & Addington Health Unit	59	0.4%	3,482	1.5%	0.12

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
Leeds, Grenville and Lanark District Health Unit	273	1.8%	3,284	1.4%	0.03
Ottawa Public Health	1,079	6.9%	15,847	6.9%	0.00
Renfrew County and District Health Unit	9	0.1%	1,262	0.6%	0.09
Eastern Ontario Health Unit	97	0.6%	4,186	1.8%	0.11
Public Health Unit: South West Region					
Southwestern Health Unit	60	0.4%	3,020	1.3%	0.10
Grey Bruce Health Unit	70	0.4%	1,857	0.8%	0.05
Huron Perth Health Unit	49	0.3%	1,756	0.8%	0.06
Chatham-Kent Health Unit	42	0.3%	1,361	0.6%	0.05
Lambton Health Unit	135	0.9%	1,881	0.8%	0.00
Middlesex-London Health Unit	361	2.3%	6,943	3.0%	0.04
Windsor-Essex County Health Unit	508	3.3%	5,711	2.5%	0.05
Public Health Unit: North Region					
Algoma Public Health	20	0.1%	2,334	1.0%	0.12
North Bay Parry Sound District Health Unit	18	0.1%	1,706	0.7%	0.10
Northwestern Health Unit	13	0.1%	1,733	0.8%	0.10
Porcupine Health Unit	61	0.4%	1,986	0.9%	0.06
Sudbury and District Health Unit	51	0.3%	5,325	2.3%	0.18
Thunder Bay District Health Unit	73	0.5%	4,967	2.2%	0.15
Timiskaming Health Unit	14	0.1%	1,207	0.5%	0.08
LHIN of residence					
Missing information	18	0.1%	199	0.1%	0.01
01 Erie St. Clair	684	4.4%	8,922	3.9%	0.02
02 South West	540	3.5%	13,574	5.9%	0.12
03 Waterloo Wellington	662	4.3%	9,143	4.0%	0.01
04 Hamilton Niagara Haldimand Brant	1,211	7.8%	27,987	12.3%	0.15
05 Central West	1,696	10.9%	14,648	6.4%	0.16
06 Mississauga Halton	1,665	10.7%	17,211	7.5%	0.11

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
07 Toronto Central	1,790	11.5%	20,764	9.1%	0.08
08 Central	3,009	19.3%	29,407	12.9%	0.18
09 Central East	2,291	14.7%	26,971	11.8%	0.09
10 South East	245	1.6%	10,689	4.7%	0.18
11 Champlain	1,327	8.5%	22,248	9.7%	0.04
12 North Simcoe Muskoka	182	1.2%	7,149	3.1%	0.14
13 North East	164	1.1%	12,630	5.5%	0.25
14 North West	86	0.6%	6,709	2.9%	0.18
Rurality					
Rural	728	4.7%	24,353	10.7%	0.23
Urban	14,793	95.0%	203,239	89.0%	0.22
Unknown	49	0.3%	659	0.3%	0.00
Neighbourhood income quintile					
Missing information	49	0.3%	662	0.3%	0.00
1 (lowest)	4,062	26.1%	52,256	22.9%	0.07
2	3,373	21.7%	47,310	20.7%	0.02
3	3,112	20.0%	45,036	19.7%	0.01
4	2,530	16.2%	42,823	18.8%	0.07
5 (highest)	2,444	15.7%	40,164	17.6%	0.05
ODB seniors co-payment program enrollee (% denominator in 65+)***	1,169	20.6%	12,087	17.1%	0.09
Ontario Marginalization Index - Dependency quintile					
Missing information	139	0.9%	2,213	1.0%	0.01
5 (most marginalized)	3,017	19.4%	56,234	24.6%	0.13
4	2,193	14.1%	38,291	16.8%	0.07
3	2,840	18.2%	38,103	16.7%	0.04
2	3,098	19.9%	42,168	18.5%	0.04

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
1 (least marginalized)	4,283	27.5%	51,242	22.4%	0.12
Ontario Marginalization Index - Material Deprivation quintile					
Missing information	139	0.9%	2,213	1.0%	0.01
5 (most marginalized)	3,736	24.0%	47,840	21.0%	0.07
4	3,049	19.6%	44,348	19.4%	0.00
3	3,133	20.1%	42,650	18.7%	0.04
2	2,832	18.2%	44,696	19.6%	0.04
1 (least marginalized)	2,681	17.2%	46,504	20.4%	0.08
Ontario Marginalization Index - Ethnic Concentration quintile					
Missing information	139	0.9%	2,213	1.0%	0.01
5 (most marginalized)	6,411	41.2%	57,663	25.3%	0.34
4	3,319	21.3%	45,686	20.0%	0.03
3	2,491	16.0%	41,466	18.2%	0.06
2	1,929	12.4%	41,970	18.4%	0.17
1 (least marginalized)	1,281	8.2%	39,253	17.2%	0.27
Ontario Marginalization Index - Residential Instability quintile					
Missing information	139	0.9%	2,213	1.0%	0.01
5 (most marginalized)	4,330	27.8%	61,147	26.8%	0.02
4	3,139	20.2%	46,163	20.2%	0.00
3	2,572	16.5%	41,247	18.1%	0.04
2	2,520	16.2%	39,723	17.4%	0.03
1 (least marginalized)	2,870	18.4%	37,758	16.5%	0.05
Contact with LTC in the 90 days prior to testing date (or end of testing period)	3,386	21.7%	28,832	12.6%	0.24
Residing in a retirement home at the time of testing¹	605	3.9%	8,582	3.8%	0.01

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
Recent experience with homelessness	51	0.3%	1,584	0.7%	0.05
CLINICAL CHARACTERISTICS					
Preterm (gestational age < 32 weeks) (% denominator in 0-<2 years)	0	0.0%	41	2.7%	0.23
Chronic conditions					
Asthma****	2,432	15.6%	43,440	19.0%	0.09
Chronic kidney disease (including chronic dialysis)	1,241	8.0%	18,116	7.9%	0.00
Chronic obstructive pulmonary disease****	1,875	12.0%	32,326	14.2%	0.06
Dementia****	2,768	17.8%	25,513	11.2%	0.19
Diabetes****	3,485	22.4%	41,329	18.1%	0.11
Heart failure****	1,214	7.8%	16,346	7.2%	0.02
History of TIA/stroke	869	5.6%	10,462	4.6%	0.05
Hypertension****	6,677	42.9%	83,384	36.5%	0.13
Immunocompromised	269	1.7%	5,440	2.4%	0.05
Inflammatory bowel disease****	55	0.4%	1,368	0.6%	0.04
Ischemic heart disease	898	5.8%	14,094	6.2%	0.02
Liver disease	215	1.4%	3,762	1.6%	0.02
Rheumatoid arthritis****	228	1.5%	4,099	1.8%	0.03
Severe mental illness	161	1.0%	4,002	1.8%	0.06
Sickle cell disease	13	0.1%	161	0.1%	0.00
Persons with medical conditions associated with frailty					
Johns Hopkins ACG System Medically Frail Condition Marker	3,278	21.1%	36,765	16.1%	0.13
Resource utilization bands					
0 (non-users)	507	3.3%	6,535	2.9%	0.02
1 (healthy)	436	2.8%	6,187	2.7%	0.01
2 (low)	1,637	10.5%	24,347	10.7%	0.00

VARIABLE	Confirmed positive (N=15,570)		Not confirmed positive (N=228,251)		STANDARDIZED DIFFERENCE**
3	7,553	48.5%	104,413	45.7%	0.06
4	2,800	18.0%	44,586	19.5%	0.04
5 (high)	2,637	16.9%	42,183	18.5%	0.04

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

Appendix 1.3 Characteristics of individuals in Ontario tested versus not tested for COVID-19, by Public Health Unit region of residence, as of April 30, 2020¹²

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Tested (N=19,508)	Not tested (N=821,513)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age	52.40 ± 22.01	42.87 ± 23.48	0.42
Mean ± SD	52 (35-69)	44 (24-62)	0.39
Median (IQR)			
0-<5 years*	216 (1.1%)	38,287 (4.7%)	0.21
5-19 years	746 (3.8%)	128,105 (15.6%)	0.41
20-29 years	2,397 (12.3%)	101,152 (12.3%)	0
30-39 years	2,815 (14.4%)	101,838 (12.4%)	0.06
40-49 years	2,756 (14.1%)	96,890 (11.8%)	0.07
50-59 years	3,321 (17.0%)	119,817 (14.6%)	0.07
60-69 years	2,599 (13.3%)	119,689 (14.6%)	0.04
70-79 years	1,882 (9.6%)	75,083 (9.1%)	0.02
80-89 years	1,780 (9.1%)	33,054 (4.0%)	0.21
90+ years	996 (5.1%)	7,598 (0.9%)	0.25
65+ years	5,800 (29.7%)	170,848 (20.8%)	0.21
85+ years	1,854 (9.5%)	20,079 (2.4%)	0.3
Sex			
Females	12,501 (64.1%)	406,630 (49.5%)	0.3

¹² The sum of the Public Health Unit Regions tested totals do not equal the Ontario tested total due to individuals missing information on Public Health Unit of residence.

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Tested (N=19,508)	Not tested (N=821,513)	STANDARDIZED DIFFERENCE**
Males	7,007 (35.9%)	414,883 (50.5%)	0.3
Sex x Age group			
Female, age <20 years	546 (2.8%)	81,172 (9.9%)	0.29
Female, age 20-64 years	8,509 (43.6%)	236,200 (28.8%)	0.31
Female, ≥65+ years	3,446 (17.7%)	89,258 (10.9%)	0.2
Male, age <20 years	416 (2.1%)	85,220 (10.4%)	0.35
Male, age 20-64 years	4,237 (21.7%)	248,073 (30.2%)	0.19
Male, ≥65+ years	2,354 (12.1%)	81,590 (9.9%)	0.07
Rurality			
Rural	6,344 (32.5%)	297,264 (36.2%)	0.08
Urban	13,164 (67.5%)	524,249 (63.8%)	0.08
Neighbourhood income quintile			
Missing information			
1 (lowest)	5,038 (25.8%)	209,184 (25.5%)	0.01
2	4,484 (23.0%)	174,853 (21.3%)	0.04
3	3,501 (17.9%)	151,881 (18.5%)	0.01
4	3,398 (17.4%)	143,905 (17.5%)	0
5 (highest)	3,085 (15.8%)	141,635 (17.2%)	0.04
ODB seniors co-payment program enrollee (% denominator in 65+)***	822 (4.2%)	11,556 (6.8%)	0.24
Ontario Marginalization Index - Dependency quintile	3,221 (16.5%)	141,962 (17.3%)	0.02
Missing information	803 (4.1%)	52,588 (6.4%)	0.1
5 (most marginalized)	7,432 (38.1%)	266,710 (32.5%)	0.12
4	4,505 (23.1%)	196,179 (23.9%)	0.02
3	3,221 (16.5%)	141,962 (17.3%)	0.02
2	2,313 (11.9%)	109,082 (13.3%)	0.04

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Tested (N=19,508)	Not tested (N=821,513)	STANDARDIZED DIFFERENCE**
1 (least marginalized)	1,234 (6.3%)	54,992 (6.7%)	0.01
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	803 (4.1%)	52,588 (6.4%)	0.1
5 (most marginalized)	5,546 (28.4%)	215,359 (26.2%)	0.05
4	5,306 (27.2%)	216,653 (26.4%)	0.02
3	3,354 (17.2%)	144,954 (17.6%)	0.01
2	2,649 (13.6%)	108,987 (13.3%)	0.01
1 (least marginalized)	1,850 (9.5%)	82,972 (10.1%)	0.02
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	803 (4.1%)	52,588 (6.4%)	0.1
5 (most marginalized)	31 (0.2%)	1,913 (0.2%)	0.02
4	880 (4.5%)	28,553 (3.5%)	0.05
3	2,598 (13.3%)	105,614 (12.9%)	0.01
2	5,640 (28.9%)	223,646 (27.2%)	0.04
1 (least marginalized)	9,556 (49.0%)	409,199 (49.8%)	0.02
Ontario Marginalization Index - Residential Instability quintile			
Missing information	803 (4.1%)	52,588 (6.4%)	0.1
5 (most marginalized)	4,729 (24.2%)	146,984 (17.9%)	0.16
4	5,370 (27.5%)	210,493 (25.6%)	0.04
3	4,161 (21.3%)	199,276 (24.3%)	0.07
2	3,135 (16.1%)	146,530 (17.8%)	0.05
1 (least marginalized)	1,310 (6.7%)	65,642 (8.0%)	0.05
Contact with LTC in the 90 days to testing date (or end of testing period)	2,647 (13.6%)	4,591 (0.6%)	0.52
Residing in a retirement home at the time of testing¹	227 (1.2%)	N/A	N/A

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Tested (N=19,508)	Not tested (N=821,513)	STANDARDIZED DIFFERENCE**
Recent experience with homelessness	128 (0.7%)	1,447 (0.2%)	0.07
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	<=5 (<5.0%)	92 (0.7%)	0.12
Chronic conditions			
Asthma****	3,648 (18.7%)	113,651 (13.8%)	0.13
Chronic kidney disease (including chronic dialysis)	1,202 (6.2%)	18,769 (2.3%)	0.19
Chronic obstructive pulmonary disease****	3,434 (17.6%)	75,382 (9.2%)	0.25
Dementia****	1,840 (9.4%)	8,156 (1.0%)	0.39
Diabetes****	3,398 (17.4%)	87,792 (10.7%)	0.19
Heart failure****	1,242 (6.4%)	17,608 (2.1%)	0.21
History of TIA/stroke	922 (4.7%)	13,146 (1.6%)	0.18
Hypertension****	6,829 (35.0%)	188,958 (23.0%)	0.27
Immunocompromised	403 (2.1%)	7,045 (0.9%)	0.1
Inflammatory bowel disease****	126 (0.6%)	3,834 (0.5%)	0.02
Ischemic heart disease	1,307 (6.7%)	30,527 (3.7%)	0.13
Liver disease	324 (1.7%)	6,377 (0.8%)	0.08
Rheumatoid arthritis****	376 (1.9%)	8,313 (1.0%)	0.08
Severe mental illness	472 (2.4%)	9,487 (1.2%)	0.1
Sickle cell disease	<=5 (<=0.5%)	24 (0.0%)	0.01
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	2,768 (14.2%)	18,083 (2.2%)	0.45
Resource utilization bands			
0 (non-users)	902 (4.6%)	126,088 (15.3%)	0.36
1 (healthy)	621 (3.2%)	50,835 (6.2%)	0.14
2 (low)	2,395 (12.3%)	167,259 (20.4%)	0.22

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Tested (N=19,508)	Not tested (N=821,513)	STANDARDIZED DIFFERENCE**
3	8,985 (46.1%)	341,950 (41.6%)	0.09
4	3,582 (18.4%)	94,986 (11.6%)	0.19
5 (high)	3,023 (15.5%)	40,395 (4.9%)	0.35

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Tested (N=34,249)	Not tested (N=1,940,765)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	52.79 ± 21.67	41.91 ± 23.21	0.48
Median (IQR)	52 (35-68)	42 (23-60)	0.45
0-<5 years*	261 (0.8%)	91,376 (4.7%)	0.24
5-19 years	885 (2.6%)	311,960 (16.1%)	0.48
20-29 years	4,263 (12.4%)	245,989 (12.7%)	0.01
30-39 years	5,264 (15.4%)	257,280 (13.3%)	0.06
40-49 years	5,249 (15.3%)	244,344 (12.6%)	0.08
50-59 years	5,917 (17.3%)	281,280 (14.5%)	0.08
60-69 years	4,265 (12.5%)	253,140 (13.0%)	0.02
70-79 years	3,041 (8.9%)	165,919 (8.5%)	0.01
80-89 years	3,170 (9.3%)	71,299 (3.7%)	0.23
90+ years	1,934 (5.6%)	18,178 (0.9%)	0.27
65+ years	9,927 (29.0%)	371,917 (19.2%)	0.23
85+ years	3,619 (10.6%)	45,440 (2.3%)	0.34
Sex			
Females	21,859 (63.8%)	984,343 (50.7%)	0.27
Males	12,390 (36.2%)	956,422 (49.3%)	0.27
Sex x Age group			
Female, age <20 years	624 (1.8%)	197,545 (10.2%)	0.36
Female, age 20-64 years	15,389 (44.9%)	587,135 (30.3%)	0.31

