

Update on COVID-19 Projections

Science Advisory and Modelling Consensus Tables

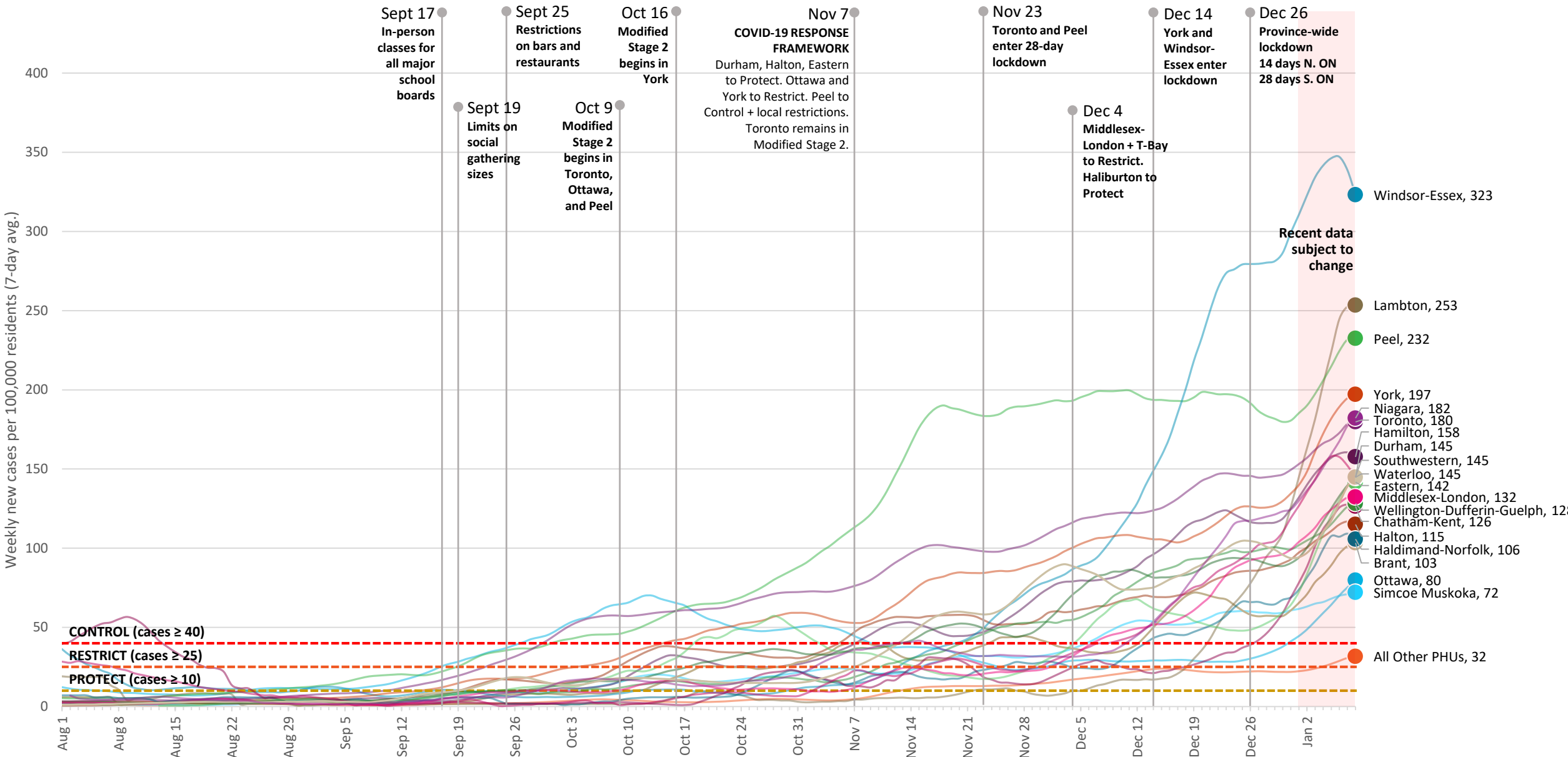
January 12, 2021



Key Findings

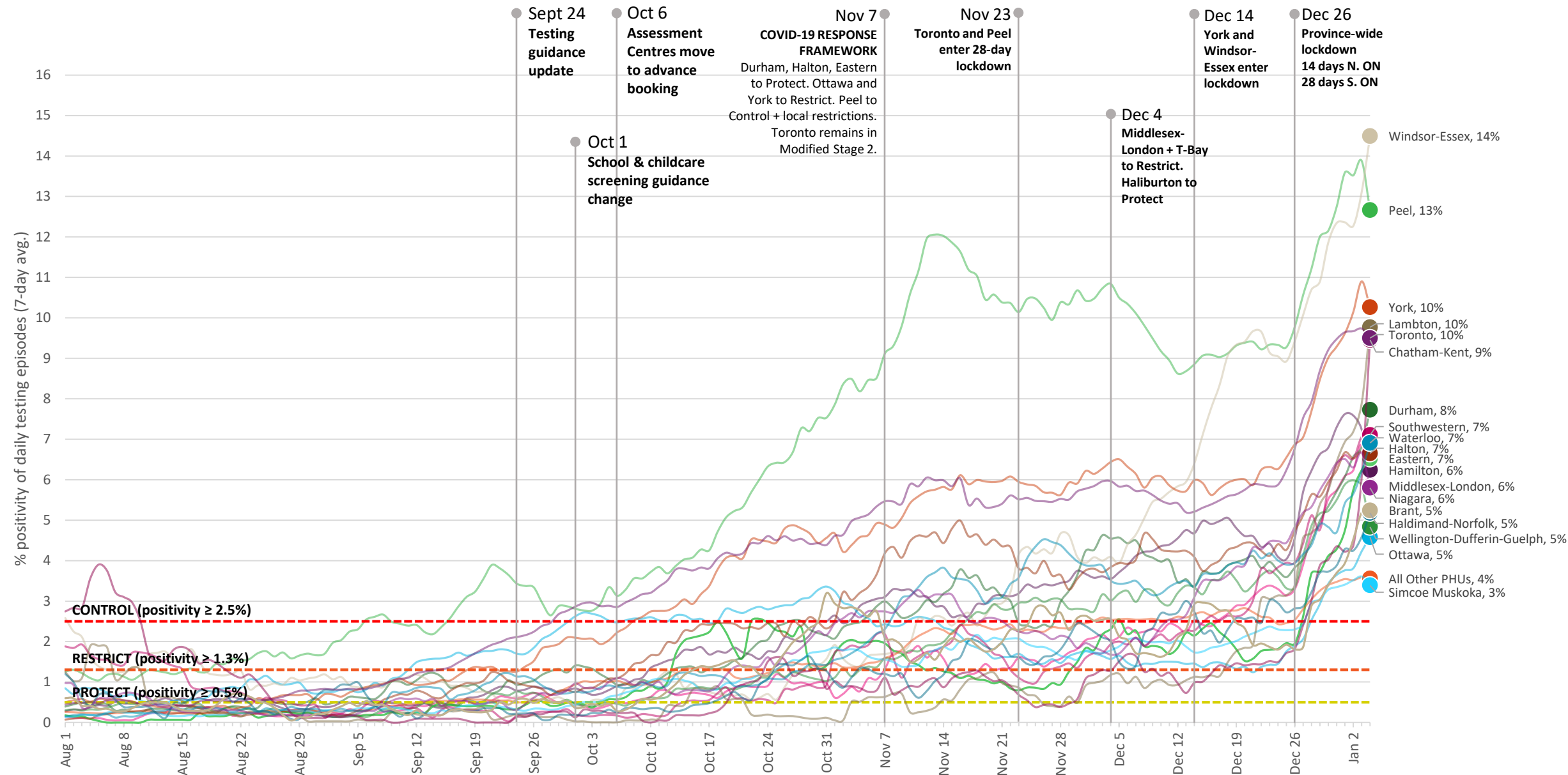
- Growth in cases has accelerated and is over 7% on the worst days.
- Almost 40% of long-term care homes have active COVID-19 outbreaks. Since January 1st 198 LTC residents and 2 LTC staff have died of COVID-19. Forecasts suggest more deaths in wave 2 in long-term care than in wave 1.
- COVID-19 ICU occupancy is now over 400 beds. Surgeries are being cancelled and the access to care deficit will continue to increase with real consequences for health.
- Mobility, and contacts between people have not decreased with the current restrictions. Survey data show that the majority of Ontarians are helping limit spread by following them. However, case numbers will not decline until more of the population follows their example.
- A new variant of concern of SARS-CoV-2 (B117) could drive much higher case counts, ICU occupancy and mortality if community transmission occurs. The doubling time for cases could drop by more than 2/3. This new variant is now in Ontario.
- Without significant reductions in contacts, the health system will be overwhelmed and mortality will exceed the first wave totals before a vaccine has time to take effect.