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Tested (N=34,249)	Not tested (N=1,940,765)	STANDARDIZED DIFFERENCE**
Female, ≥65+ years	5,846 (17.1%)	199,663 (10.3%)	0.2
Male, age <20 years	522 (1.5%)	205,791 (10.6%)	0.39
Male, age 20-64 years	7,787 (22.7%)	578,377 (29.8%)	0.16
Male, ≥65+ years	4,081 (11.9%)	172,254 (8.9%)	0.1
Rurality			
Rural	6,494 (19.0%)	330,965 (17.1%)	0.05
Urban	27,755 (81.0%)	1,609,800 (82.9%)	0.05
Neighbourhood income quintile			
Missing information	0 (0.0%)	34 (0.0%)	0.01
1 (lowest)	7,200 (21.0%)	370,620 (19.1%)	0.05
2	6,901 (20.1%)	354,684 (18.3%)	0.05
3	6,776 (19.8%)	394,536 (20.3%)	0.01
4	6,950 (20.3%)	414,572 (21.4%)	0.03
5 (highest)	6,422 (18.8%)	406,319 (20.9%)	0.05
ODB seniors co-payment program enrollee (% denominator in 65+)***	1,440 (14.5%)	28,024 (7.5%)	0.22
Ontario Marginalization Index - Dependency quintile			
Missing information	202 (0.6%)	12,369 (0.6%)	0.01
5 (most marginalized)	10,871 (31.7%)	462,043 (23.8%)	0.18
4	5,703 (16.7%)	327,943 (16.9%)	0.01
3	5,138 (15.0%)	316,384 (16.3%)	0.04
2	4,959 (14.5%)	313,781 (16.2%)	0.05
1 (least marginalized)	7,376 (21.5%)	508,245 (26.2%)	0.11
Ontario Marginalization Index - Material Deprivation quintile			

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Tested (N=34,249)	Not tested (N=1,940,765)	STANDARDIZED DIFFERENCE**
Missing information	202 (0.6%)	12,369 (0.6%)	0.01
5 (most marginalized)	6,230 (18.2%)	307,412 (15.8%)	0.06
4	5,123 (15.0%)	267,156 (13.8%)	0.03
3	5,773 (16.9%)	325,026 (16.7%)	0
2	7,599 (22.2%)	407,504 (21.0%)	0.03
1 (least marginalized)	9,322 (27.2%)	621,298 (32.0%)	0.11
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	202 (0.6%)	12,369 (0.6%)	0.01
5 (most marginalized)	3,469 (10.1%)	234,734 (12.1%)	0.06
4	5,950 (17.4%)	382,374 (19.7%)	0.06
3	7,436 (21.7%)	394,815 (20.3%)	0.03
2	8,196 (23.9%)	438,880 (22.6%)	0.03
1 (least marginalized)	8,996 (26.3%)	477,593 (24.6%)	0.04
Ontario Marginalization Index - Residential Instability quintile			
Missing information	202 (0.6%)	12,369 (0.6%)	0.01
5 (most marginalized)	8,742 (25.5%)	422,756 (21.8%)	0.09
4	7,049 (20.6%)	364,364 (18.8%)	0.05
3	6,838 (20.0%)	381,852 (19.7%)	0.01
2	7,130 (20.8%)	462,779 (23.8%)	0.07
1 (least marginalized)	4,288 (12.5%)	296,645 (15.3%)	0.08
Contact with LTC in the 90 days to testing date (or end of testing period)			
	4,167 (12.2%)	8,609 (0.4%)	0.5
Residing in a retirement home at the time of testing ¹			
	1,170 (3.4%)	N/A	N/A

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Tested (N=34,249)	Not tested (N=1,940,765)	STANDARDIZED DIFFERENCE**
Recent experience with homelessness	169 (0.5%)	1,887 (0.1%)	0.07
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	<=5 (<5.0%)	236 (0.7%)	0.09
Chronic conditions			
Asthma****	6,826 (19.9%)	290,968 (15.0%)	0.13
Chronic kidney disease (including chronic dialysis)	2,298 (6.7%)	35,771 (1.8%)	0.24
Chronic obstructive pulmonary disease****	5,009 (14.6%)	127,188 (6.6%)	0.26
Dementia****	3,580 (10.5%)	19,466 (1.0%)	0.42
Diabetes****	5,493 (16.0%)	169,945 (8.8%)	0.22
Heart failure****	2,208 (6.4%)	32,513 (1.7%)	0.24
History of TIA/stroke	1,492 (4.4%)	23,117 (1.2%)	0.19
Hypertension****	11,071 (32.3%)	375,854 (19.4%)	0.3
Immunocompromised	688 (2.0%)	16,212 (0.8%)	0.1
Inflammatory bowel disease****	194 (0.6%)	7,356 (0.4%)	0.03
Ischemic heart disease	1,972 (5.8%)	51,624 (2.7%)	0.15
Liver disease	403 (1.2%)	9,566 (0.5%)	0.08
Rheumatoid arthritis****	561 (1.6%)	16,085 (0.8%)	0.07
Severe mental illness	515 (1.5%)	10,541 (0.5%)	0.1
Sickle cell disease	<=5 (<=0.01%)	470 (0.0%)	0
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	5,111 (14.9%)	39,573 (2.0%)	0.48
Resource utilization bands			
0 (non-users)	1,269 (3.7%)	282,394 (14.6%)	0.38

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Tested (N=34,249)	Not tested (N=1,940,765)	STANDARDIZED DIFFERENCE**
1 (healthy)	1,052 (3.1%)	116,294 (6.0%)	0.14
2 (low)	4,200 (12.3%)	396,863 (20.4%)	0.22
3	16,278 (47.5%)	844,142 (43.5%)	0.08
4	6,111 (17.8%)	217,114 (11.2%)	0.19
5 (high)	5,339 (15.6%)	83,958 (4.3%)	0.38

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Tested (N=68,012)	Not tested (N=4,465,688)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean \pm SD	53.41 \pm 22.35	40.38 \pm 22.80	0.58
Median (IQR)	52 (36-70)	40 (22-58)	0.55
0-<5 years*	805 (1.2%)	219,174 (4.9%)	0.22
5-19 years	1,983 (2.9%)	779,361 (17.5%)	0.5
20-29 years	7,902 (11.6%)	582,390 (13.0%)	0.04
30-39 years	9,697 (14.3%)	606,942 (13.6%)	0.02
40-49 years	10,383 (15.3%)	599,851 (13.4%)	0.05
50-59 years	11,807 (17.4%)	652,041 (14.6%)	0.08
60-69 years	8,205 (12.1%)	520,559 (11.7%)	0.01
70-79 years	5,828 (8.6%)	326,709 (7.3%)	0.05
80-89 years	6,873 (10.1%)	144,171 (3.2%)	0.28
90+ years	4,529 (6.7%)	34,490 (0.8%)	0.32
65+ years	20,589 (30.3%)	740,043 (16.6%)	0.33
85+ years	8,272 (12.2%)	88,755 (2.0%)	0.4
Sex			
Females	43,926 (64.6%)	2,251,438 (50.4%)	0.29
Males	24,086 (35.4%)	2,214,250 (49.6%)	0.29
Sex x Age group			
Female, age <20 years	1,454 (2.1%)	485,202 (10.9%)	0.36
Female, age 20-64 years	29,992 (44.1%)	1,371,016 (30.7%)	0.28
Female, \geq 65+ years	12,480 (18.3%)	395,220 (8.9%)	0.28

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Tested (N=68,012)	Not tested (N=4,465,688)	STANDARDIZED DIFFERENCE**
Male, age <20 years	1,334 (2.0%)	513,333 (11.5%)	0.39
Male, age 20-64 years	14,643 (21.5%)	1,356,094 (30.4%)	0.2
Male, ≥65+ years	8,109 (11.9%)	344,823 (7.7%)	0.14
Rurality			
Rural	4,336 (6.4%)	305,261 (6.8%)	0.02
Urban	63,676 (93.6%)	4,160,427 (93.2%)	0.02
Neighbourhood income quintile			
1 (lowest)	10,240 (15.1%)	513,094 (11.5%)	0.11
2	13,661 (20.1%)	806,458 (18.1%)	0.05
3	15,489 (22.8%)	1,083,457 (24.3%)	0.04
4	16,469 (24.2%)	1,182,328 (26.5%)	0.05
5 (highest)	12,153 (17.9%)	880,351 (19.7%)	0.05
ODB seniors co-payment program enrollee (% denominator in 65+)***	3,703 (18.0%)	105,415 (14.2%)	0.1
Ontario Marginalization Index - Dependency quintile			
Missing information	197 (0.3%)	7,300 (0.2%)	0.03
5 (most marginalized)	13,691 (20.1%)	558,247 (12.5%)	0.21
4	9,430 (13.9%)	577,991 (12.9%)	0.03
3	10,256 (15.1%)	692,133 (15.5%)	0.01
2	13,599 (20.0%)	1,006,261 (22.5%)	0.06
1 (least marginalized)	20,839 (30.6%)	1,623,756 (36.4%)	0.12
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	197 (0.3%)	7,300 (0.2%)	0.03
5 (most marginalized)	9,046 (13.3%)	474,653 (10.6%)	0.08
4	13,057 (19.2%)	776,472 (17.4%)	0.05

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Tested (N=68,012)	Not tested (N=4,465,688)	STANDARDIZED DIFFERENCE**
3	16,657 (24.5%)	1,112,666 (24.9%)	0.01
2	17,450 (25.7%)	1,260,424 (28.2%)	0.06
1 (least marginalized)	11,605 (17.1%)	834,173 (18.7%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	197 (0.3%)	7,300 (0.2%)	0.03
5 (most marginalized)	26,825 (39.4%)	2,032,101 (45.5%)	0.12
4	13,958 (20.5%)	944,290 (21.1%)	0.02
3	9,833 (14.5%)	584,769 (13.1%)	0.04
2	9,696 (14.3%)	484,343 (10.8%)	0.1
1 (least marginalized)	7,503 (11.0%)	412,885 (9.2%)	0.06
Ontario Marginalization Index - Residential Instability quintile			
Missing information	197 (0.3%)	7,300 (0.2%)	0.03
5 (most marginalized)	10,270 (15.1%)	493,421 (11.0%)	0.12
4	11,302 (16.6%)	574,275 (12.9%)	0.11
3	11,948 (17.6%)	748,505 (16.8%)	0.02
2	13,816 (20.3%)	947,271 (21.2%)	0.02
1 (least marginalized)	20,479 (30.1%)	1,694,916 (38.0%)	0.17
Contact with LTC in the 90 days to testing date (or end of testing period)	8,462 (12.4%)	10,885 (0.2%)	0.52
Residing in a retirement home at the time of testing¹	2,666 (3.9%)	N/A	N/A
Recent experience with homelessness	248 (0.4%)	2,925 (0.1%)	0.06
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	12 (2.8%)	742 (0.9%)	0.14
Chronic conditions			

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Tested (N=68,012)	Not tested (N=4,465,688)	STANDARDIZED DIFFERENCE**
Asthma****	13,503 (19.9%)	692,301 (15.5%)	0.11
Chronic kidney disease (including chronic dialysis)	5,330 (7.8%)	88,904 (2.0%)	0.27
Chronic obstructive pulmonary disease****	8,398 (12.3%)	220,500 (4.9%)	0.27
Dementia****	7,705 (11.3%)	32,934 (0.7%)	0.46
Diabetes****	12,664 (18.6%)	440,688 (9.9%)	0.25
Heart failure****	4,414 (6.5%)	59,978 (1.3%)	0.27
History of TIA/stroke	2,894 (4.3%)	40,264 (0.9%)	0.21
Hypertension****	25,247 (37.1%)	890,484 (19.9%)	0.39
Immunocompromised	1,364 (2.0%)	29,914 (0.7%)	0.12
Inflammatory bowel disease****	398 (0.6%)	15,193 (0.3%)	0.04
Ischemic heart disease	3,919 (5.8%)	101,304 (2.3%)	0.18
Liver disease	1,104 (1.6%)	27,073 (0.6%)	0.1
Rheumatoid arthritis****	1,230 (1.8%)	32,756 (0.7%)	0.1
Severe mental illness	919 (1.4%)	21,155 (0.5%)	0.09
Sickle cell disease	59 (0.1%)	1,555 (0.0%)	0.02
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	10,412 (15.3%)	66,630 (1.5%)	0.51
Resource utilization bands			
0 (non-users)	1,497 (2.2%)	543,564 (12.2%)	0.39
1 (healthy)	1,640 (2.4%)	257,748 (5.8%)	0.17
2 (low)	6,801 (10.0%)	848,101 (19.0%)	0.26
3	31,793 (46.7%)	2,061,446 (46.2%)	0.01
4	13,952 (20.5%)	565,216 (12.7%)	0.21
5 (high)	12,329 (18.1%)	189,613 (4.2%)	0.45

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Tested (N=51,730)	Not tested (N=3,003,527)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	55.92 ± 22.60	40.97 ± 22.43	0.66
Median (IQR)	55 (38-74)	40 (25-58)	0.63
0-<5 years*	504 (1.0%)	141,563 (4.7%)	0.23
5-19 years	921 (1.8%)	434,018 (14.5%)	0.48
20-29 years	5,062 (9.8%)	409,821 (13.6%)	0.12
30-39 years	7,766 (15.0%)	504,623 (16.8%)	0.05
40-49 years	7,514 (14.5%)	415,374 (13.8%)	0.02
50-59 years	8,297 (16.0%)	421,412 (14.0%)	0.06
60-69 years	6,396 (12.4%)	327,491 (10.9%)	0.05
70-79 years	4,648 (9.0%)	205,519 (6.8%)	0.08
80-89 years	6,091 (11.8%)	110,732 (3.7%)	0.31
90+ years	4,531 (8.8%)	32,974 (1.1%)	0.36
65+ years	17,912 (34.6%)	496,478 (16.5%)	0.42
85+ years	7,863 (15.2%)	77,770 (2.6%)	0.45
Sex			
Females	32,038 (61.9%)	1,533,433 (51.1%)	0.22
Males	19,692 (38.1%)	1,470,094 (48.9%)	0.22
Sex x Age group			
Female, age <20 years	687 (1.3%)	280,069 (9.3%)	0.36
Female, age 20-64 years	20,390 (39.4%)	977,471 (32.5%)	0.14
Female, ≥65+ years	10,961 (21.2%)	275,893 (9.2%)	0.34

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Tested (N=51,730)	Not tested (N=3,003,527)	STANDARDIZED DIFFERENCE**
Male, age <20 years	738 (1.4%)	295,512 (9.8%)	0.37
Male, age 20-64 years	12,003 (23.2%)	953,997 (31.8%)	0.19
Male, ≥65+ years	6,951 (13.4%)	220,585 (7.3%)	0.2
Rurality			
Urban	51,730 (100.0%)	3,003,527 (100.0%)	.
Neighbourhood income quintile			
1 (lowest)	19,082 (36.9%)	1,018,217 (33.9%)	0.06
2	12,542 (24.2%)	722,139 (24.0%)	0
3	8,210 (15.9%)	472,085 (15.7%)	0
4	4,911 (9.5%)	302,466 (10.1%)	0.02
5 (highest)	6,985 (13.5%)	488,620 (16.3%)	0.08
ODB seniors co-payment program enrollee (% denominator in 65+)***	4,371 (24.4%)	87,664 (17.7%)	0.17
Ontario Marginalization Index - Dependency quintile			
Missing information	97 (0.2%)	114 (0.0%)	0.06
5 (most marginalized)	9,304 (18.0%)	369,239 (12.3%)	0.16
4	7,672 (14.8%)	467,955 (15.6%)	0.02
3	9,537 (18.4%)	557,817 (18.6%)	0
2	11,705 (22.6%)	708,106 (23.6%)	0.02
1 (least marginalized)	13,415 (25.9%)	900,296 (30.0%)	0.09
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	97 (0.2%)	114 (0.0%)	0.06
5 (most marginalized)	16,496 (31.9%)	886,784 (29.5%)	0.05
4	11,907 (23.0%)	662,622 (22.1%)	0.02
3	7,425 (14.4%)	442,496 (14.7%)	0.01

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Tested (N=51,730)	Not tested (N=3,003,527)	STANDARDIZED DIFFERENCE**
2	6,087 (11.8%)	389,146 (13.0%)	0.04
1 (least marginalized)	9,718 (18.8%)	622,365 (20.7%)	0.05
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	97 (0.2%)	114 (0.0%)	0.06
5 (most marginalized)	26,666 (51.5%)	1,590,138 (52.9%)	0.03
4	14,913 (28.8%)	834,587 (27.8%)	0.02
3	7,795 (15.1%)	457,240 (15.2%)	0
2	1,886 (3.6%)	104,462 (3.5%)	0.01
1 (least marginalized)	373 (0.7%)	16,986 (0.6%)	0.02
Ontario Marginalization Index - Residential Instability quintile			
Missing information	97 (0.2%)	114 (0.0%)	0.06
5 (most marginalized)	26,551 (51.3%)	1,463,744 (48.7%)	0.05
4	10,175 (19.7%)	581,986 (19.4%)	0.01
3	6,650 (12.9%)	402,454 (13.4%)	0.02
2	5,296 (10.2%)	328,410 (10.9%)	0.02
1 (least marginalized)	2,961 (5.7%)	226,819 (7.6%)	0.07
Contact with LTC in the 90 days to testing date (or end of testing period)	8,416 (16.3%)	6,918 (0.2%)	0.61
Residing in a retirement home at the time of testing¹	1,955 (3.8%)	N/A	N/A
Recent experience with homelessness	635 (1.2%)	4,258 (0.1%)	0.13
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	11 (3.8%)	511 (0.9%)	0.19
Chronic conditions			
Asthma****	9,124 (17.6%)	403,056 (13.4%)	0.12

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Tested (N=51,730)	Not tested (N=3,003,527)	STANDARDIZED DIFFERENCE**
Chronic kidney disease (including chronic dialysis)	5,349 (10.3%)	60,293 (2.0%)	0.35
Chronic obstructive pulmonary disease****	6,898 (13.3%)	137,309 (4.6%)	0.31
Dementia****	8,057 (15.6%)	28,879 (1.0%)	0.55
Diabetes****	11,250 (21.7%)	287,802 (9.6%)	0.34
Heart failure****	4,476 (8.7%)	41,592 (1.4%)	0.34
History of TIA/stroke	2,612 (5.0%)	25,812 (0.9%)	0.25
Hypertension****	21,350 (41.3%)	558,150 (18.6%)	0.51
Immunocompromised	1,503 (2.9%)	27,951 (0.9%)	0.14
Inflammatory bowel disease****	232 (0.4%)	7,949 (0.3%)	0.03
Ischemic heart disease	3,403 (6.6%)	54,759 (1.8%)	0.24
Liver disease	1,005 (1.9%)	17,749 (0.6%)	0.12
Rheumatoid arthritis****	795 (1.5%)	17,420 (0.6%)	0.09
Severe mental illness	1,023 (2.0%)	15,446 (0.5%)	0.13
Sickle cell disease	73 (0.1%)	1,410 (0.0%)	0.03
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	11,037 (21.3%)	52,667 (1.8%)	0.64
Resource utilization bands			
0 (non-users)	1,337 (2.6%)	492,909 (16.4%)	0.49
1 (healthy)	1,208 (2.3%)	170,357 (5.7%)	0.17
2 (low)	4,844 (9.4%)	545,235 (18.2%)	0.26
3	22,830 (44.1%)	1,308,936 (43.6%)	0.01
4	10,235 (19.8%)	362,083 (12.1%)	0.21
5 (high)	11,276 (21.8%)	124,007 (4.1%)	0.55

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Tested (N=23,754)	Not tested (N=1,724,778)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	54.42 ± 22.82	41.77 ± 23.53	0.55
Median (IQR)	54 (36-73)	42 (22-61)	0.52
0-<5 years*	251 (1.1%)	86,559 (5.0%)	0.23
5-19 years	727 (3.1%)	285,600 (16.6%)	0.47
20-29 years	2,849 (12.0%)	219,724 (12.7%)	0.02
30-39 years	3,343 (14.1%)	220,550 (12.8%)	0.04
40-49 years	3,154 (13.3%)	209,889 (12.2%)	0.03
50-59 years	3,823 (16.1%)	240,363 (13.9%)	0.06
60-69 years	2,823 (11.9%)	229,221 (13.3%)	0.04
70-79 years	2,441 (10.3%)	149,938 (8.7%)	0.05
80-89 years	2,671 (11.2%)	66,298 (3.8%)	0.28
90+ years	1,672 (7.0%)	16,636 (1.0%)	0.31
65+ years	8,009 (33.7%)	339,511 (19.7%)	0.32
85+ years	3,076 (12.9%)	42,405 (2.5%)	0.4
Sex			
Females	15,416 (64.9%)	863,638 (50.1%)	0.3
Males	8,338 (35.1%)	861,140 (49.9%)	0.3
Sex x Age group			
Female, age <20 years	531 (2.2%)	181,219 (10.5%)	0.34
Female, age 20-64 years	10,073 (42.4%)	500,129 (29.0%)	0.28
Female, ≥65+ years	4,812 (20.3%)	182,290 (10.6%)	0.27

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Tested (N=23,754)	Not tested (N=1,724,778)	STANDARDIZED DIFFERENCE**
Male, age <20 years	447 (1.9%)	190,940 (11.1%)	0.38
Male, age 20-64 years	4,694 (19.8%)	512,979 (29.7%)	0.23
Male, ≥65+ years	3,197 (13.5%)	157,221 (9.1%)	0.14
Rurality			
Rural	4,681 (19.7%)	401,914 (23.3%)	0.09
Urban	19,073 (80.3%)	1,322,864 (76.7%)	0.09
Neighbourhood income quintile			
1 (lowest)	5,273 (22.2%)	334,105 (19.4%)	0.07
2	4,708 (19.8%)	349,421 (20.3%)	0.01
3	4,751 (20.0%)	348,805 (20.2%)	0.01
4	4,951 (20.8%)	359,904 (20.9%)	0
5 (highest)	4,070 (17.1%)	332,298 (19.3%)	0.06
ODB seniors co-payment program enrollee (% denominator in 65+)***	1,041 (13.0%)	22,946 (6.8%)	0.21
Ontario Marginalization Index - Dependency quintile			
Missing information	90 (0.4%)	7,888 (0.5%)	0.01
5 (most marginalized)	6,821 (28.7%)	390,398 (22.6%)	0.14
4	5,089 (21.4%)	401,155 (23.3%)	0.04
3	5,003 (21.1%)	381,028 (22.1%)	0.03
2	4,205 (17.7%)	331,357 (19.2%)	0.04
1 (least marginalized)	2,546 (10.7%)	212,952 (12.3%)	0.05
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	90 (0.4%)	7,888 (0.5%)	0.01
5 (most marginalized)	5,826 (24.5%)	399,007 (23.1%)	0.03
4	4,329 (18.2%)	313,496 (18.2%)	0

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Tested (N=23,754)	Not tested (N=1,724,778)	STANDARDIZED DIFFERENCE**
3	3,814 (16.1%)	301,850 (17.5%)	0.04
2	4,953 (20.9%)	352,527 (20.4%)	0.01
1 (least marginalized)	4,742 (20.0%)	350,010 (20.3%)	0.01
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	90 (0.4%)	7,888 (0.5%)	0.01
5 (most marginalized)	1,808 (7.6%)	142,442 (8.3%)	0.02
4	3,427 (14.4%)	244,852 (14.2%)	0.01
3	5,188 (21.8%)	367,084 (21.3%)	0.01
2	6,495 (27.3%)	465,108 (27.0%)	0.01
1 (least marginalized)	6,746 (28.4%)	497,404 (28.8%)	0.01
Ontario Marginalization Index - Residential Instability quintile			
Missing information	90 (0.4%)	7,888 (0.5%)	0.01
5 (most marginalized)	5,390 (22.7%)	323,455 (18.8%)	0.1
4	5,302 (22.3%)	350,587 (20.3%)	0.05
3	5,068 (21.3%)	378,403 (21.9%)	0.01
2	4,576 (19.3%)	362,704 (21.0%)	0.04
1 (least marginalized)	3,328 (14.0%)	301,741 (17.5%)	0.1
Contact with LTC in the 90 days to testing date (or end of testing period)	3,223 (13.6%)	9,569 (0.6%)	0.53
Residing in a retirement home at the time of testing¹	1,007 (4.2%)	N/A	N/A
Recent experience with homelessness	161 (0.7%)	2,373 (0.1%)	0.08
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	<=5 (<3.4%)	256 (0.8%)	0.18
Chronic conditions			

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Tested (N=23,754)	Not tested (N=1,724,778)	STANDARDIZED DIFFERENCE**
Asthma****	4,212 (17.7%)	238,142 (13.8%)	0.11
Chronic kidney disease (including chronic dialysis)	1,977 (8.3%)	30,283 (1.8%)	0.3
Chronic obstructive pulmonary disease****	4,184 (17.6%)	135,597 (7.9%)	0.3
Dementia****	2,530 (10.7%)	15,699 (0.9%)	0.43
Diabetes****	4,445 (18.7%)	159,904 (9.3%)	0.27
Heart failure****	1,900 (8.0%)	31,721 (1.8%)	0.29
History of TIA/stroke	1,281 (5.4%)	23,658 (1.4%)	0.22
Hypertension****	9,234 (38.9%)	375,855 (21.8%)	0.38
Immunocompromised	648 (2.7%)	14,220 (0.8%)	0.14
Inflammatory bowel disease****	161 (0.7%)	7,239 (0.4%)	0.03
Ischemic heart disease	1,534 (6.5%)	44,933 (2.6%)	0.19
Liver disease	459 (1.9%)	13,933 (0.8%)	0.1
Rheumatoid arthritis****	417 (1.8%)	15,289 (0.9%)	0.08
Severe mental illness	484 (2.0%)	11,823 (0.7%)	0.12
Sickle cell disease	9 (0.0%)	157 (0.0%)	0.02
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	3,827 (16.1%)	33,223 (1.9%)	0.51
Resource utilization bands			
0 (non-users)	757 (3.2%)	230,469 (13.4%)	0.38
1 (healthy)	698 (2.9%)	113,757 (6.6%)	0.17
2 (low)	2,479 (10.4%)	348,138 (20.2%)	0.27
3	10,618 (44.7%)	739,660 (42.9%)	0.04
4	4,458 (18.8%)	209,157 (12.1%)	0.18
5 (high)	4,744 (20.0%)	83,597 (4.8%)	0.47

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Tested (N=45,860)	Not tested (N=2,850,429)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	52.62 ± 22.75	40.75 ± 23.13	0.52
Median (IQR)	52 (35-70)	41 (22-59)	0.49
0-<5 years*	803 (1.8%)	143,495 (5.0%)	0.18
5-19 years	1,613 (3.5%)	489,861 (17.2%)	0.46
20-29 years	5,297 (11.6%)	366,326 (12.9%)	0.04
30-39 years	6,755 (14.7%)	385,705 (13.5%)	0.03
40-49 years	6,921 (15.1%)	379,282 (13.3%)	0.05
50-59 years	7,655 (16.7%)	402,958 (14.1%)	0.07
60-69 years	5,338 (11.6%)	334,957 (11.8%)	0
70-79 years	4,044 (8.8%)	219,931 (7.7%)	0.04
80-89 years	4,521 (9.9%)	101,364 (3.6%)	0.25
90+ years	2,913 (6.4%)	26,550 (0.9%)	0.29
65+ years	13,771 (30.0%)	500,924 (17.6%)	0.3
85+ years	5,320 (11.6%)	66,424 (2.3%)	0.37
Sex			
Females	29,944 (65.3%)	1,432,280 (50.2%)	0.31
Males	15,916 (34.7%)	1,418,149 (49.8%)	0.31
Sex x Age group			
Female, age <20 years	1,260 (2.7%)	308,601 (10.8%)	0.33
Female, age 20-64 years	20,317 (44.3%)	851,542 (29.9%)	0.3

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Tested (N=45,860)	Not tested (N=2,850,429)	STANDARDIZED DIFFERENCE**
Female, ≥65+ years	8,367 (18.2%)	272,137 (9.5%)	0.25
Male, age <20 years	1,156 (2.5%)	324,755 (11.4%)	0.35
Male, age 20-64 years	9,356 (20.4%)	864,607 (30.3%)	0.23
Male, ≥65+ years	5,404 (11.8%)	228,787 (8.0%)	0.13
Rurality			
Rural	3,226 (7.0%)	155,979 (5.5%)	0.06
Urban	42,634 (93.0%)	2,694,450 (94.5%)	0.06
Neighbourhood income quintile			
1 (lowest)	9,485 (20.7%)	466,297 (16.4%)	0.11
2	8,387 (18.3%)	492,078 (17.3%)	0.03
3	9,421 (20.5%)	542,433 (19.0%)	0.04
4	8,674 (18.9%)	601,175 (21.1%)	0.05
5 (highest)	9,893 (21.6%)	748,439 (26.3%)	0.11
ODB seniors co-payment program enrollee (% denominator in 65+)***	1,844 (13.4%)	38,026 (7.6%)	0.19
Ontario Marginalization Index - Dependency quintile			
Missing information	255 (0.6%)	6,479 (0.2%)	0.05
5 (most marginalized)	11,132 (24.3%)	477,172 (16.7%)	0.19
4	8,085 (17.6%)	472,675 (16.6%)	0.03
3	7,788 (17.0%)	464,264 (16.3%)	0.02
2	8,485 (18.5%)	553,432 (19.4%)	0.02
1 (least marginalized)	10,115 (22.1%)	876,407 (30.7%)	0.2
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	255 (0.6%)	6,479 (0.2%)	0.05

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Tested (N=45,860)	Not tested (N=2,850,429)	STANDARDIZED DIFFERENCE**
5 (most marginalized)	8,432 (18.4%)	454,317 (15.9%)	0.06
4	7,675 (16.7%)	427,327 (15.0%)	0.05
3	8,760 (19.1%)	468,385 (16.4%)	0.07
2	8,790 (19.2%)	588,245 (20.6%)	0.04
1 (least marginalized)	11,948 (26.1%)	905,676 (31.8%)	0.13
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	255 (0.6%)	6,479 (0.2%)	0.05
5 (most marginalized)	5,275 (11.5%)	415,197 (14.6%)	0.09
4	9,877 (21.5%)	707,976 (24.8%)	0.08
3	11,107 (24.2%)	682,854 (24.0%)	0.01
2	11,986 (26.1%)	643,933 (22.6%)	0.08
1 (least marginalized)	7,360 (16.0%)	393,990 (13.8%)	0.06
Ontario Marginalization Index - Residential Instability quintile			
Missing information	255 (0.6%)	6,479 (0.2%)	0.05
5 (most marginalized)	9,795 (21.4%)	501,858 (17.6%)	0.09
4	10,104 (22.0%)	532,759 (18.7%)	0.08
3	9,154 (20.0%)	555,184 (19.5%)	0.01
2	8,290 (18.1%)	553,556 (19.4%)	0.03
1 (least marginalized)	8,262 (18.0%)	700,593 (24.6%)	0.16
Contact with LTC in the 90 days to testing date (or end of testing period)	5,186 (11.3%)	12,205 (0.4%)	0.48
Residing in a retirement home at the time of testing¹	2,142 (4.7%)	N/A	N/A
Recent experience with homelessness	250 (0.5%)	2,943 (0.1%)	0.08