Total new cases per 100,000 residents per week across PHUs

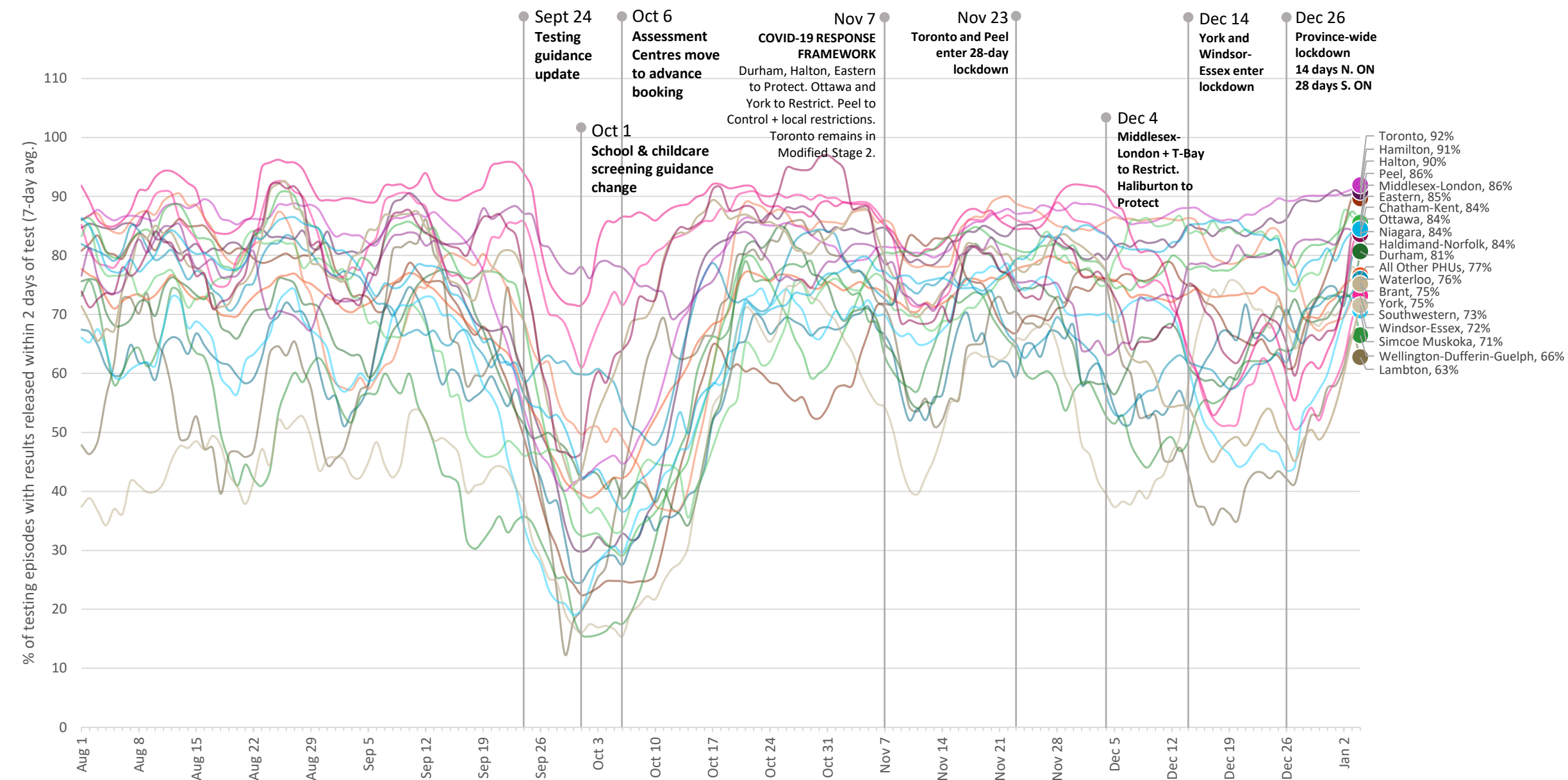


Data source: Case and Contact Management System, data up to January 8

COVID-19 testing % positivity across PHUs



Percent of COVID test results returned within 2 days across PHUs



Weekly % positivity by age group

Weekly % positivity by age group																							
Month ▲	Aug2020					Sep2020				Oct2020					Nov2020				Dec2020				Jan2021
Week No ▲	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Age Group ▼																							
75+	0.3	0.2	0.2	0.3	0.4	0.3	0.5	0.5	1.1	1.3	1.4	1.8	2.3	2.8	3.6	3.3	3.1	3.3	3.2	3.7	4.3	4.7	5.3
65to74	0.4	0.2	0.3	0.3	0.4	0.5	0.5	0.7	1.0	1.2	1.3	1.7	1.9	2.2	2.6	3.3	3.3	3.0	3.3	3.4	3.5	4.4	5.3
55to64	0.4	0.4	0.3	0.4	0.3	0.5	0.6	0.8	1.2	1.4	1.6	2.2	2.4	2.4	2.9	3.4	3.2	3.1	3.2	3.1	3.3	4.1	5.2
45to54	0.5	0.5	0.4	0.5	0.5	0.6	0.8	1.0	1.4	1.9	1.9	2.7	2.8	3.0	3.7	4.4	3.9	3.9	4.0	3.8	4.3	5.0	6.4
35to44	0.5	0.5	0.5	0.4	0.5	0.7	0.7	1.0	1.2	1.5	1.6	2.3	2.7	2.9	3.7	4.4	3.8	4.1	4.2	4.2	4.3	5.0	7.0
25to34	0.6	0.5	0.6	0.6	0.6	0.9	1.3	1.7	2.1	2.5	2.2	2.9	3.2	3.4	4.1	4.8	4.5	4.7	4.8	4.6	4.9	5.2	7.9
18to24	0.8	0.7	0.5	0.7	0.9	0.8	1.6	2.3	2.8	3.5	2.6	3.5	3.9	4.3	4.7	5.6	5.2	5.0	5.3	5.4	5.4	6.5	9.1
14to17	1.4	1.2	1.1	0.8	1.3	1.7	1.8	1.7	1.5	1.9	2.1	2.9	4.1	4.1	5.4	6.6	5.6	6.4	6.8	6.2	6.7	8.6	14.4
9to13	1.3	0.8	1.4	1.0	1.5	1.4	1.4	0.9	0.8	0.8	1.2	1.8	2.8	3.7	4.9	4.7	5.7	5.9	5.9	5.2	6.2	9.5	19.2
4to8	1.0	1.0	0.7	0.8	0.5	0.9	0.6	0.5	0.3	0.4	1.0	1.5	2.8	2.7	3.6	3.9	4.3	4.5	4.7	3.8	4.8	6.6	14.2
0to3	0.4	0.5	0.6	0.3	0.6	0.6	0.3	0.4	0.6	0.7	1.3	2.2	2.5	2.2	3.0	4.2	3.3	3.8	4.8	3.7	5.1	6.5	8.7
Total	0.5	0.5	0.4	0.5	0.5	0.7	0.9	1.1	1.3	1.6	1.7	2.4	2.8	3.0	3.7	4.2	3.9	4.0	4.2	4.0	4.4	5.1	6.9

Data Source: Ontario Laboratory Information System (OLIS), MOH – extracted from SAS VA Jan 10

Note: Includes all data submitted to OLIS up to January 7th 2021. The last six days are considered interim data (week 52) and subject to change

Weekly % positivity = total number of positive tests within the week (based on reported date)/COVID tests within the week

Cases and cumulative mortality LTC increasing (198 resident and 2 staff deaths since January 1st)