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Tested (N=45,860)	Not tested (N=2,850,429)	STANDARDIZED DIFFERENCE**
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	8 (1.7%)	445 (0.8%)	0.08
Chronic conditions			
Asthma****	8,448 (18.4%)	389,501 (13.7%)	0.13
Chronic kidney disease (including chronic dialysis)	3,159 (6.9%)	51,030 (1.8%)	0.25
Chronic obstructive pulmonary disease****	6,175 (13.5%)	164,275 (5.8%)	0.26
Dementia****	4,472 (9.8%)	24,127 (0.8%)	0.41
Diabetes****	7,448 (16.2%)	243,928 (8.6%)	0.23
Heart failure****	3,269 (7.1%)	48,461 (1.7%)	0.27
History of TIA/stroke	2,093 (4.6%)	31,664 (1.1%)	0.21
Hypertension****	16,110 (35.1%)	558,122 (19.6%)	0.35
Immunocompromised	1,083 (2.4%)	22,205 (0.8%)	0.13
Inflammatory bowel disease****	307 (0.7%)	11,039 (0.4%)	0.04
Ischemic heart disease	2,811 (6.1%)	71,773 (2.5%)	0.18
Liver disease	670 (1.5%)	14,732 (0.5%)	0.1
Rheumatoid arthritis****	939 (2.0%)	25,531 (0.9%)	0.1
Severe mental illness	702 (1.5%)	16,543 (0.6%)	0.09
Sickle cell disease	20 (0.0%)	476 (0.0%)	0.02
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	6,735 (14.7%)	50,797 (1.8%)	0.48
Resource utilization bands			
0 (non-users)	1,263 (2.8%)	359,706 (12.6%)	0.38
1 (healthy)	1,389 (3.0%)	191,953 (6.7%)	0.17

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Tested (N=45,860)	Not tested (N=2,850,429)	STANDARDIZED DIFFERENCE**
2 (low)	5,193 (11.3%)	588,199 (20.6%)	0.26
3	21,166 (46.2%)	1,244,700 (43.7%)	0.05
4	8,903 (19.4%)	340,514 (11.9%)	0.21
5 (high)	7,946 (17.3%)	125,357 (4.4%)	0.42

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

Appendix 1.4 Characteristics of individuals in Ontario with versus without a confirmed positive test result for COVID-19, by Public Health Unit region of residence, as of April 30, 2020¹³

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Confirmed positive (N=250)	Not confirmed positive (N=19,258)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	50.88 ± 19.95	52.42 ± 22.04	0.07
Median (IQR)	53 (35-64)	52 (35-69)	0.06
0-<5 years*	<=5 (<=2.0%)	210 - 215 (0.9 - 1.1%)	0.03
5-19 years	11 (4.4%)	735 (3.8%)	0.03
20-29 years	31 (12.4%)	2,366 (12.3%)	0
30-39 years	29 (11.6%)	2,786 (14.5%)	0.09
40-49 years	39 (15.6%)	2,717 (14.1%)	0.04
50-59 years	52 (20.8%)	3,269 (17.0%)	0.1
60-69 years	46 (18.4%)	2,553 (13.3%)	0.14
70-79 years	22 (8.8%)	1,860 (9.7%)	0.03
80-89 years	9 (3.6%)	1,771 (9.2%)	0.23
90+ years	7 - 12 (3.4 - 3.6%)	985 - 990 (5.0 - 5.2%)	0.07
65+ years	59 (23.6%)	5,741 (29.8%)	0.14
85+ years	13 (5.2%)	1,841 (9.6%)	0.17
Sex			
Females	133 (53.2%)	12,368 (64.2%)	0.23
Males	117 (46.8%)	6,890 (35.8%)	0.23

¹³ The sum of the Public Health Unit Regions tested totals do not equal the Ontario tested total due to individuals missing information on Public Health Unit of residence.

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Confirmed positive (N=250)	Not confirmed positive (N=19,258)	STANDARDIZED DIFFERENCE**
Sex x Age group			
Female, age <20 years	6 (2.4%)	540 (2.8%)	0.03
Female, age 20-64 years	91 (36.4%)	8,418 (43.7%)	0.15
Female, ≥65+ years	36 (14.4%)	3,410 (17.7%)	0.09
Male, age <20 years	7 (2.8%)	409 (2.1%)	0.04
Male, age 20-64 years	87 (34.8%)	4,150 (21.5%)	0.3
Male, ≥65+ years	23 (9.2%)	2,331 (12.1%)	0.09
Rurality			
Rural	83 (33.2%)	6,261 (32.5%)	0.01
Urban	167 (66.8%)	12,997 (67.5%)	0.01
Neighbourhood income quintile			
Missing information	0 (0.0%)	<=5 (<=0.03%)	0.01
1 (lowest)	51 (20.4%)	4,987 (25.9%)	0.13
2	62 (24.8%)	4,422 (23.0%)	0.04
3	37 (14.8%)	3,464 (18.0%)	0.09
4	48 (19.2%)	3,350 (17.4%)	0.05
5 (highest)	52 (20.8%)	3,033 (15.7%)	0.13
ODB seniors co-payment program enrollee (% denominator in 65+)***	7 (11.9%)	815 (14.2%)	0.07
Ontario Marginalization Index - Dependency quintile			
Missing information	16 (6.4%)	787 (4.1%)	0.1
5 (most marginalized)	71 (28.4%)	7,361 (38.2%)	0.21
4	62 (24.8%)	4,443 (23.1%)	0.04
3	53 (21.2%)	3,168 (16.5%)	0.12
2	33 (13.2%)	2,280 (11.8%)	0.04
1 (least marginalized)	15 (6.0%)	1,219 (6.3%)	0.01

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Confirmed positive (N=250)	Not confirmed positive (N=19,258)	STANDARDIZED DIFFERENCE**
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	16 (6.4%)	787 (4.1%)	0.1
5 (most marginalized)	58 (23.2%)	5,488 (28.5%)	0.12
4	61 (24.4%)	5,245 (27.2%)	0.06
3	50 (20.0%)	3,304 (17.2%)	0.07
2	38 (15.2%)	2,611 (13.6%)	0.05
1 (least marginalized)	27 (10.8%)	1,823 (9.5%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	16 (6.4%)	787 (4.1%)	0.1
5 (most marginalized)	<=5 (<=2.0%)	25 - 30 (0.0 - 0.3%)	0.05
4	5 - 10 (2.8 - 3.0%)	870 - 875 (4.4 - 4.6%)	0.09
3	34 (13.6%)	2,564 (13.3%)	0.01
2	71 (28.4%)	5,569 (28.9%)	0.01
1 (least marginalized)	121 (48.4%)	9,435 (49.0%)	0.01
Ontario Marginalization Index - Residential Instability quintile			
Missing information	16 (6.4%)	787 (4.1%)	0.1
5 (most marginalized)	32 (12.8%)	4,697 (24.4%)	0.3
4	75 (30.0%)	5,295 (27.5%)	0.06
3	61 (24.4%)	4,100 (21.3%)	0.07
2	40 (16.0%)	3,095 (16.1%)	0
1 (least marginalized)	26 (10.4%)	1,284 (6.7%)	0.13
Contact with LTC in the 90 days to testing date (or end of testing period)	9 (3.6%)	2,638 (13.7%)	0.37
Residing in a retirement home at the time of testing¹	7 (2.8%)	220 (1.1%)	0.12

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Confirmed positive (N=250)	Not confirmed positive (N=19,258)	STANDARDIZED DIFFERENCE**
Recent experience with homelessness	<=5 (<=2.0%)	122 - 127 (0.4 - 0.6%)	0.09
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	<=5 (<5.0%)	0.2
Chronic conditions			
Asthma****	28 (11.2%)	3,620 (18.8%)	0.21
Chronic kidney disease (including chronic dialysis)	13 (5.2%)	1,189 (6.2%)	0.04
Chronic obstructive pulmonary disease****	29 (11.6%)	3,405 (17.7%)	0.17
Dementia****	7 (2.8%)	1,833 (9.5%)	0.28
Diabetes****	38 (15.2%)	3,360 (17.4%)	0.06
Heart failure****	10 (4.0%)	1,232 (6.4%)	0.11
History of TIA/stroke	12 (4.8%)	910 (4.7%)	0
Hypertension****	76 (30.4%)	6,753 (35.1%)	0.1
Immunocompromised	<=5 (<=2.0%)	397 - 402 (1.9 - 2.1%)	0.07
Inflammatory bowel disease****	0 (0.0%)	126 (0.7%)	0.11
Ischemic heart disease	8 (3.2%)	1,299 (6.7%)	0.16
Liver disease	9 (3.6%)	315 (1.6%)	0.12
Rheumatoid arthritis****	6 (2.4%)	370 (1.9%)	0.03
Severe mental illness	7 (2.8%)	465 (2.4%)	0.02
Sickle cell disease	0 (0.0%)	<=5 (<=0.03%)	0.01
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	17 (6.8%)	2,751 (14.3%)	0.25
Resource utilization bands			
0 (non-users)	22 (8.8%)	880 (4.6%)	0.17

PUBLIC HEALTH UNIT REGION: NORTH			
Algoma Public Health, North Bay Parry Sound District Health Unit, Northwestern Health Unit, Porcupine Health Unit, Sudbury and District Health Unit, Thunder Bay District Health Unit, and Timiskaming Health Unit			
VARIABLE	Confirmed positive (N=250)	Not confirmed positive (N=19,258)	STANDARDIZED DIFFERENCE**
1 (healthy)	12 (4.8%)	609 (3.2%)	0.08
2 (low)	33 (13.2%)	2,362 (12.3%)	0.03
3	115 (46.0%)	8,870 (46.1%)	0
4	43 (17.2%)	3,539 (18.4%)	0.03
5 (high)	25 (10.0%)	2,998 (15.6%)	0.17

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Confirmed positive (N=1,567)	Not confirmed positive (N=32,682)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	57.64 ± 21.96	52.56 ± 21.62	0.23
Median (IQR)	57 (40-76)	51 (35-68)	0.23
0-<5 years*	<=5 (<=0.3%)	255 - 260 (0.6 - 0.8%)	0.06
5-19 years	20 - 25 (1.4 - 1.6%)	855 - 860 (2.4 - 2.6%)	0.07
20-29 years	157 (10.0%)	4,106 (12.6%)	0.08
30-39 years	192 (12.3%)	5,072 (15.5%)	0.09
40-49 years	222 (14.2%)	5,027 (15.4%)	0.03
50-59 years	250 (16.0%)	5,667 (17.3%)	0.04
60-69 years	216 (13.8%)	4,049 (12.4%)	0.04
70-79 years	163 (10.4%)	2,878 (8.8%)	0.05
80-89 years	201 (12.8%)	2,969 (9.1%)	0.12
90+ years	136 (8.7%)	1,798 (5.5%)	0.12
65+ years	595 (38.0%)	9,332 (28.6%)	0.2
85+ years	237 (15.1%)	3,382 (10.3%)	0.14
Sex			
Females	927 (59.2%)	20,932 (64.0%)	0.1
Males	640 (40.8%)	11,750 (36.0%)	0.1
Sex x Age group			
Female, age <20 years	16 (1.0%)	608 (1.9%)	0.07
Female, age 20-64 years	549 (35.0%)	14,840 (45.4%)	0.21

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Confirmed positive (N=1,567)	Not confirmed positive (N=32,682)	STANDARDIZED DIFFERENCE**
Female, ≥65+ years	362 (23.1%)	5,484 (16.8%)	0.16
Male, age <20 years	14 (0.9%)	508 (1.6%)	0.06
Male, age 20-64 years	393 (25.1%)	7,394 (22.6%)	0.06
Male, ≥65+ years	233 (14.9%)	3,848 (11.8%)	0.09
Rurality			
Rural	203 (13.0%)	6,291 (19.2%)	0.17
Urban	1,364 (87.0%)	26,391 (80.8%)	0.17
Neighbourhood income quintile			
1 (lowest)	303 (19.3%)	6,897 (21.1%)	0.04
2	333 (21.3%)	6,568 (20.1%)	0.03
3	328 (20.9%)	6,448 (19.7%)	0.03
4	360 (23.0%)	6,590 (20.2%)	0.07
5 (highest)	243 (15.5%)	6,179 (18.9%)	0.09
ODB seniors co-payment program enrollee (% denominator in 65+)***	98 (16.5%)	1,342 (14.4%)	0.06
Ontario Marginalization Index - Dependency quintile			
Missing information	8 (0.5%)	194 (0.6%)	0.01
5 (most marginalized)	503 (32.1%)	10,368 (31.7%)	0.01
4	202 (12.9%)	5,501 (16.8%)	0.11
3	205 (13.1%)	4,933 (15.1%)	0.06
2	233 (14.9%)	4,726 (14.5%)	0.01
1 (least marginalized)	416 (26.5%)	6,960 (21.3%)	0.12
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	8 (0.5%)	194 (0.6%)	0.01

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Confirmed positive (N=1,567)	Not confirmed positive (N=32,682)	STANDARDIZED DIFFERENCE**
5 (most marginalized)	202 (12.9%)	6,028 (18.4%)	0.15
4	239 (15.3%)	4,884 (14.9%)	0.01
3	316 (20.2%)	5,457 (16.7%)	0.09
2	350 (22.3%)	7,249 (22.2%)	0
1 (least marginalized)	452 (28.8%)	8,870 (27.1%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	8 (0.5%)	194 (0.6%)	0.01
5 (most marginalized)	245 (15.6%)	3,224 (9.9%)	0.17
4	312 (19.9%)	5,638 (17.3%)	0.07
3	404 (25.8%)	7,032 (21.5%)	0.1
2	302 (19.3%)	7,894 (24.2%)	0.12
1 (least marginalized)	296 (18.9%)	8,700 (26.6%)	0.19
Ontario Marginalization Index - Residential Instability quintile			
Missing information	8 (0.5%)	194 (0.6%)	0.01
5 (most marginalized)	474 (30.2%)	8,268 (25.3%)	0.11
4	300 (19.1%)	6,749 (20.7%)	0.04
3	339 (21.6%)	6,499 (19.9%)	0.04
2	264 (16.8%)	6,866 (21.0%)	0.11
1 (least marginalized)	182 (11.6%)	4,106 (12.6%)	0.03
Contact with LTC in the 90 days to testing date (or end of testing period)	386 (24.6%)	3,781 (11.6%)	0.34
Residing in retirement home¹	66 (4.2%)	1,104 (3.4%)	0.04
Recent experience with homelessness	<=5 (<=0.3%)	163 - 168 (0.4 -0.6%)	0.07

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Confirmed positive (N=1,567)	Not confirmed positive (N=32,682)	STANDARDIZED DIFFERENCE**
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	<=5 (<=4.3%)	0.19
Chronic conditions			
Asthma****	229 (14.6%)	6,597 (20.2%)	0.15
Chronic kidney disease (including chronic dialysis)	110 (7.0%)	2,188 (6.7%)	0.01
Chronic obstructive pulmonary disease****	217 (13.8%)	4,792 (14.7%)	0.02
Dementia****	331 (21.1%)	3,249 (9.9%)	0.31
Diabetes****	311 (19.8%)	5,182 (15.9%)	0.1
Heart failure****	106 (6.8%)	2,102 (6.4%)	0.01
History of TIA/stroke	94 (6.0%)	1,398 (4.3%)	0.08
Hypertension****	601 (38.4%)	10,470 (32.0%)	0.13
Immunocompromised	25 (1.6%)	663 (2.0%)	0.03
Inflammatory bowel disease****	<=5 (<=0.3%)	188 - 193 (0.5 - 0.7%)	0.05
Ischemic heart disease	71 (4.5%)	1,901 (5.8%)	0.06
Liver disease	10 (0.6%)	393 (1.2%)	0.06
Rheumatoid arthritis****	13 (0.8%)	548 (1.7%)	0.08
Severe mental illness	15 (1.0%)	500 (1.5%)	0.05
Sickle cell disease	<=5 (<=0.3%)	3 - 8 (0.0 - 0.1%)	0.02
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	389 (24.8%)	4,722 (14.4%)	0.26
Resource utilization bands			
0 (non-users)	86 (5.5%)	1,183 (3.6%)	0.09
1 (healthy)	47 (3.0%)	1,005 (3.1%)	0

PUBLIC HEALTH UNIT REGION: EASTERN			
Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox & Addington Health Unit, Leeds, Grenville and Lanark District Health Unit, Ottawa Public Health, Renfrew County and District Health Unit, and Eastern Ontario Health Unit			
VARIABLE	Confirmed positive (N=1,567)	Not confirmed positive (N=32,682)	STANDARDIZED DIFFERENCE**
2 (low)	204 (13.0%)	3,996 (12.2%)	0.02
3	756 (48.2%)	15,522 (47.5%)	0.02
4	244 (15.6%)	5,867 (18.0%)	0.06
5 (high)	230 (14.7%)	5,109 (15.6%)	0.03

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Confirmed positive (N=5,051)	Not confirmed positive (N=62,961)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	56.33 ± 21.66	53.18 ± 22.39	0.14
Median (IQR)	56 (40-73)	52 (36-70)	0.14
0-<5 years*	9 (0.2%)	796 (1.3%)	0.13
5-19 years	112 (2.2%)	1,871 (3.0%)	0.05
20-29 years	549 (10.9%)	7,353 (11.7%)	0.03
30-39 years	576 (11.4%)	9,121 (14.5%)	0.09
40-49 years	693 (13.7%)	9,690 (15.4%)	0.05
50-59 years	959 (19.0%)	10,848 (17.2%)	0.05
60-69 years	721 (14.3%)	7,484 (11.9%)	0.07
70-79 years	462 (9.1%)	5,366 (8.5%)	0.02
80-89 years	596 (11.8%)	6,277 (10.0%)	0.06
90+ years	374 (7.4%)	4,155 (6.6%)	0.03
65+ years	1,710 (33.9%)	18,879 (30.0%)	0.08
85+ years	700 (13.9%)	7,572 (12.0%)	0.05
Sex			
Females	2,949 (58.4%)	40,977 (65.1%)	0.14
Males	2,102 (41.6%)	21,984 (34.9%)	0.14
Sex x Age group			
Female, age <20 years	62 (1.2%)	1,392 (2.2%)	0.08
Female, age 20-64 years	1,881 (37.2%)	28,111 (44.6%)	0.15
Female, ≥65+ years	1,006 (19.9%)	11,474 (18.2%)	0.04

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Confirmed positive (N=5,051)	Not confirmed positive (N=62,961)	STANDARDIZED DIFFERENCE**
Male, age <20 years	59 (1.2%)	1,275 (2.0%)	0.07
Male, age 20-64 years	1,339 (26.5%)	13,304 (21.1%)	0.13
Male, ≥65+ years	704 (13.9%)	7,405 (11.8%)	0.07
Rurality			
Rural	87 (1.7%)	4,249 (6.7%)	0.25
Urban	4,964 (98.3%)	58,712 (93.3%)	0.25
Neighbourhood income quintile			
1 (lowest)	756 (15.0%)	9,484 (15.1%)	0
2	1,079 (21.4%)	12,582 (20.0%)	0.03
3	1,214 (24.0%)	14,275 (22.7%)	0.03
4	1,159 (22.9%)	15,310 (24.3%)	0.03
5 (highest)	843 (16.7%)	11,310 (18.0%)	0.03
ODB seniors co-payment program enrollee (% denominator in 65+)***	360 (21.1%)	3,343 (17.7%)	0.08
Ontario Marginalization Index - Dependency quintile			
Missing information	6 (0.1%)	191 (0.3%)	0.04
5 (most marginalized)	754 (14.9%)	12,937 (20.5%)	0.15
4	571 (11.3%)	8,859 (14.1%)	0.08
3	779 (15.4%)	9,477 (15.1%)	0.01
2	1,090 (21.6%)	12,509 (19.9%)	0.04
1 (least marginalized)	1,851 (36.6%)	18,988 (30.2%)	0.14
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	6 (0.1%)	191 (0.3%)	0.04
5 (most marginalized)	782 (15.5%)	8,264 (13.1%)	0.07
4	963 (19.1%)	12,094 (19.2%)	0

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Confirmed positive (N=5,051)	Not confirmed positive (N=62,961)	STANDARDIZED DIFFERENCE**
3	1,326 (26.3%)	15,331 (24.3%)	0.04
2	1,178 (23.3%)	16,272 (25.8%)	0.06
1 (least marginalized)	796 (15.8%)	10,809 (17.2%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	6 (0.1%)	191 (0.3%)	0.04
5 (most marginalized)	2,696 (53.4%)	24,129 (38.3%)	0.31
4	1,074 (21.3%)	12,884 (20.5%)	0.02
3	607 (12.0%)	9,226 (14.7%)	0.08
2	396 (7.8%)	9,300 (14.8%)	0.22
1 (least marginalized)	272 (5.4%)	7,231 (11.5%)	0.22
Ontario Marginalization Index - Residential Instability quintile			
Missing information	6 (0.1%)	191 (0.3%)	0.04
5 (most marginalized)	653 (12.9%)	9,617 (15.3%)	0.07
4	866 (17.1%)	10,436 (16.6%)	0.02
3	724 (14.3%)	11,224 (17.8%)	0.1
2	975 (19.3%)	12,841 (20.4%)	0.03
1 (least marginalized)	1,827 (36.2%)	18,652 (29.6%)	0.14
Contact with LTC in the 90 days to testing date (or end of testing period)	994 (19.7%)	7,468 (11.9%)	0.22
Residing in a retirement home at the time of testing¹	109 (2.2%)	2,557 (4.1%)	0.11
Recent experience with homelessness	12 (0.2%)	236 (0.4%)	0.02
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	12 (2.8%)	0.24
Chronic conditions			

PUBLIC HEALTH UNIT REGION: CENTRAL EAST			
Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health Unit, Simcoe Muskoka District Health Unit, York Region Public Health Services			
VARIABLE	Confirmed positive (N=5,051)	Not confirmed positive (N=62,961)	STANDARDIZED DIFFERENCE**
Asthma****	848 (16.8%)	12,655 (20.1%)	0.09
Chronic kidney disease (including chronic dialysis)	385 (7.6%)	4,945 (7.9%)	0.01
Chronic obstructive pulmonary disease****	528 (10.5%)	7,870 (12.5%)	0.06
Dementia****	803 (15.9%)	6,902 (11.0%)	0.15
Diabetes****	1,133 (22.4%)	11,531 (18.3%)	0.1
Heart failure****	351 (6.9%)	4,063 (6.5%)	0.02
History of TIA/stroke	237 (4.7%)	2,657 (4.2%)	0.02
Hypertension****	2,155 (42.7%)	23,092 (36.7%)	0.12
Immunocompromised	75 (1.5%)	1,289 (2.0%)	0.04
Inflammatory bowel disease****	21 (0.4%)	377 (0.6%)	0.03
Ischemic heart disease	279 (5.5%)	3,640 (5.8%)	0.01
Liver disease	71 (1.4%)	1,033 (1.6%)	0.02
Rheumatoid arthritis****	89 (1.8%)	1,141 (1.8%)	0
Severe mental illness	40 (0.8%)	879 (1.4%)	0.06
Sickle cell disease	2 - 7 (<=0.1%)	52-57 (<=0.1%)	0.01
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	869 (17.2%)	9,543 (15.2%)	0.06
Resource utilization bands			
0 (non-users)	111 (2.2%)	1,386 (2.2%)	0
1 (healthy)	114 (2.3%)	1,526 (2.4%)	0.01
2 (low)	509 (10.1%)	6,292 (10.0%)	0
3	2,556 (50.6%)	29,237 (46.4%)	0.08
4	937 (18.6%)	13,015 (20.7%)	0.05
5 (high)	824 (16.3%)	11,505 (18.3%)	0.05

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Confirmed positive (N=5,170)	Not confirmed positive (N=46,560)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	59.32 ± 22.35	55.54 ± 22.60	0.17
Median (IQR)	58 (42-80)	54 (37-74)	0.16
0-<5 years*	10 (0.2%)	494 (1.1%)	0.11
5-19 years	74 (1.4%)	847 (1.8%)	0.03
20-29 years	452 (8.7%)	4,610 (9.9%)	0.04
30-39 years	603 (11.7%)	7,163 (15.4%)	0.11
40-49 years	709 (13.7%)	6,805 (14.6%)	0.03
50-59 years	855 (16.5%)	7,442 (16.0%)	0.02
60-69 years	685 (13.2%)	5,711 (12.3%)	0.03
70-79 years	456 (8.8%)	4,192 (9.0%)	0.01
80-89 years	748 (14.5%)	5,343 (11.5%)	0.09
90+ years	578 (11.2%)	3,953 (8.5%)	0.09
65+ years	2,061 (39.9%)	15,851 (34.0%)	0.12
85+ years	973 (18.8%)	6,890 (14.8%)	0.11
Sex			
Females	2,973 (57.5%)	29,065 (62.4%)	0.1
Males	2,197 (42.5%)	17,495 (37.6%)	0.1
Sex x Age group			
Female, age <20 years	37 (0.7%)	650 (1.4%)	0.07
Female, age 20-64 years	1,674 (32.4%)	18,716 (40.2%)	0.16
Female, ≥65+ years	1,262 (24.4%)	9,699 (20.8%)	0.09

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Confirmed positive (N=5,170)	Not confirmed positive (N=46,560)	STANDARDIZED DIFFERENCE**
Male, age <20 years	47 (0.9%)	691 (1.5%)	0.05
Male, age 20-64 years	1,351 (26.1%)	10,652 (22.9%)	0.08
Male, ≥65+ years	799 (15.5%)	6,152 (13.2%)	0.06
Rurality			
Urban	5,170 (100.0%)	46,560 (100.0%)	.
Neighbourhood income quintile			
1 (lowest)	2,240 (43.3%)	16,842 (36.2%)	0.15
2	1,278 (24.7%)	11,264 (24.2%)	0.01
3	743 (14.4%)	7,467 (16.0%)	0.05
4	346 (6.7%)	4,565 (9.8%)	0.11
5 (highest)	563 (10.9%)	6,422 (13.8%)	0.09
ODB seniors co-payment program enrollee (% denominator in 65+)***	537 (26.1%)	3,834 (24.2%)	0.04
Ontario Marginalization Index - Dependency quintile			
Missing information	34 (0.7%)	63 (0.1%)	0.08
5 (most marginalized)	873 (16.9%)	8,431 (18.1%)	0.03
4	718 (13.9%)	6,954 (14.9%)	0.03
3	1,120 (21.7%)	8,417 (18.1%)	0.09
2	1,104 (21.4%)	10,601 (22.8%)	0.03
1 (least marginalized)	1,321 (25.6%)	12,094 (26.0%)	0.01
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	34 (0.7%)	63 (0.1%)	0.08
5 (most marginalized)	2,005 (38.8%)	14,491 (31.1%)	0.16
4	1,272 (24.6%)	10,635 (22.8%)	0.04
3	739 (14.3%)	6,686 (14.4%)	0

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Confirmed positive (N=5,170)	Not confirmed positive (N=46,560)	STANDARDIZED DIFFERENCE**
2	489 (9.5%)	5,598 (12.0%)	0.08
1 (least marginalized)	631 (12.2%)	9,087 (19.5%)	0.2
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	34 (0.7%)	63 (0.1%)	0.08
5 (most marginalized)	3,023 (58.5%)	23,643 (50.8%)	0.15
4	1,296 (25.1%)	13,617 (29.2%)	0.09
3	612 (11.8%)	7,183 (15.4%)	0.1
2	182 (3.5%)	1,704 (3.7%)	0.01
1 (least marginalized)	23 (0.4%)	350 (0.8%)	0.04
Ontario Marginalization Index - Residential Instability quintile			
Missing information	34 (0.7%)	63 (0.1%)	0.08
5 (most marginalized)	2,425 (46.9%)	24,126 (51.8%)	0.1
4	1,135 (22.0%)	9,040 (19.4%)	0.06
3	734 (14.2%)	5,916 (12.7%)	0.04
2	597 (11.5%)	4,699 (10.1%)	0.05
1 (least marginalized)	245 (4.7%)	2,716 (5.8%)	0.05
Contact with LTC in the 90 days to testing date (or end of testing period)	1,430 (27.7%)	6,986 (15.0%)	0.31
Residing in a retirement home at the time of testing¹	158 (3.1%)	1,797 (3.9%)	0.04
Recent experience with homelessness	27 (0.5%)	608 (1.3%)	0.08
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	11 (3.8%)	0.28
Chronic conditions			
Asthma****	794 (15.4%)	8,330 (17.9%)	0.07

PUBLIC HEALTH UNIT REGION: TORONTO			
Toronto Public Health			
VARIABLE	Confirmed positive (N=5,170)	Not confirmed positive (N=46,560)	STANDARDIZED DIFFERENCE**
Chronic kidney disease (including chronic dialysis)	503 (9.7%)	4,846 (10.4%)	0.02
Chronic obstructive pulmonary disease****	625 (12.1%)	6,273 (13.5%)	0.04
Dementia****	1,186 (22.9%)	6,871 (14.8%)	0.21
Diabetes****	1,332 (25.8%)	9,918 (21.3%)	0.11
Heart failure****	474 (9.2%)	4,002 (8.6%)	0.02
History of TIA/stroke	307 (5.9%)	2,305 (5.0%)	0.04
Hypertension****	2,435 (47.1%)	18,915 (40.6%)	0.13
Immunocompromised	95 (1.8%)	1,408 (3.0%)	0.08
Inflammatory bowel disease****	13 (0.3%)	219 (0.5%)	0.04
Ischemic heart disease	311 (6.0%)	3,092 (6.6%)	0.03
Liver disease	82 (1.6%)	923 (2.0%)	0.03
Rheumatoid arthritis****	79 (1.5%)	716 (1.5%)	0
Severe mental illness	56 (1.1%)	967 (2.1%)	0.08
Sickle cell disease	6 (0.1%)	67 (0.1%)	0.01
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	1,418 (27.4%)	9,619 (20.7%)	0.16
Resource utilization bands			
0 (non-users)	160 (3.1%)	1,177 (2.5%)	0.03
1 (healthy)	144 (2.8%)	1,064 (2.3%)	0.03
2 (low)	502 (9.7%)	4,342 (9.3%)	0.01
3	2,426 (46.9%)	20,404 (43.8%)	0.06
4	921 (17.8%)	9,314 (20.0%)	0.06
5 (high)	1,017 (19.7%)	10,259 (22.0%)	0.06

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Confirmed positive (N=1,225)	Not confirmed positive (N=22,529)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	56.44 ± 22.17	54.31 ± 22.85	0.09
Median (IQR)	56 (39-74)	54 (36-73)	0.09
0-<5 years*	<=5 (<=0.4%)	246 - 251 (1.1%)	0.1
5-19 years	19 (1.6%)	708 (3.1%)	0.11
20-29 years	149 (12.2%)	2,700 (12.0%)	0.01
30-39 years	142 (11.6%)	3,201 (14.2%)	0.08
40-49 years	160 (13.1%)	2,994 (13.3%)	0.01
50-59 years	225 (18.4%)	3,598 (16.0%)	0.06
60-69 years	172 (14.0%)	2,651 (11.8%)	0.07
70-79 years	109 (8.9%)	2,332 (10.4%)	0.05
80-89 years	136 (11.1%)	2,535 (11.3%)	0
90+ years	108 - 113 (8.8 - 9.2%)	1,559 - 1,564 (6.9%)	0.08
65+ years	424 (34.6%)	7,585 (33.7%)	0.02
85+ years	182 (14.9%)	2,894 (12.8%)	0.06
Sex			
Females	749 (61.1%)	14,667 (65.1%)	0.08
Males	476 (38.9%)	7,862 (34.9%)	0.08
Sex x Age group			
Female, age <20 years	12 (1.0%)	519 (2.3%)	0.1
Female, age 20-64 years	481 (39.3%)	9,592 (42.6%)	0.07
Female, ≥65+ years	256 (20.9%)	4,556 (20.2%)	0.02

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Confirmed positive (N=1,225)	Not confirmed positive (N=22,529)	STANDARDIZED DIFFERENCE**
Male, age <20 years	10 (0.8%)	437 (1.9%)	0.1
Male, age 20-64 years	298 (24.3%)	4,396 (19.5%)	0.12
Male, ≥65+ years	168 (13.7%)	3,029 (13.4%)	0.01
Rurality			
Rural	122 (10.0%)	4,559 (20.2%)	0.29
Urban	1,103 (90.0%)	17,970 (79.8%)	0.29
Neighbourhood income quintile			
1 (lowest)	268 (21.9%)	5,005 (22.2%)	0.01
2	214 (17.5%)	4,494 (19.9%)	0.06
3	305 (24.9%)	4,446 (19.7%)	0.12
4	224 (18.3%)	4,727 (21.0%)	0.07
5 (highest)	214 (17.5%)	3,856 (17.1%)	0.01
ODB seniors co-payment program enrollee (% denominator in 65+)**	45 (10.6%)	996 (13.1%)	0.08
Ontario Marginalization Index - Dependency quintile			
Missing information	8 (0.7%)	82 (0.4%)	0.04
5 (most marginalized)	356 (29.1%)	6,465 (28.7%)	0.01
4	249 (20.3%)	4,840 (21.5%)	0.03
3	251 (20.5%)	4,752 (21.1%)	0.01
2	222 (18.1%)	3,983 (17.7%)	0.01
1 (least marginalized)	139 (11.3%)	2,407 (10.7%)	0.02
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	8 (0.7%)	82 (0.4%)	0.04
5 (most marginalized)	320 (26.1%)	5,506 (24.4%)	0.04
4	171 (14.0%)	4,158 (18.5%)	0.12