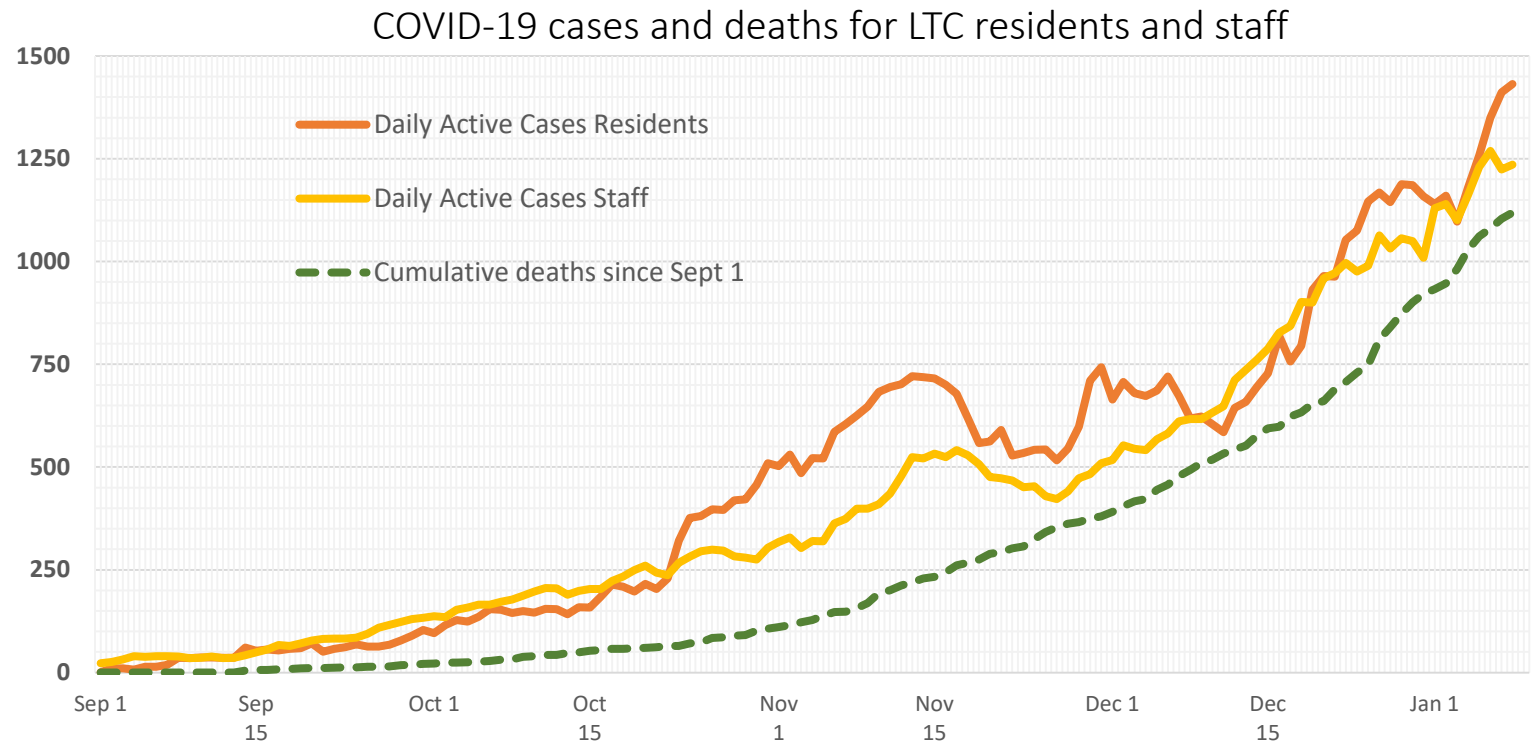
Current status

252 LTC homes have COVID-19 outbreaks (40% of all homes) with 105 outbreaks involving resident cases

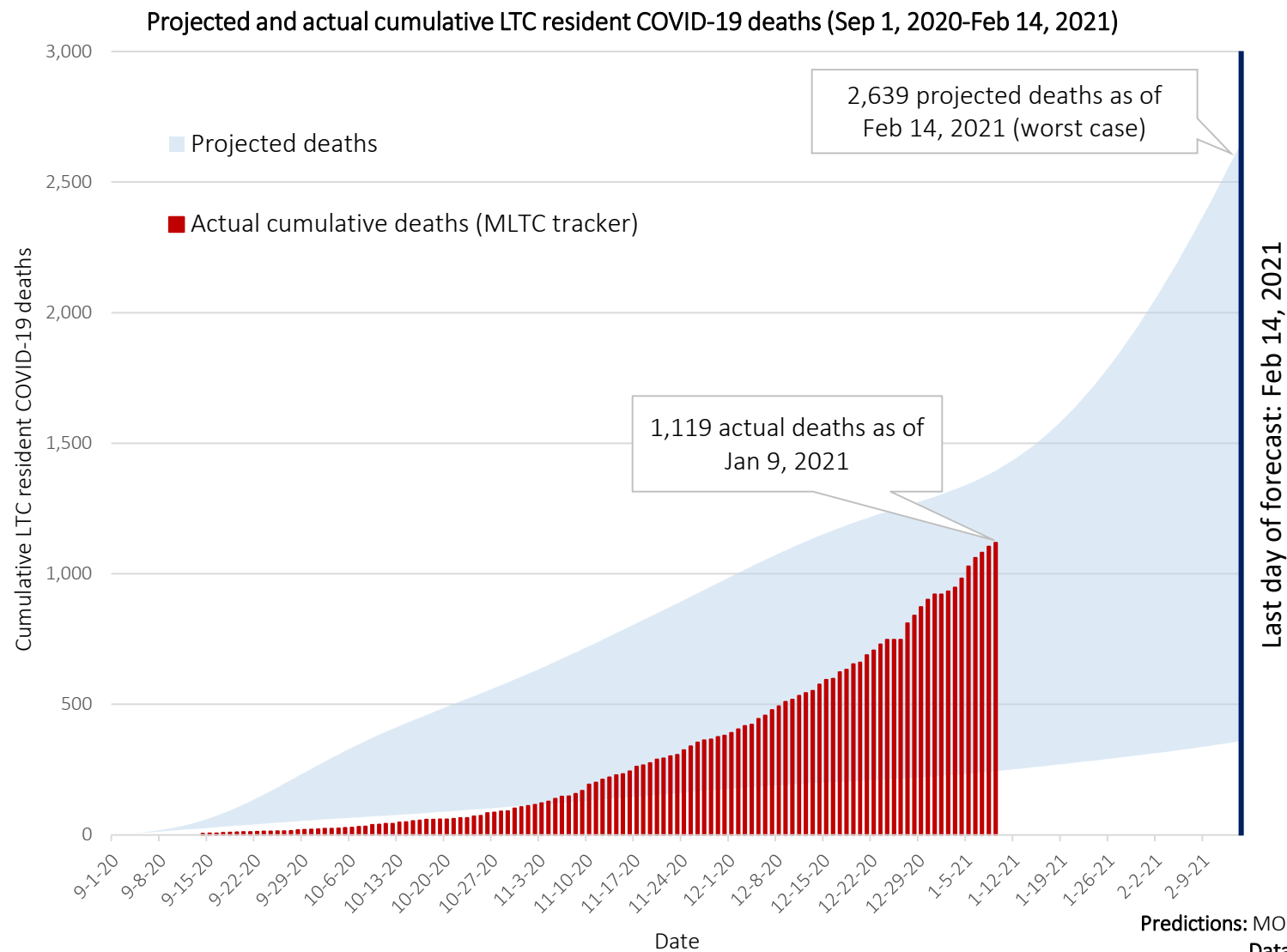
Outbreaks are occurring across almost all public health units, with 91 outbreaks (37%) occurring in priority vaccination areas of Toronto, Peel, York and Windsor-Essex