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Confirmed positive (N=1,225)	Not confirmed positive (N=22,529)	STANDARDIZED DIFFERENCE**
3	175 (14.3%)	3,639 (16.2%)	0.05
2	326 (26.6%)	4,627 (20.5%)	0.14
1 (least marginalized)	225 (18.4%)	4,517 (20.0%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	8 (0.7%)	82 (0.4%)	0.04
5 (most marginalized)	134 (10.9%)	1,674 (7.4%)	0.12
4	204 (16.7%)	3,223 (14.3%)	0.06
3	329 (26.9%)	4,859 (21.6%)	0.12
2	284 (23.2%)	6,211 (27.6%)	0.1
1 (least marginalized)	266 (21.7%)	6,480 (28.8%)	0.16
Ontario Marginalization Index - Residential Instability quintile			
Missing information	8 (0.7%)	82 (0.4%)	0.04
5 (most marginalized)	263 (21.5%)	5,127 (22.8%)	0.03
4	266 (21.7%)	5,036 (22.4%)	0.02
3	276 (22.5%)	4,792 (21.3%)	0.03
2	230 (18.8%)	4,346 (19.3%)	0.01
1 (least marginalized)	182 (14.9%)	3,146 (14.0%)	0.03
Contact with LTC in the 90 days to testing date (or end of testing period)	197 (16.1%)	3,026 (13.4%)	0.07
Residing in a retirement home at the time of testing¹	53 (4.3%)	954 (4.2%)	0
Recent experience with homelessness	<=5 (<=0.4%)	156-161 (0.7%)	0.07
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	<=5 (<=3.4%)	0.27
Chronic conditions			

PUBLIC HEALTH UNIT REGION: SOUTH WEST			
Southwestern Health Unit, Grey Bruce Health Unit, Huron Perth Health Unit, Chatham-Kent Health Unit, Lambton Health Unit, Middlesex-London Health Unit, Windsor-Essex County Health Unit			
VARIABLE	Confirmed positive (N=1,225)	Not confirmed positive (N=22,529)	STANDARDIZED DIFFERENCE**
Asthma****	172 (14.0%)	4,040 (17.9%)	0.11
Chronic kidney disease (including chronic dialysis)	77 (6.3%)	1,900 (8.4%)	0.08
Chronic obstructive pulmonary disease****	185 (15.1%)	3,999 (17.8%)	0.07
Dementia****	141 (11.5%)	2,389 (10.6%)	0.03
Diabetes****	232 (18.9%)	4,213 (18.7%)	0.01
Heart failure****	73 (6.0%)	1,827 (8.1%)	0.08
History of TIA/stroke	80 (6.5%)	1,201 (5.3%)	0.05
Hypertension****	487 (39.8%)	8,747 (38.8%)	0.02
Immunocompromised	31 (2.5%)	617 (2.7%)	0.01
Inflammatory bowel disease****	<=5 (<=0.4%)	156 - 161 (0.7%)	0.05
Ischemic heart disease	61 (5.0%)	1,473 (6.5%)	0.07
Liver disease	15 (1.2%)	444 (2.0%)	0.06
Rheumatoid arthritis****	16 (1.3%)	401 (1.8%)	0.04
Severe mental illness	15 (1.2%)	469 (2.1%)	0.07
Sickle cell disease	0 (0.0%)	9 (0.0%)	0.03
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	179 (14.6%)	3,648 (16.2%)	0.04
Resource utilization bands			
0 (non-users)	39 (3.2%)	718 (3.2%)	0
1 (healthy)	41 (3.3%)	657 (2.9%)	0.02
2 (low)	130 (10.6%)	2,349 (10.4%)	0.01
3	592 (48.3%)	10,026 (44.5%)	0.08
4	230 (18.8%)	4,228 (18.8%)	0
5 (high)	193 (15.8%)	4,551 (20.2%)	0.12

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Confirmed positive (N=2,258)	Not confirmed positive (N=43,602)	STANDARDIZED DIFFERENCE**
	N (%)	N (%)	
SOCIODEMOGRAPHIC CHARACTERISTICS			
Age			
Mean ± SD	56.49 ± 22.87	52.42 ± 22.73	0.18
Median (IQR)	55 (39-75)	51 (35-69)	0.17
0-<5 years*	12 (0.5%)	791 (1.8%)	0.12
5-19 years	64 (2.8%)	1,549 (3.6%)	0.04
20-29 years	268 (11.9%)	5,029 (11.5%)	0.01
30-39 years	233 (10.3%)	6,522 (15.0%)	0.14
40-49 years	327 (14.5%)	6,594 (15.1%)	0.02
50-59 years	372 (16.5%)	7,283 (16.7%)	0.01
60-69 years	286 (12.7%)	5,052 (11.6%)	0.03
70-79 years	214 (9.5%)	3,830 (8.8%)	0.02
80-89 years	272 (12.0%)	4,249 (9.7%)	0.07
90+ years	210 (9.3%)	2,703 (6.2%)	0.12
65+ years	810 (35.9%)	12,961 (29.7%)	0.13
85+ years	360 (15.9%)	4,960 (11.4%)	0.13
Sex			
Females	1,328 (58.8%)	28,616 (65.6%)	0.14
Males	930 (41.2%)	14,986 (34.4%)	0.14
Sex x Age group			
Female, age <20 years	40 (1.8%)	1,220 (2.8%)	0.07
Female, age 20-64 years	793 (35.1%)	19,524 (44.8%)	0.2

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Confirmed positive (N=2,258)	Not confirmed positive (N=43,602)	STANDARDIZED DIFFERENCE**
Female, ≥65+ years	495 (21.9%)	7,872 (18.1%)	0.1
Male, age <20 years	36 (1.6%)	1,120 (2.6%)	0.07
Male, age 20-64 years	579 (25.6%)	8,777 (20.1%)	0.13
Male, ≥65+ years	315 (14.0%)	5,089 (11.7%)	0.07
Rurality			
Rural	233 (10.3%)	2,993 (6.9%)	0.12
Urban	2,025 (89.7%)	40,609 (93.1%)	0.12
Neighbourhood income quintile			
1 (lowest)	444 (19.7%)	9,041 (20.7%)	0.03
2	407 (18.0%)	7,980 (18.3%)	0.01
3	485 (21.5%)	8,936 (20.5%)	0.02
4	393 (17.4%)	8,281 (19.0%)	0.04
5 (highest)	529 (23.4%)	9,364 (21.5%)	0.05
ODB seniors co-payment program enrollee (% denominator in 65+)***	118 (14.6%)	1,726 (13.3%)	0.04
Ontario Marginalization Index - Dependency quintile			
Missing information	18 (0.8%)	237 (0.5%)	0.03
5 (most marginalized)	460 (20.4%)	10,672 (24.5%)	0.1
4	391 (17.3%)	7,694 (17.6%)	0.01
3	432 (19.1%)	7,356 (16.9%)	0.06
2	416 (18.4%)	8,069 (18.5%)	0
1 (least marginalized)	541 (24.0%)	9,574 (22.0%)	0.05
Ontario Marginalization Index - Material Deprivation quintile			
Missing information	18 (0.8%)	237 (0.5%)	0.03

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Confirmed positive (N=2,258)	Not confirmed positive (N=43,602)	STANDARDIZED DIFFERENCE**
5 (most marginalized)	369 (16.3%)	8,063 (18.5%)	0.06
4	343 (15.2%)	7,332 (16.8%)	0.04
3	527 (23.3%)	8,233 (18.9%)	0.11
2	451 (20.0%)	8,339 (19.1%)	0.02
1 (least marginalized)	550 (24.4%)	11,398 (26.1%)	0.04
Ontario Marginalization Index - Ethnic Concentration quintile			
Missing information	18 (0.8%)	237 (0.5%)	0.03
5 (most marginalized)	312 (13.8%)	4,963 (11.4%)	0.07
4	426 (18.9%)	9,451 (21.7%)	0.07
3	505 (22.4%)	10,602 (24.3%)	0.05
2	694 (30.7%)	11,292 (25.9%)	0.11
1 (least marginalized)	303 (13.4%)	7,057 (16.2%)	0.08
Ontario Marginalization Index - Residential Instability quintile			
Missing information	18 (0.8%)	237 (0.5%)	0.03
5 (most marginalized)	483 (21.4%)	9,312 (21.4%)	0
4	497 (22.0%)	9,607 (22.0%)	0
3	438 (19.4%)	8,716 (20.0%)	0.01
2	414 (18.3%)	7,876 (18.1%)	0.01
1 (least marginalized)	408 (18.1%)	7,854 (18.0%)	0
Contact with LTC in the 90 days to testing date (or end of testing period)			
	353 (15.6%)	4,833 (11.1%)	0.13
Residing in a retirement home at the time of testing ¹			
	211 (9.3%)	1,931 (4.4%)	0.2
Recent experience with homelessness			
	<=5 (<=0.3%)	245-250 (0.6%)	0.08

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Confirmed positive (N=2,258)	Not confirmed positive (N=43,602)	STANDARDIZED DIFFERENCE**
CLINICAL CHARACTERISTICS			
Preterm (gestational age <32 weeks) (% denominator in 0-<2 years)	0 (0.0%)	8 (1.7%)	0.19
Chronic conditions			
Asthma****	355 (15.7%)	8,093 (18.6%)	0.08
Chronic kidney disease (including chronic dialysis)	149 (6.6%)	3,010 (6.9%)	0.01
Chronic obstructive pulmonary disease****	281 (12.4%)	5,894 (13.5%)	0.03
Dementia****	287 (12.7%)	4,185 (9.6%)	0.1
Diabetes****	431 (19.1%)	7,017 (16.1%)	0.08
Heart failure****	198 (8.8%)	3,071 (7.0%)	0.06
History of TIA/stroke	135 (6.0%)	1,958 (4.5%)	0.07
Hypertension****	907 (40.2%)	15,203 (34.9%)	0.11
Immunocompromised	40 (1.8%)	1,043 (2.4%)	0.04
Inflammatory bowel disease****	12 (0.5%)	295 (0.7%)	0.02
Ischemic heart disease	165 (7.3%)	2,646 (6.1%)	0.05
Liver disease	27 (1.2%)	643 (1.5%)	0.02
Rheumatoid arthritis****	25 (1.1%)	914 (2.1%)	0.08
Severe mental illness	24 (1.1%)	678 (1.6%)	0.04
Sickle cell disease	0 (0.0%)	20 (0.0%)	0.03
Persons with medical conditions associated with frailty			
Johns Hopkins ACG System Medically Frail Condition Marker	390 (17.3%)	6,345 (14.6%)	0.07
Resource utilization bands			
0 (non-users)	88 (3.9%)	1,175 (2.7%)	0.07
1 (healthy)	78 (3.5%)	1,311 (3.0%)	0.03

PUBLIC HEALTH UNIT REGION: CENTRAL WEST			
Brant County Health Unit, Haldimand-Norfolk Health Unit, Halton Region Health Department, Hamilton Public Health Services, Niagara Region Public Health Department, Region of Waterloo Public Health, Wellington-Dufferin-Guelph Health Unit			
VARIABLE	Confirmed positive (N=2,258)	Not confirmed positive (N=43,602)	STANDARDIZED DIFFERENCE**
2 (low)	252 (11.2%)	4,941 (11.3%)	0.01
3	1,087 (48.1%)	20,079 (46.1%)	0.04
4	416 (18.4%)	8,487 (19.5%)	0.03
5 (high)	337 (14.9%)	7,609 (17.5%)	0.07

¹ Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.

* Excludes tests for a small number of newborns who were not yet entered into the OHIP Registered Persons Database.

** Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are meaningful differences.²

*** Single senior with annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses 65 or older) with annual income of \$32,300 or less (after taxes).³

**** These chronic conditions are identified using validated algorithms in ICES data holdings. The latest diagnosis date is March 31, 2019.

Appendix 2.0 Methods

Study period

The observation period started on January 15, 2020, to align with the COVID-19 surveillance period in Ontario, Canada. For this report, we included all individuals tested for COVID-19 to April 30, 2020.

Study population

We identified a cohort of individuals alive, eligible for the Ontario Health Insurance Plan (OHIP) and residing in Ontario as of the start of the observation period using the Registered Persons Database (RPDB). We created a cumulative population cohort, in which we retained individuals who died and included individuals who were born during the observation period based on RPDB updates. We linked COVID-19 laboratory results from the Ontario Laboratories Information System (OLIS) database and identified individuals who were ever tested for COVID-19 in our population cohort. Individuals tested for COVID-19 whose tests were not linked were excluded from the analysis (n=907).

Analyses

Using COVID-19 testing results, we identified unique COVID-19 testing days per individual (i.e., testing episodes), and selected one testing episode per individual based on a hierarchy (i.e., the earliest testing episode where the individual was confirmed positive for COVID-19, or their earliest episode where the results were indeterminate, or earliest episode where the individual tested negative COVID-19).

We assigned an index date to all individuals in the study population to measure sociodemographic and clinical characteristics during the period to be eligible for COVID-19 testing in Ontario. To ensure consistent look-back periods to identify characteristics between individuals tested for COVID-19 and those who were not, we determined the index based on the most recent date of data availability (March 31, 2020) for selected health administrative databases. For individuals tested for COVID-19 prior to March 31, 2020 and individuals who died before this date, we used the date of their selected testing episode or death date as their index date. For individuals tested after March 31, 2020 and individuals who were not tested by the end of the study period, we used March 31, 2020 as their index date.

We used multiple health administrative databases to identify sociodemographic and clinical characteristics as of the index date (see Appendices 3-5 for definitions and codes). We calculated standardized differences to compare characteristics of individuals tested for COVID-19 during the study period with those in the population cohort who remained untested by the end of the study period. In addition, we compared individuals confirmed positive for COVID-19 with those who were tested but not confirmed positive (i.e., negative, indeterminate or pending results). Standardized differences are not sensitive to large differences in sample sizes between groups, and values greater than 0.1 are considered to be meaningful differences.²

Limitations

The OLIS COVID-19 test data used in this report are current to May 6, 2020. For this report, the date of the testing episode represents the date of specimen collection. Due to the time required for transportation and processing of specimens, it takes 6 days for approximately 95% of results to be finalized and reported into OLIS for a given testing date.

OLIS is a transactional database and not all laboratories in Ontario contributed their COVID-19 testing data to OLIS. Among the laboratories that contributed, some did not contribute for the full time period covered by the study. Also, unconsented test results were excluded from the study. As a result, we are likely to be under-reporting the number of individuals tested during the study period.

Characterization of the tested cohort required linkage to the RPDB, which for this analysis included individuals born by March 31, 2020 and recorded in the RPDB. As a result, we are underestimating the number of young children tested for COVID-19.

Appendix 3.0 Data sets

The following data sets from the ICES Data Repository were used to compile this report.

ASTHMA

The Ontario Asthma Database is an ICES-derived cohort that is created using a definition of 2 or more physician billing claims with a diagnosis of asthma (OHIP diagnosis code: 493) and/or 1 or more inpatient hospitalization or same day surgery records with a diagnosis of asthma (ICD-9 diagnosis code 493; ICD-10 diagnosis codes J45, J46; in any diagnostic code space) in a 2-year period applied to hospitalization (DAD), same day surgery (SDS), and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of asthma in Ontario.

Continuing Care Reporting System (CCRS)

The CCRS database is compiled by the Canadian Institute for Health Information. It contains demographic, clinical, functional and resource utilization information for individuals receiving hospital-based continuing care (also known as extended, auxiliary or complex chronic care) and residential care that provides 24-hour nursing services (i.e., nursing homes). Clinical assessment data (on the physical, functional, cognitive and social domains of health) are ascertained using the Resident Assessment Instrument Minimum Data Set (RAI-MsADS), version 2.0, which is administered by trained health care professionals.

CHF

The Ontario Congestive Heart Failure Database is an ICES-derived cohort that was created using a definition of 2 or more physician billing claims with a diagnosis of CHF (OHIP diagnosis code 428) and/or 1 or more inpatient hospitalization or same day surgery records with a diagnosis of CHF (ICD-9 diagnosis code 428; ICD-10 diagnosis code I50; in the primary diagnostic code space) in a 2-year period applied to hospitalization (DAD), same day surgery (SDS), and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of CHF in Ontario.

COPD

The Ontario COPD Database is an ICES-derived cohort that is created using two separate algorithms applied to inpatient hospitalization (DAD), same day surgery (SDS) records, and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of COPD in Ontario. In an algorithm which maximizes sensitivity, the definition for COPD is any physician billing claim with a diagnosis of COPD (OHIP diagnosis codes 491, 492, 496) or any inpatient hospitalization or same day surgery record with a diagnosis of COPD (ICD-9 diagnosis codes 491, 492, 496; ICD-10 diagnosis codes J41–J44; in any diagnostic code space).

Canadian Organ Replacement Register (CORR)

The Canadian Organ Replacement Register (CORR) is the national information system, which records and analyzes the level of activity and outcome of vital organ transplantation and renal dialysis activities. At ICES, we have access only to the data of donors and recipients treated in Ontario. Ontario residents receiving treatment outside Ontario would not appear in our data cut.

Discharge Abstract Database (DAD)

The DAD is compiled by the Canadian Institute for Health Information and contains administrative, clinical (diagnoses and procedures/interventions), demographic and administrative information for all admissions to acute care hospitals and rehabilitation, chronic care and day-surgery institutions in Ontario. At ICES, consecutive DAD records are linked together to form 'episodes of care' among the hospitals to which patients have been transferred after their initial admission.

Druglist (DIN)

The DIN file contains a near exhaustive list of drug identification numbers used in Canada from 1990 forward. Contains information on drug and product names (generic and trade names), subclass information, PCG codes, drug strength, route of administration, and first and last dispensing dates from ODB. ICES thanks IMS Brogan Inc. for use of their Drug Information Database.

HIV

The Ontario HIV Database is an ICES-derived cohort that is created using a definition of 3 or more physician billing claims with a diagnosis of HIV (OHIP diagnosis codes 042, 043, 044) in a 3-year period applied to physician billing claims (OHIP) data to determine the diagnosis date for incident cases of HIV in Ontario.

HYPER

The Ontario Hypertension Database is an ICES-derived cohort and created using a definition of 2 or more physician billing claims with a diagnosis of hypertension (OHIP diagnosis codes 401-405) and/or 1 or more inpatient hospitalization or same day surgery records with a diagnosis of hypertension (ICD-9 diagnosis codes 401–405; ICD-10 diagnosis codes I10–I13, I15; in any diagnostic code space) in a two-year period applied to hospitalization (DAD), same day surgery (SDS), and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of hypertension in Ontario. Physician claims and hospitalizations with a diagnosis of hypertension occurring within 120 prior to and 180 days after a gestational hospitalization record are excluded.

ICES Physician Database (IPDB)

The IPDB provides information about all physicians who have practiced in Ontario and is comprised of data contained in the OHIP Claims History Database, the OHIP Corporate Provider Database (CPDB), and the Ontario Physician Human Resource Data Centre (OPHRDC) Database. The database contains information on demographics (age, gender, year of graduation, school of graduation), specialty (functional and certified), location of practice, and measures of physician activity (billings and workload data).

INST

The Institution Information System (INST) database contains information on health care institutions funded by the Ministry of Health. Data holdings include information on beds available in acute care hospitals, lookup tables between AMINST and INST, and acute care hospitals (geographic information, number of OHIP claims, etc.).

Local Health Integration Network (LHIN)

The LHIN database contains data on LHIN information tables, Dissemination Areas, LHIN/sub-LHIN population estimates and projections, and postal code lookup tables.

National Ambulatory Care Reporting System (NACRS)

NACRS is compiled by the Canadian Institute for Health Information. It contains administrative, clinical (diagnoses and procedures), demographic and administrative information for all patient visits made to hospital- and community-based ambulatory care centres (emergency departments, day surgery units, hemodialysis units and cancer care clinics). At ICES, NACRS records are linked with other data sources (DAD, OMHRS) to identify transitions to other care settings, such as inpatient acute care or psychiatric care.

Ontario Crohn's and Colitis Cohort (OCCC)

The Ontario Crohn's and Colitis Cohort Database includes all Ontario patients identified with Crohn's disease or ulcerative colitis (i.e., inflammatory bowel disease) when they were younger than 105 years.

Ontario Drug Benefit Claims (ODB)

The ODB database contains prescription medication claims for individuals covered under the provincial drug program, mainly those aged 65 years and older, nursing home residents, patients receiving services under the Ontario Home Care Program, social assistance recipients and residents eligible for specialized drug programs. Main data elements include drug identifier, quantity, number of days supplied, date dispensed, cost, and patient, pharmacy and physician identifiers.

Ontario Diabetes Database (ODD)

The Ontario Diabetes Database is an ICES-derived cohort created by using algorithms applied to inpatient hospitalization (DAD) records, same day surgery (SDS) records, and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of diabetes in Ontario. For adults aged 19 years and older, the definition for diabetes is 2 physician billing claims with a diagnosis of diabetes (OHIP diagnosis code 250) or 1 inpatient hospitalization or same day surgery record with a diagnosis of diabetes (ICD-9 diagnosis code 250; ICD-10 diagnosis codes E10, E11, E13, E14; in any diagnostic code space) within a 2-year period. Physician claims and hospitalizations with a diagnosis of diabetes occurring within 120 days prior to and 180 days after a gestational hospitalization record were excluded.

Ontario Health Insurance Plan (OHIP)

The OHIP claims database contains information on inpatient and outpatient services provided to Ontario residents eligible for the province's publicly funded health insurance system by fee-for-service health care practitioners (primarily physicians) and "shadow billings" for those paid through non-fee-for-service payment plans. The main data elements include patient and physician identifiers (encrypted), code for service provided, date of service, associated diagnosis and fee paid.

Ontario Laboratories Information System (OLIS)

The Ontario Laboratories Information System contains laboratory information collected from eHealth Ontario, submitted from all Public Health Ontario laboratories. As of August 2016, OLIS had completed connections with additional hospital laboratories in 13 of the 14 LHINs. The OLIS data set consist of information on lab orders, test requests and observations.

Ontario Mental Health Reporting System (OMHRS)

OMHRS is compiled by the Canadian Institute for Health Information and contains administrative, clinical (diagnoses and procedures), demographic, and administrative information for all admissions to adult designated inpatient mental health beds. This includes beds in general hospitals, provincial psychiatric facilities and specialty psychiatric facilities. Clinical assessment data is ascertained using the Resident Assessment Instrument for Mental Health (RAI-MH), but different amounts of information are collected using this instrument depending on the length of stay in the mental health bed. Multiple assessments may occur during the length of a mental health admission.

Ontario Marginalization Index (ONMARG)

ONMARG is a geographically (census) based index developed to quantify the degree of marginalization occurring across the province of Ontario. It is comprised of four major dimensions thought to underlie the construct of marginalization: residential instability, material deprivation, dependency, and ethnic concentration. The data set contains census divisions (CDs), census tracts (CTs), census subdivisions (CSDs), consolidated municipal service manager areas (CMSMs), public health units (PHUs), Local Health Integration Networks (LHINs), sub-LHINs, and dissemination areas (DAs).

Ontario Rheumatoid Arthritis Database (ORAD)

The Ontario Rheumatoid Arthritis Database is an ICES-derived cohort created using a definition of 3 or more physician billing claims (at least 1 of which was billed by a musculoskeletal specialist) with a diagnosis of rheumatoid arthritis (OHIP diagnosis code 714) and/or 1 or more inpatient hospitalization or same day surgery records with a diagnosis of rheumatoid arthritis (ICD-9 diagnosis code 714; ICD-10 diagnosis codes M05, M06; in any diagnostic code space) in a 2-year period applied to hospitalization (DAD), same day surgery (SDS), and physician billing claims (OHIP) data to determine the diagnosis date for incident cases of rheumatoid arthritis in Ontario.

Postal Code Conversion File (PCCF)

The PCCF database will link to postal codes within a given cohort and determine other census geographic identifiers, such as dissemination/enumeration area, census division, longitude/latitude, urban/rural flag and neighbourhood income quintile.

Registered Persons Database (RPDB)

The RPDB provides basic demographic information (age, sex, location of residence, date of birth, and date of death for deceased individuals) for those issued an Ontario health insurance number. The RPDB also indicates the time periods for which an individual was eligible to receive publicly funded health insurance benefits and the best-known postal code for each registrant on July 1 of each year.

Same Day Surgery (SDS)

The SDS is compiled by the Canadian Institute for Health Information and contains administrative, clinical (diagnoses and procedures), demographic and administrative information for all patient visits made to day-surgery institutions in Ontario. The main data elements include patient demographics, clinical data (diagnoses, procedures, physician), administrative data (institution/hospital number, etc.), financial data, and service-specific data elements for day surgery.

The following external data sets were imported and linked to the ICES Data Repository for this report:

List of retirement homes and addresses

To identify individuals living in retirement homes at the time of COVID-19 testing, a list was obtained of retirement homes and addresses from the Retirement Homes Regulatory Authority (RHRA).

Appendix 4.0 Definitions used in this report

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Age	<p>Age was calculated as of index date (the COVID-19 testing date or March 31, 2020, for individuals not tested during the reporting period) using date of birth recorded in the RPDB.</p> <ul style="list-style-type: none"> • 0–<2 years • 2–<5 years • 5–19 years • 20–29 years • 30–39 years • 40–49 years • 50–59 years • 60–69 years • 70–79 years • 80–89 years • ≥90 years • ≥65 years • ≥85 years 	<p>Registered Persons Database (March 31, 2020)</p> <p>Birth and death dates are up to date to March 31, 2020. There is a delay in reporting deaths to the Ministry of Health, and information can change with subsequent RPDB updates.</p> <p>Infants born after March 31 are not included.</p>	
Sex	<p>Sex was determined using the RPDB.</p> <ul style="list-style-type: none"> • Males • Females 	Registered Persons Database (March 31, 2020)	
Location of residence	<p>Location of residence was determined based on the individual's postal code recorded in RPDB, and in the PCCF, which maps postal codes regional areas.</p> <ul style="list-style-type: none"> • Rural • Urban • Missing information 	<p>Registered Persons Database (March 31, 2020)</p> <p>Postal Code Conversion File</p>	
Public Health Unit of residence	<p>Public health unit associated with the residence was determined based on the individual's postal code recorded in RPDB, and in the PCCF, which maps postal codes regional areas.</p>	<p>Registered Persons Database (March 31, 2020)</p> <p>Postal Code Conversion File</p>	

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Local Health Integration Network (LHIN) of residence	The LHIN associated with the residence was determined based on the individual's postal code recorded in the RPDB, and in the PCCF, which maps regional areas by postal code.	Registered Persons Database (March 31, 2020) Postal Code Conversion File	
Neighbourhood income quintile	Neighbourhood-based income was determined using methods developed by Statistics Canada, where income was adjusted for household and community size so that each dissemination area (DA) would have 20% of its population in each income quintile. Individuals' postal codes were matched to DAs, and individuals were categorized based on the corresponding neighbourhood income quintile of that DA. <ul style="list-style-type: none"> • Quintile 1 (lowest) • Quintile 2 • Quintile 3 • Quintile 4 • Quintile 5 (highest) • Missing information 	Registered Persons Database (March 31, 2020) Postal Code Conversion File	
Seniors Co-Payment Program enrollee	Individuals aged 65 or older as of the index date and who had a prescription medication billing in the previous year with an Ontario Drug Benefit program plan code indicative of being enrolled in the Senior Co-Payment Program. A single senior adult with an annual income of \$19,300 or less (after taxes), or a senior couple (one or both spouses aged 65 or older) with an annual income of \$32,300 or less (after taxes) are eligible for this program. This characteristic is an individual-level measure of economic status.	Ontario Drug Benefit Claims (March 31, 2020)	https://www.ontario.ca/page/get-coverage-prescription-drugs#%23_Single_person_with_1

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Ontario Marginalization (ON-MARG)	<p>The ON-Marg consists of 4 dimensions (residential instability, material deprivation, dependency and ethnic concentration). Each dimension is measured at the DA-level, consistent with neighbourhood income quintile, using information from the census and weighted using weights obtained to calculate factor scores, which are standardized across Canada. Quintiles are created by placing 20% of the geographic units in the province into each quintile.</p> <ul style="list-style-type: none"> • Quintile 1 (least marginalized) • Quintile 2 • Quintile 3 • Quintile 4 • Quintile 5 (most marginalized) • Missing information <p>The census variables and indicators used to define the Residential Instability dimension include the following:</p> <ul style="list-style-type: none"> • Proportion of the population living alone • Proportion of the population who are not youth (age 5-15) • Average number of persons per dwelling • Proportion of the dwellings that are apartment buildings • Proportion of the population who are single/divorced/widowed • Proportion of dwellings that are not owned • Proportion of the population who moved during the past 5 years <p>The census variables and indicators used to define the Material Deprivation dimension include the following:</p> <ul style="list-style-type: none"> • Proportion of families who are lone-parent families • Proportion of the population aged 20+ without a high-school diploma 	<p>Registered Persons Database (March 31, 2020)</p> <p>Postal Code Conversion File</p>	<p>Matheson FI, van Ingen T. 2016 Ontario marginalization index: user guide. Toronto, ON: St. Michael's Hospital; 2018. Joint publication with Public Health Ontario. Available at: https://www.publichealthontario.ca/-/media/documents/o/2017/on-marg-userguide.pdf?la=en</p>

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
	<ul style="list-style-type: none"> Proportion of total income from government transfer payments for population aged 15+ Proportion of the population aged 15+ who are unemployed Proportion of the population considered low-income Proportion of households living in dwellings that are in need of major repair <p>The census variables and indicators used to define the Dependency dimension include the following:</p> <ul style="list-style-type: none"> Proportion of the population who are aged 65 and older Dependency ratio (total population 0-14 and 65+ / total population 15 to 64) Proportion of the population not participating in labour force (aged 15+) <p>The census variables and indicators used to define the Ethnic Concentration dimension include the following:</p> <ul style="list-style-type: none"> Proportion of the population who are recent immigrants (arrived in the past 5 years) Proportion of the population who self-identify as a visible minority 		
Contact with a long-term care home or nursing home institution in the past 90 days	<p>Individuals who had either an OHIP physician billing or prescription drug billed in a long-term care (LTC) or nursing home in the 90 days prior to index date, or a Resident Assessment Instrument (RAI) completed in LTC between September and December 2019 were identified to have been in contact with LTC, which is currently being used as a proxy measuring for identify LTC residents at the time of COVID-19 testing.</p> <p>Facility information was determined using the institution number from the OHIP billing in LTC, or the institution number associated with the RAI assessment. Prescription billings do not currently have</p>	<p>Ontario Health Insurance Plan (March 31, 2020)</p> <p>Ontario Drug Benefit Claims (March 31, 2020)</p> <p>Continuing Care Reporting System (December 2019)</p>	

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
	facility-level information to identify the facility in which the individual received care.		
Residing in a retirement home at the time of testing	Individuals were identified as residing in a retirement home if the street address recorded on the OLIS testing data corresponded with a known retirement home.	Ontario Laboratories Information System (April 30, 2020) Address List from Retirement Homes Regulatory Authority (April 13, 2020)	
Recent experience with homelessness	<p>Individuals who in the 2019 calendar year visited an emergency department or were admitted to a hospital, and for whom the health encounter abstract had an indication of homelessness (with or without shelter), inadequate housing, or supporting housing, based on diagnosis codes, residential status, and living arrangements at discharge.</p> <p>This algorithm is most appropriate for identifying a cohort rather than as a descriptive characteristic. However, due to current data availability that precludes us from identifying postal codes of shelters in Ontario, this definition identifies the minimum number of individuals who recently experienced homelessness.</p>	<p>Discharge Abstract Database (March 31, 2020)</p> <p>National Ambulatory Care Reporting System (March 31, 2020)</p> <p>Ontario Mental Health Reporting System (March 31, 2019)</p>	Adapted from Richard L, Hwang SW, Forchuk C, et al. Validation study of health administrative data algorithms to identify individuals experiencing homelessness and estimate population prevalence of homelessness in Ontario, Canada. <i>BMJ Open</i> . 2019; 9(10):e030221.