Since January 1st, 198 LTC residents have died of COVID-19 and 2 staff deaths have been reported

Forecasts suggest there will be more LTC residents deaths in wave 2 than in wave 1 (1,815 total deaths)

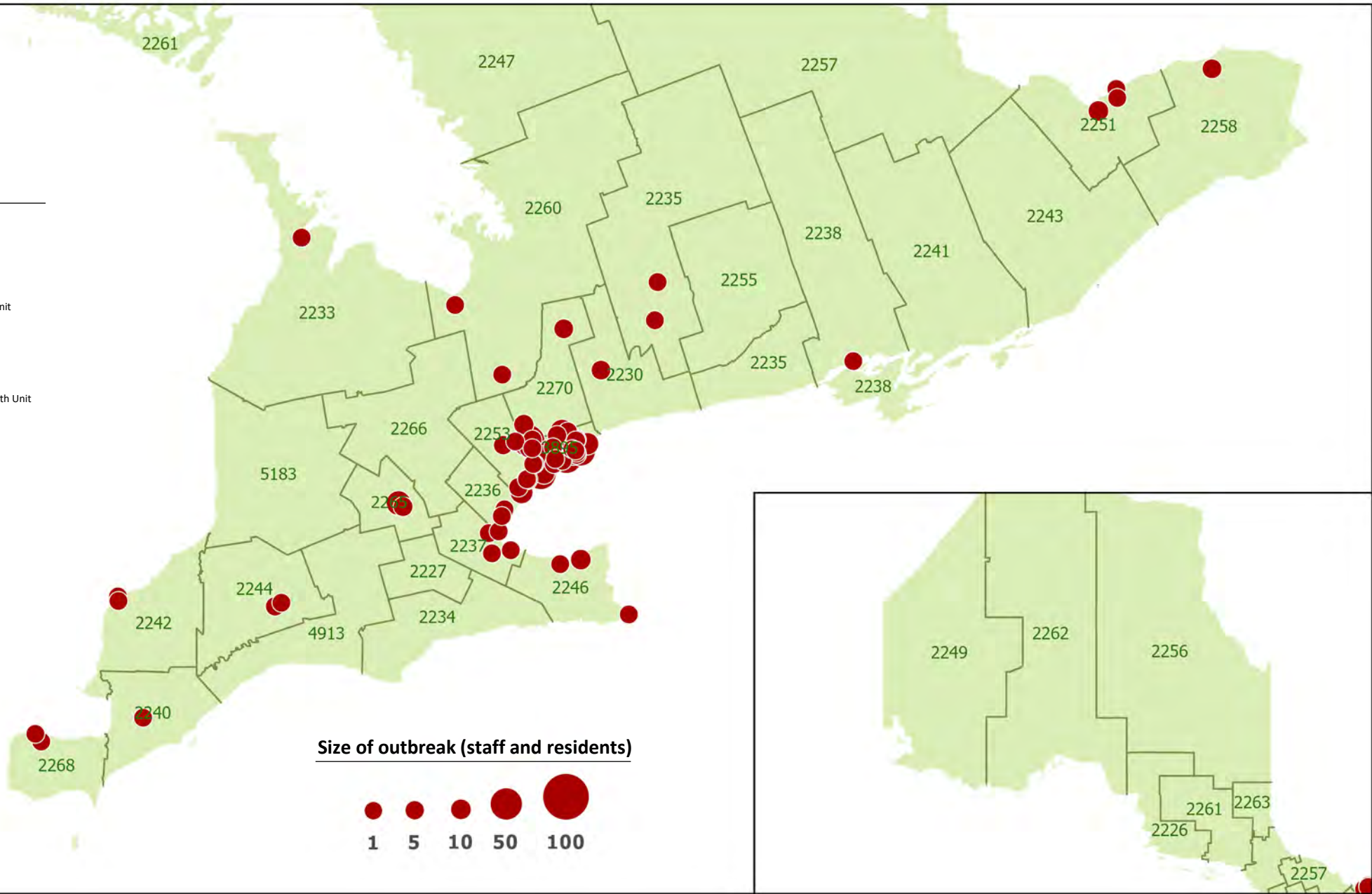


Projections: second wave cumulative LTC resident COVID-19 deaths >2,600 by Feb 14 in worst case scenario



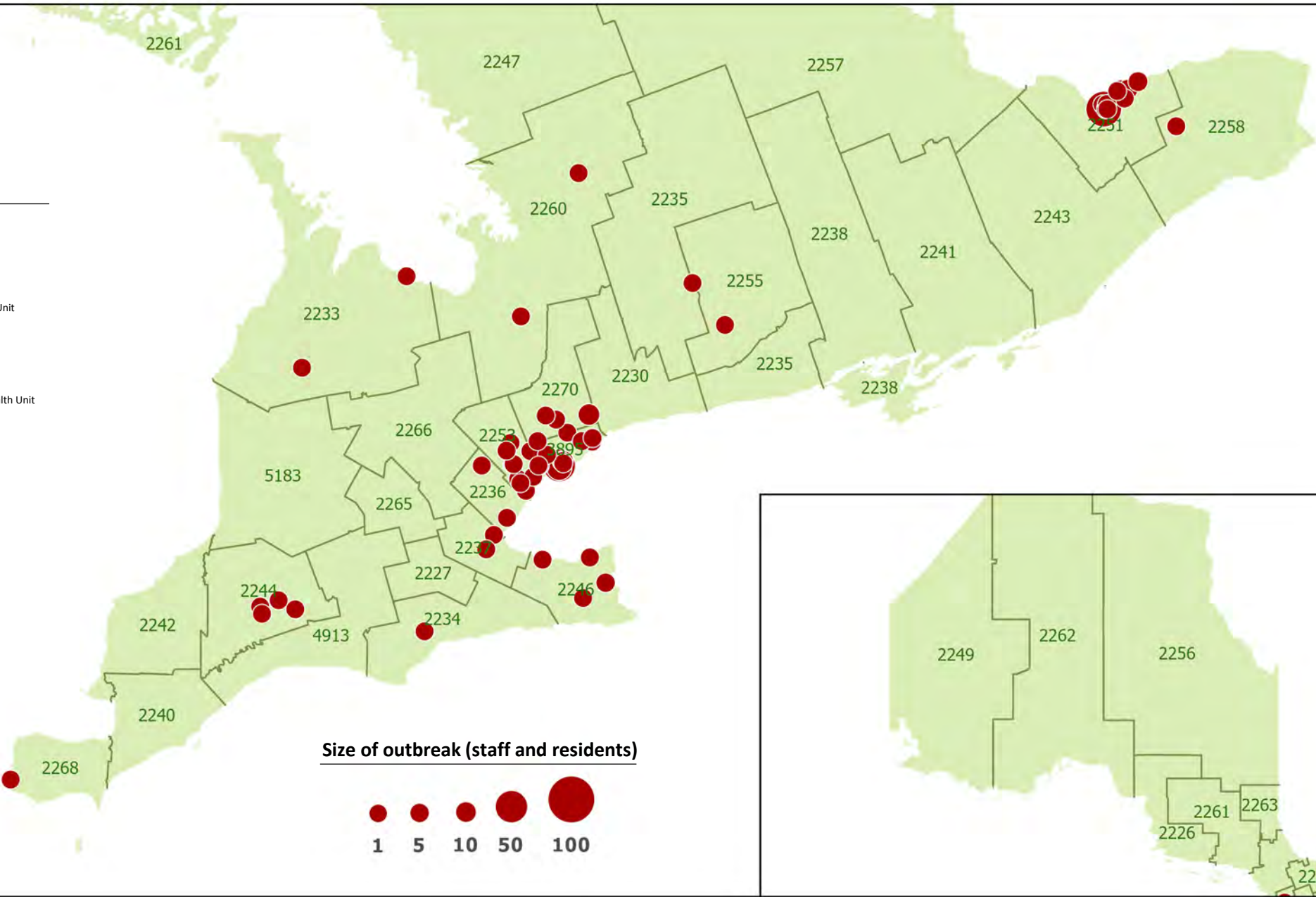
Long-term Care
Outbreaks
July 1, 2020

Public Health Unit	
2226	Algoma Public Health Unit
2227	Brant County Health Unit
2230	Durham Region Health Department
2233	Grey Bruce Health Unit
2234	Haldimand-Norfolk Health Unit
2235	Haliburton, Kawartha, Pine Ridge District Health Unit
2236	Halton Region Health Department
2237	Hamilton Public Health Services
2238	Hastings & Prince Edward Counties Health Unit
2240	Chatham-Kent Health Unit
2241	Kingston, Frontenac and Lennox & Addington Health Unit
2242	Lambton Health Unit
2243	Leeds, Grenville & Lanark District Health Unit
2244	Middlesex-London Health Unit
2246	Niagara Region Public Health Department
2247	North Bay Parry Sound District Health Unit
2249	Northwestern Health Unit
2251	Ottawa Public Health
2253	Peel Public Health
2255	Peterborough Public Health
2256	Porcupine Health Unit
2257	Renfrew County & District Health Unit
2258	Eastern Ontario Health Unit
2260	Simcoe Muskoka District Health Unit
2261	Sudbury and District Health Unit
2262	Thunder Bay District Health Unit
2263	Timiskaming Health Unit
2265	Region of Waterloo, Public Health
2266	Wellington-Dufferin-Guelph Health Unit
2268	Windsor-Essex County Health Unit
2270	York Region Public Health
3895	Toronto Public Health
4913	Southwestern Public Health
5183	Huron Perth Health Unit



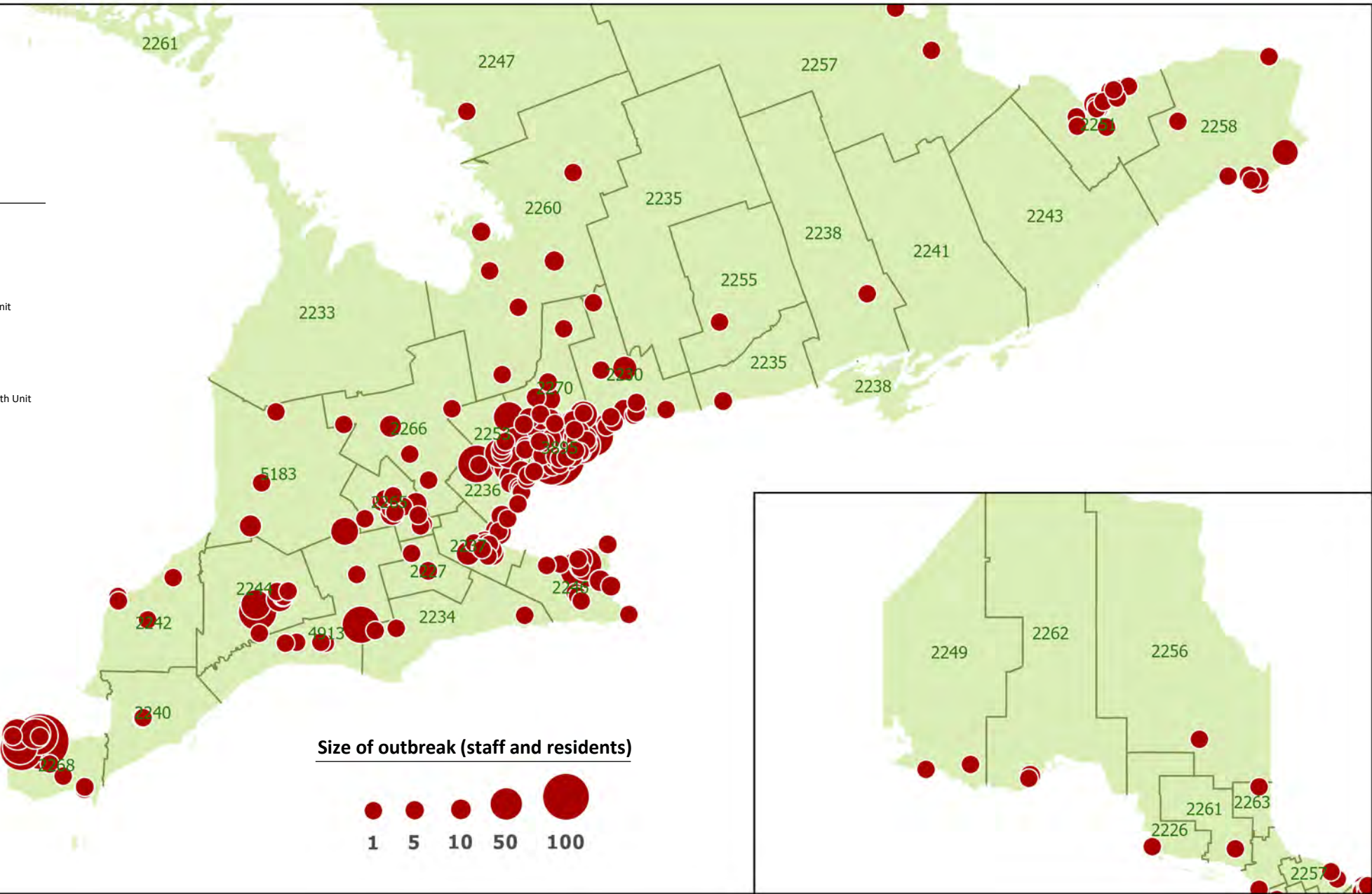
Long-term Care
Outbreaks
October 1, 2020