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Prematurity	Prematurity is defined as those individuals <2 years of age on index date who had a gestational age of <32 weeks in their birth hospitalization abstract (where available).	Discharge Abstract Database (March 31, 2020)	
Asthma	<p>Individuals were diagnosed with asthma based on an algorithm of 2 or more physician billings within 2 years or one hospitalization with an asthma diagnosis code prior to index date.</p> <p>Due to current data availability, individuals with an asthma diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of asthma in these cohorts is likely underestimated.</p>	Ontario Asthma Database (March 31, 2019).	Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying patients with physician-diagnosed asthma in health administrative databases. <i>Can Respir J</i> . 2009; 16(6):183–8.
Chronic kidney disease	Individuals were classified as having chronic kidney disease (CKD) if they had a physician billing, emergency department visit or hospitalization with a CKD diagnosis code, or if there was evidence of recent chronic dialysis (i.e., dialysis billing code in each of the 3 months prior to index).	<p>Discharge Abstract Database (March 31, 2020)</p> <p>National Ambulatory Care Reporting System (March 31, 2020)</p> <p>Ontario Health Insurance Plan database (March 31, 2020)</p>	<p>Fleet JL, Dixon SN, Shariff SZ, et al. Detecting chronic kidney disease in population-based administrative databases using an algorithm of hospital encounter and physician claim codes. <i>BMC Nephrol</i>. 2013; 14:81.</p> <p>Quinn RR, Laupacis A, Austin PC, et al. Using administrative data sets to study outcomes in dialysis patients: a validation study. <i>Med Care</i>. 2010; 48(8):745–50.</p>

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Chronic obstructive pulmonary disease	<p>Individuals were diagnosed with chronic obstructive pulmonary disease (COPD) based on an algorithm of 1 or more physician billings within 2 years or one hospitalization with a COPD diagnosis code prior to index date.</p> <p>Due to current data availability, individuals with a COPD diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of COPD in these cohorts is likely underestimated.</p>	Ontario Chronic Obstructive Pulmonary Disease Database (March 31, 2019)	Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying individuals with physician diagnosed COPD in health administrative databases. <i>COPD</i> . 2009; 6(5):388–94.
Dementia	<p>Individuals were diagnosed with dementia prior to index date based on an algorithm of 1 hospitalization, or 3 physician billings within 2 years separated by at least 30 days, or 1 prescription for a cholinesterase inhibitor.</p> <p>Due to current data availability, individuals with a dementia diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of dementia in these cohorts is likely underestimated.</p>	Ontario Dementia Database (March 31, 2019)	Jaakkimainen RL, Bronskill SE, Tierney MC, et al. Identification of physician-diagnosed Alzheimer's disease and related dementias in population-based administrative data: a validation study using family physicians' electronic medical records. <i>J Alzheimers Dis</i> . 2016; 54(1):337–49.
Diabetes	<p>Individuals were diagnosed with diabetes based on an algorithm of 2 or more physician billings within a year or 1 hospitalization or 1 diabetes medication prescription (adult definition), or 4 or more physician billings within 2 years with a diabetes diagnosis code or 1 or more physician billings with a diabetes fee code (pediatric definition) prior to index date.</p> <p>Due to current data availability, individuals with a diabetes diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of diabetes in these cohorts is likely underestimated.</p>	Ontario Diabetes Database (March 31, 2019)	Hux JE, Ivis F, Flintoft V, Bica A. Diabetes in Ontario: determination of prevalence and incidence using a validated administrative data algorithm. <i>Diabetes Care</i> . 2002; 25(3):512–6.

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Heart failure	<p>Individuals were diagnosed with congestive heart failure (CHF) based on an algorithm of 1 hospitalization or 1 physician billing or emergency department visit followed by another health care encounter within a year, with a CHF diagnosis code prior to index date.</p> <p>Due to current data availability, individuals with a CHF diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of CHF in these cohorts is likely underestimated.</p>	Ontario Congestive Heart Failure Database (March 31, 2019)	Schultz SE, Rothwell DM, Chen Z, Tu K. Identifying cases of congestive heart failure from administrative data: a validation study using primary care patient records. <i>Chronic Dis Inj Can.</i> 2013; 33(3):160–6.
Hypertension	<p>Individuals were diagnosed with hypertension based on an algorithm of 1 hospitalization or 1 physician billing followed by another physician billing or hospitalization within 2 years, with a hypertension diagnosis code prior to index date.</p> <p>Due to current data availability, individuals with a hypertension diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of hypertension in these cohorts is likely underestimated.</p>	Ontario Hypertension Database (March 31, 2019)	Tu K, Campbell NR, Chen Z, Cauch-Dudek K, McAlister FA. Accuracy of administrative databases in identifying patients with hypertension. <i>Open Med.</i> 2007; 1(1):18–26.
Immuno-compromised	<p>Individuals who classified as immunocompromised if they met any of the following conditions:</p> <ul style="list-style-type: none"> • HIV diagnosis (3 physician billings with an HIV diagnosis within 3 years) • History of a solid organ transplant or allogenic/autologous bone marrow transplant • History of any immunodeficiency condition (sickle cell disease, hereditary immunodeficiency, neutropenia, functional disorders of polymorphonuclear neutrophils and genetic anomalies of leukocytes, hyposplenism, hypersplenism and chronic congestive splenomegaly, asplenia) 	<p>Discharge Abstract Database (March 31, 2020)</p> <p>Ontario HIV Database (March 31, 2019)</p> <p>Ontario Health Insurance Plan Database (March 31, 2020)</p> <p>Canadian Organ Replacement Registry (December 31, 2018)</p>	Antoniou T, Zagorski B, Loutfy MR, Strike C, Glazier RH. Validation of case-finding algorithms derived from administrative data for identifying adults living with human immunodeficiency virus infection. <i>PLoS One.</i> 2011; 6(6):e21748.

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Inflammatory bowel disease	<p>Individuals were diagnosed with inflammatory bowel disease (IBD) based on one of the following algorithms:</p> <ul style="list-style-type: none"> For individuals <18 years, either 1 procedure code for sigmoidoscopy/colonoscopy or 2 hospitalizations or 4 physician billings/emergency department visits with an IBD diagnosis code within 3 years. For individuals aged 18– 64 years, 5 health care contacts with an IBD diagnosis code within 4 years For individuals aged ≥65 years, 5 health care contacts with an IBD diagnosis code within 4 years and one claim with IBD medication. <p>(These algorithms are based on at least 2 years of OHIP eligibility.)</p> <p>Due to current data availability, individuals with an IBD diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of IBD in these cohorts is likely underestimated.</p>	<p>Ontario Crohn's and Colitis Cohort Database (March 31, 2019)</p>	<p>Benchimol EI, Guttman A, Griffiths AM, et al. Increasing incidence of paediatric inflammatory bowel disease in Ontario, Canada: evidence from health administrative data. <i>Gut</i>. 2009; 58(11):1490–7.</p> <p>Benchimol EI, Guttman A, Mack DR, et al. Validation of international algorithms to identify adults with inflammatory bowel disease in health administrative data from Ontario, Canada. <i>J Clin Epidemiol</i>. 2014; 67(8):887–96</p>
Ischemic heart disease	<p>Individuals were classified as having ischemic heart disease if there was a diagnosis code for angina, chronic ischemic heart disease or myocardial infarction, based on hospitalization records in the previous 5 years or a coronary artery bypass graft or percutaneous coronary intervention procedure in the previous 20 years.</p>	<p>Discharge Abstract Database (March 31, 2020)</p> <p>Same Day Surgery Database (March 31, 2019)</p>	<p>Tu JV, Chu A, Donovan LR, et al. The Cardiovascular Health in Ambulatory Care Research Team (CANHEART): Using big data to measure and improve cardiovascular health and healthcare services. <i>Circ Cardiovasc Qual Outcomes</i>. 2015; 8(2):204–12.</p>

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Liver disease	<p>Individuals were classified as having advanced liver disease (cirrhosis or decompensated cirrhosis) if they met either of the following algorithms:</p> <ul style="list-style-type: none"> • 2 or more outpatient visits (physician billing or emergency department visits) or 1 hospitalization with a cirrhosis diagnosis code • 1 or more outpatient visit and 1 hospitalization or 1 procedure code for decompensated cirrhosis 	<p>Discharge Abstract Database (March 31, 2020)</p> <p>National Ambulatory Care Reporting System (March 31, 2020)</p> <p>Ontario Health Insurance Plan Database (March 31, 2020)</p>	<p>Lapointe-Shaw L, Georgie F, Carlone D, et al. Identifying cirrhosis, decompensated cirrhosis and hepatocellular carcinoma in health administrative data: A validation study. <i>PLoS One</i>. 2018; 13(8):e0201120.</p>
Rheumatoid arthritis	<p>Individuals were diagnosed with rheumatoid arthritis (RA) based on an algorithm of 1 hospitalization or 3 physician billings (1 of which was by a musculoskeletal specialist) within 2 years, with an RA diagnosis code prior to index date.</p> <p>Due to current data availability, individuals with an RA diagnosis date prior to March 31, 2019, were identified as having this comorbidity. The reported prevalence of RA in these cohorts is likely underestimated.</p>	<p>Ontario Rheumatoid Arthritis Database (March 31, 2019)</p>	<p>Widdifield J, Bombardier C, Bernatsky S, et al. An administrative data validation study of the accuracy of algorithms for identifying rheumatoid arthritis: the influence of the reference standard on algorithm performance. <i>BMC musculoskelet Disord</i>. 2014; 15(1):216.</p> <p>Widdifield J, Bernatsky S, Paterson JM et al. Accuracy of Canadian health administrative databases in identifying patients with rheumatoid arthritis: a validation study using the medical records of rheumatologists. <i>Arthritis Care Res</i>. 2013; 65(10):1582–91.</p>

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Recent hospitalization for severe mental illness	Individuals admitted to an acute care or psychiatric facility in the 2 years prior to index date for anxiety, deliberate self-harm, mood disorders (bipolar, depression), obsessive compulsive and related disorders, personality disorders, schizophrenia spectrum and other psychotic disorders, substance-related and addictive disorders, and trauma or stressor-related disorders.	Discharge Abstract Database (March 31, 2020) National Ambulatory Care Reporting System (March 31, 2020) Ontario Mental Health Reporting System (March 31, 2019)	
Sickle cell disease	Individuals were classified as having sickle cell disease if they had any hospitalization prior to index date with a sickle cell disease code. This definition is used in the immunocompromised concept but has been reported separately as well.	Discharge Abstract Database (March 31, 2020)	
History of TIA/Stroke	Individuals were classified as having a history of transient ischemic attack or acute ischemic stroke code if they had a hospitalization or emergency department visit prior to index date.	Discharge Abstract Database (March 31, 2020) National Ambulatory Care Reporting System (March 31, 2020)	

Characteristic	Definition	Data sources (latest data availability) and data caveats	Reference
Medical conditions associated with frailty	Individuals were identified as having medical conditions associated with frailty based on health care encounters (i.e., hospitalizations, emergency department visits and physician billings) in the 2 years prior to index date using the Johns Hopkins ACG® System, Version 10.	Discharge Abstract Database (March 31, 2020) National Ambulatory Care Reporting System (March 31, 2020) Ontario Health Insurance Plan Database (March 31, 2020)	The Johns Hopkins ACG® System. Technical Reference Guide, Version 10.0. The Johns Hopkins University: Baltimore, MD, 2011.
Resource utilization bands	Individuals' health care resource utilization was determined by identifying health care encounters (i.e., hospitalizations, emergency department visits and physician billings) in the 2 years prior to index date using the Johns Hopkins ACG System, Version 10. ACG System Resource Utilization Bands (RUBs) were categorized into the following groups: <ul style="list-style-type: none"> • 0 (non-users) • 1 (healthy) • 2 (low) • 3 • 4 • 5 (high) 	Discharge Abstract Database (March 31, 2020) National Ambulatory Care Reporting System (March 31, 2020) Ontario Health Insurance Plan Database (March 31, 2020)	The Johns Hopkins ACG® System. Technical Reference Guide, Version 10.0. The Johns Hopkins University: Baltimore, MD, 2011.

Appendix 5.0: Diagnostic, procedure, and physician billing codes

Comorbidity	ICD-9/ICD-10-CA Diagnostic Codes	CCP/CCI Procedure Codes	OHIP Physician Billing Diagnostic Codes	OHIP Physician Billing Fee Codes
Asthma	493 J45, J46		493	
Chronic kidney disease (including dialysis)	Chronic kidney disease: E102, E112, E132, E142, I12, I13, N08, N18, N19	Dialysis: 1PZ21HQBS 1PZ21HQBR 1PZ21HPD4	Chronic kidney disease: 403, 585	Dialysis: R849, G323, G325, G326, G860, G862, G863, G865, G866, G082, G083, G085, G090, G091, G092, G093, G094, G095, G096, G294, G295, G330, G331, G332, G333, G861, G864, H540, H740
Chronic obstructive pulmonary disease	491, 492, 496 J41, J42, J43, J44		491, 492, 496	
Dementia	461, 290.0, 290.1, 290.2, 290.3, 290.4, 294, 331.0, 331.1, 331.5 F00, F01, F02, F03, G30			290, 331
Diabetes	250 E10, E11, E13, E14		250	Q040, K029, K030, K045, K046
Heart failure	428 I500, I501, I509		428	Q050
HIV			042, 043, 044	
History of solid organ transplant		1PC85 (Kidney) 1HZ85 (Heart) 1GR85, 1GT85 (Lung) 1HY85 (Heart & lung) 1OA85 (Liver) 1OK85 (Pancreas) 1OB85 (Spleen)		
History of allogeneic/autologous bone marrow transplant		530 1WY19, 1LZ19HHU7, 1LZ19HHU8		Z426

Comorbidity	ICD-9/ICD-10-CA Diagnostic Codes	CCP/CCI Procedure Codes	OHIP Physician Billing Diagnostic Codes	OHIP Physician Billing Fee Codes
History of immunodeficiency conditions	<p>Sickle cell disease: 282.6 D570 – D572; D578</p> <p>Hereditary immunodeficiency: 279 D80-D84; D898, D899</p> <p>Neutropenia: 2880 D70</p> <p>Functional disorders of polymorphonuclear neutrophils and genetic anomalies of leukocytes: 2881, 2882 D71-D72</p> <p>Hyposplenism, hypersplenism and chronic congestive splenomegaly: 2894, 2895 D730, D731, D732</p> <p>Asplenia: 7590 Q890</p>			
Hypertension	401, 402, 403, 404, 405 I10, I11, I12, I13, I15		401, 402, 403, 404, 405	
Inflammatory bowel disease	555, 556 K50, K51			Z535, Z555, Z580, E740, E741, E747, E705

Comorbidity	ICD-9/ICD-10-CA Diagnostic Codes	CCP/CCI Procedure Codes	OHIP Physician Billing Diagnostic Codes	OHIP Physician Billing Fee Codes
Ischemic heart disease	Angina: I20 Chronic ischemic heart disease: I25 Myocardial infarction: I21, I22	Coronary artery bypass grafting: 1IJ76 481 Percutaneous coronary intervention: 1IJ50, 1IJ5, 1IJ57 4802, 4803	555, 556	
Liver disease	Cirrhosis: 4561, 5712, 5715 I859, I982, K703, K717, K476 Decompensated cirrhosis: 4560, 4562, 57.2, 5723, 5724, 7824, 7895 I850, I864, I9820, I983, K721, K729, K766, K767, R17, R18	Decompensated cirrhosis: 1NA13BA-FA, 1NA13BA-X7, 1NA13BA-BD, 1KQ76GP-NR, 1OT52HA 1006, 6691	Cirrhosis: 571	Decompensated cirrhosis: J057, Z591
Rheumatoid arthritis	714 M05, M06		714	
Sickle cell disease	2826 D570–D572; D578			
History of transient ischemic attack/acute ischemic stroke	TIA: 435, 3623 G450, G451, G452, G453, G458, G459, H340 Acute ischemic stroke: 434, 436 I63 (excluding I63.6), I64, H341			

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