Public Health Unit	
2226	Algoma Public Health Unit
2227	Brant County Health Unit
2230	Durham Region Health Department
2233	Grey Bruce Health Unit
2234	Haldimand-Norfolk Health Unit
2235	Haliburton, Kawartha, Pine Ridge District Health Unit
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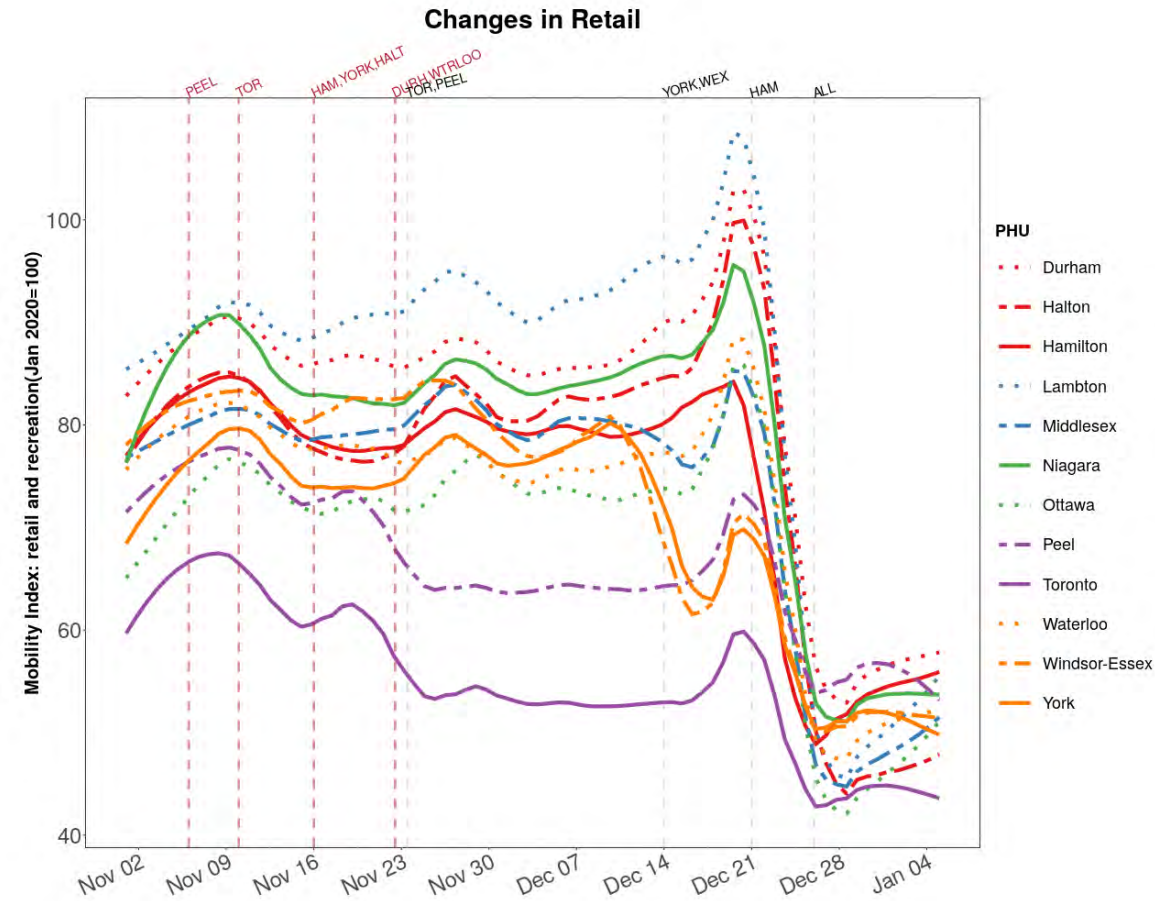


Long-term Care
Outbreaks
January 7, 2021

Public Health Unit	
2226	Algoma Public Health Unit
2227	Brant County Health Unit
2230	Durham Region Health Department
2233	Grey Bruce Health Unit
2234	Haldimand-Norfolk Health Unit
2235	Haliburton, Kawartha, Pine Ridge District Health Unit
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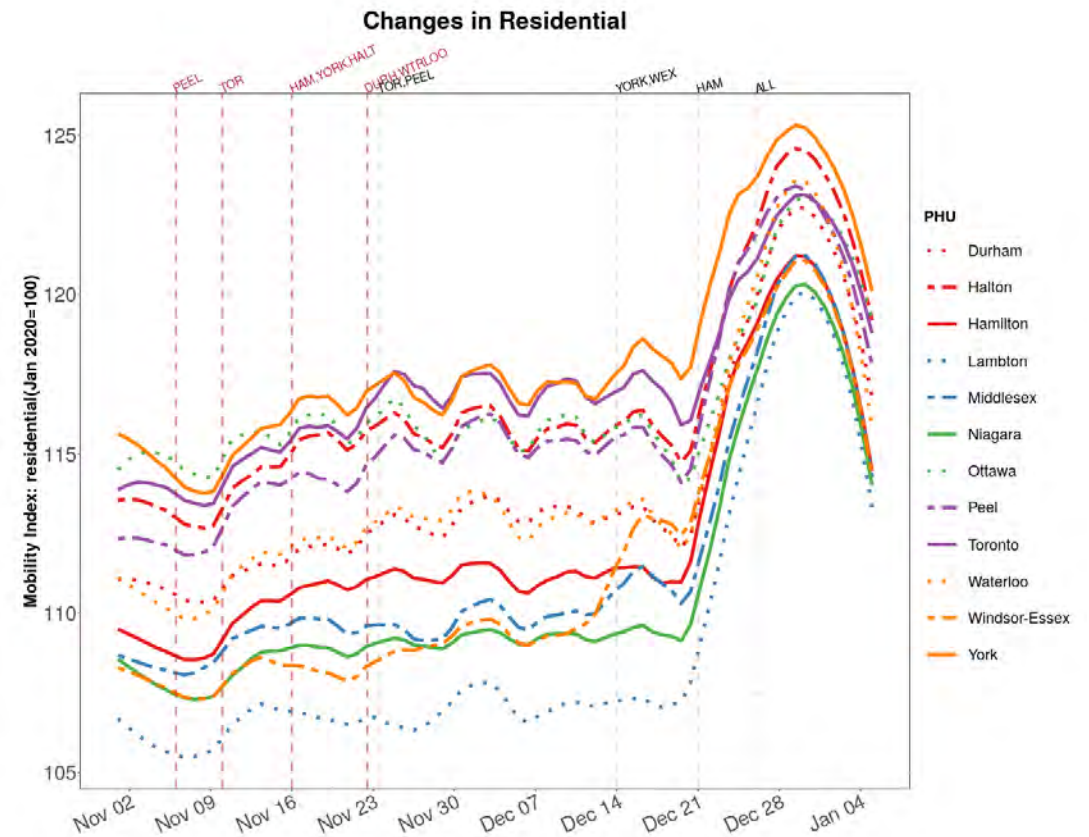
Despite some reduced mobility from “Grey Zone” restrictions, there was a pre-holiday spike



% change relative to January 2020

Analysis: UofT, St. Michael's Hospital, ICES
Data: Google

“Grey Zone” restrictions did not affect the proportion of people working from home; holiday decreases are not likely to persist

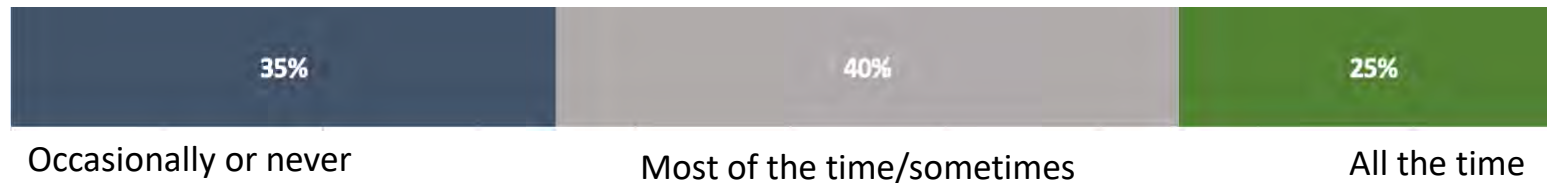


% change relative to January 2020

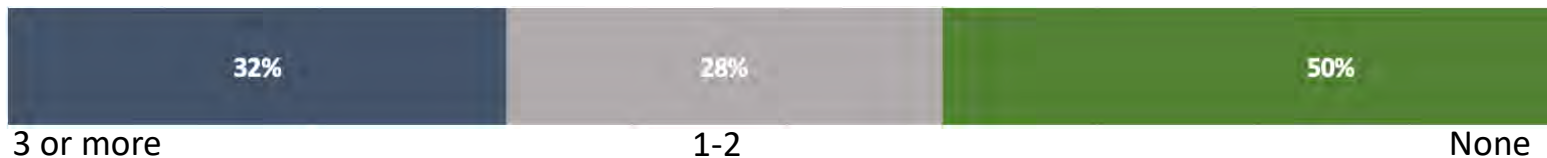
Analysis: UofT, St. Michael's Hospital, ICES
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With current restrictions, almost 2/3 of the population are acting in a way that will decrease COVID-19 spread

- Are people in your neighbourhood physically distancing?



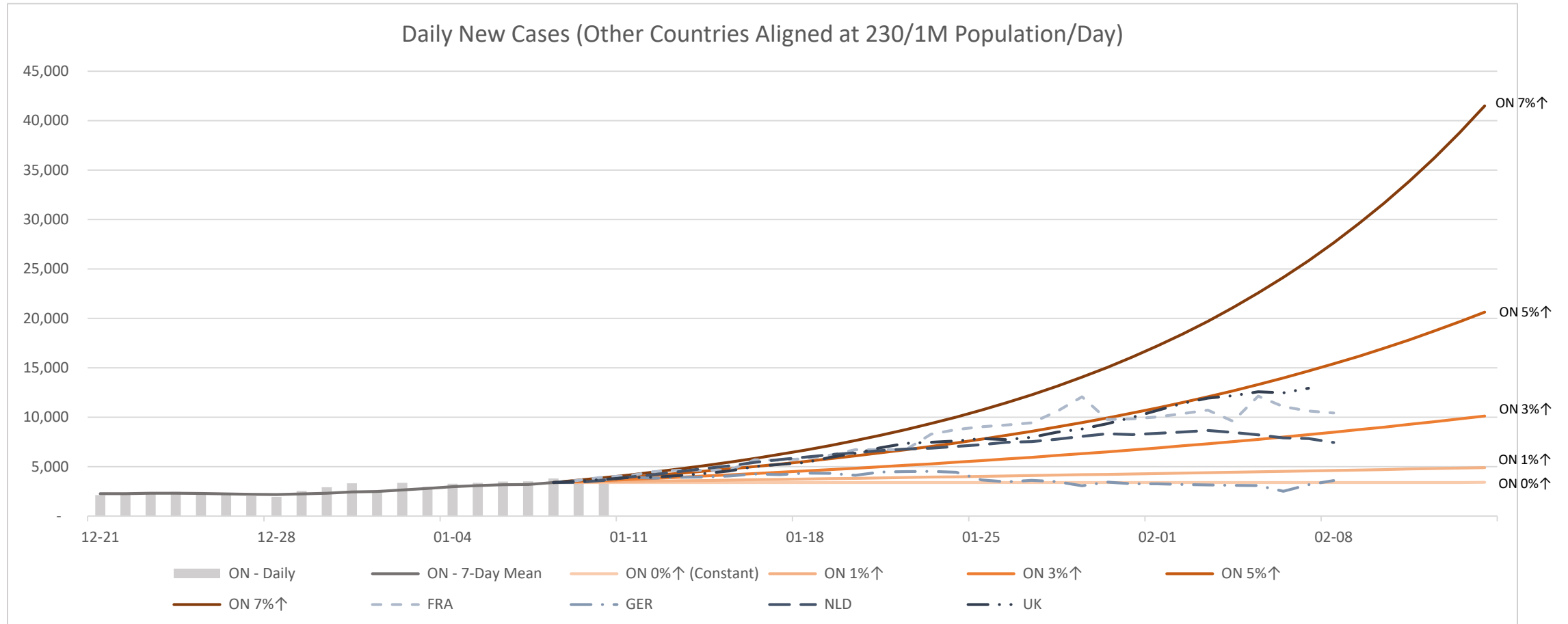
- In the last 4 weeks, how many people outside your household visited your house (meal, celebration, stay over)?



- And if so, did you observe restrictions?



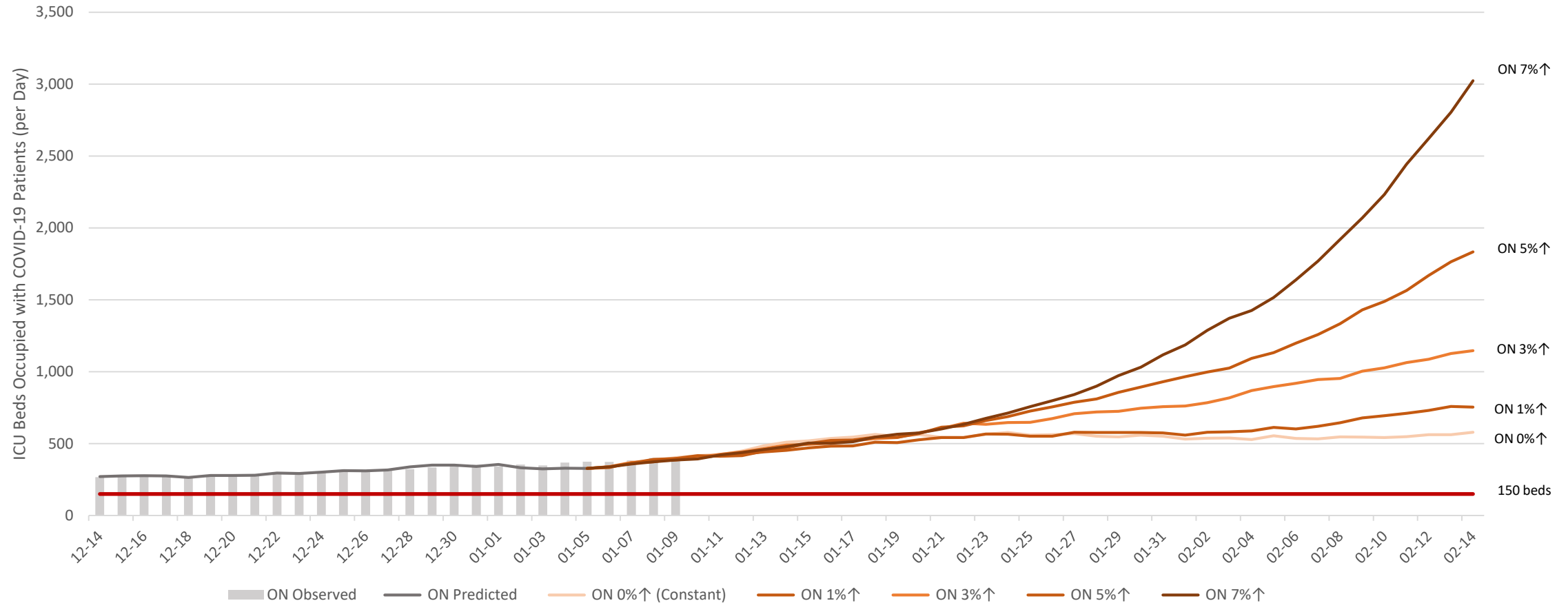
As happened in other jurisdictions, case growth continues under current levels of restrictions



Note: Ontario reached 23/100,000 cases between 1.5 and 3 months after these countries

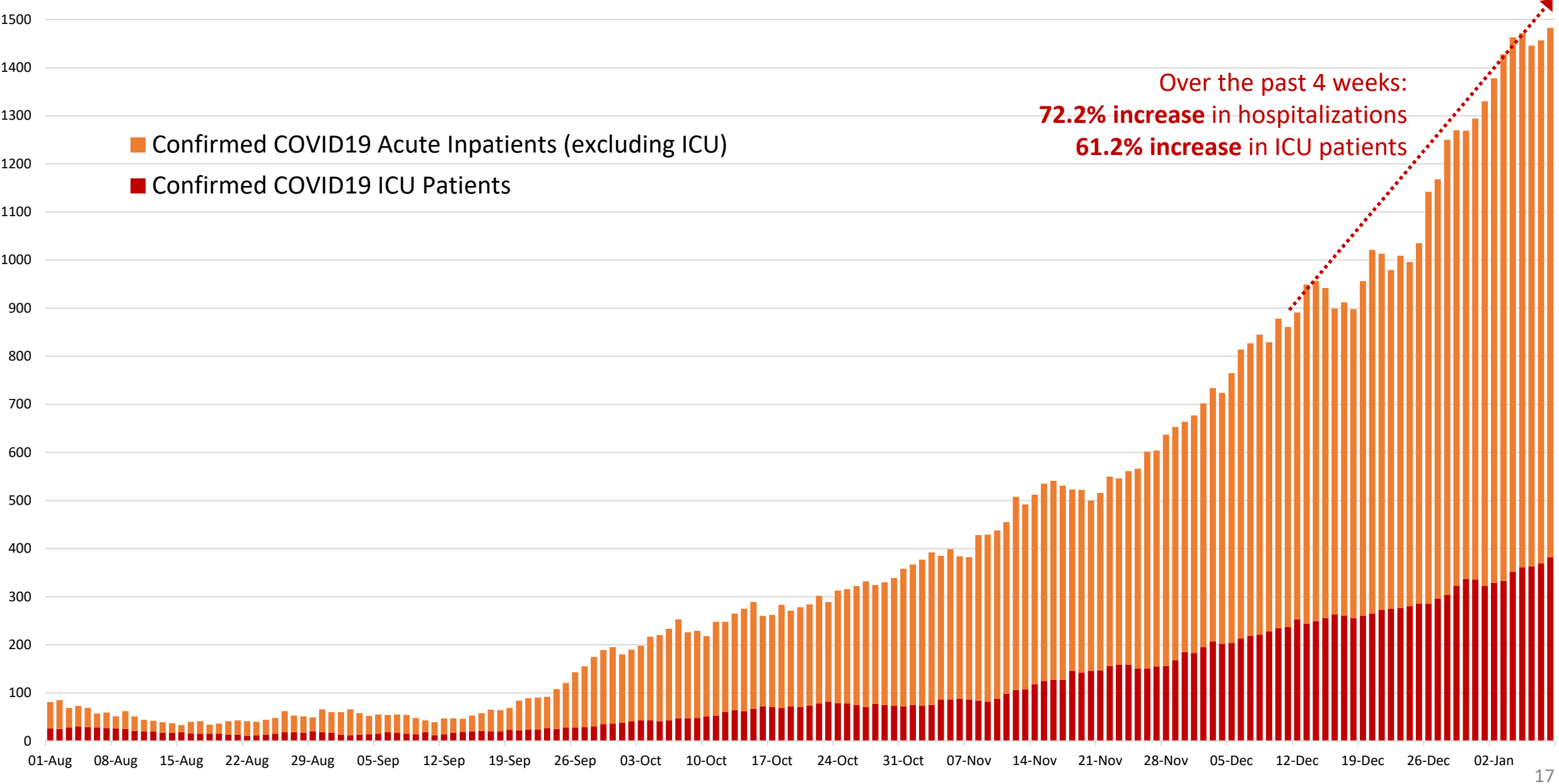
Predictions informed by modeling from McMasterU, Fields Institute, COVID-19 ModCollab, PHO; recent growth in new daily cases; reported cases in peer jurisdictions
Data (Observed Cases): covid-19.ontario.ca; <https://ourworldindata.org>

Projections: COVID-19 ICU occupancy around 500 beds in mid-January, potentially over 1,000 beds in February in more severe, but realistic scenarios



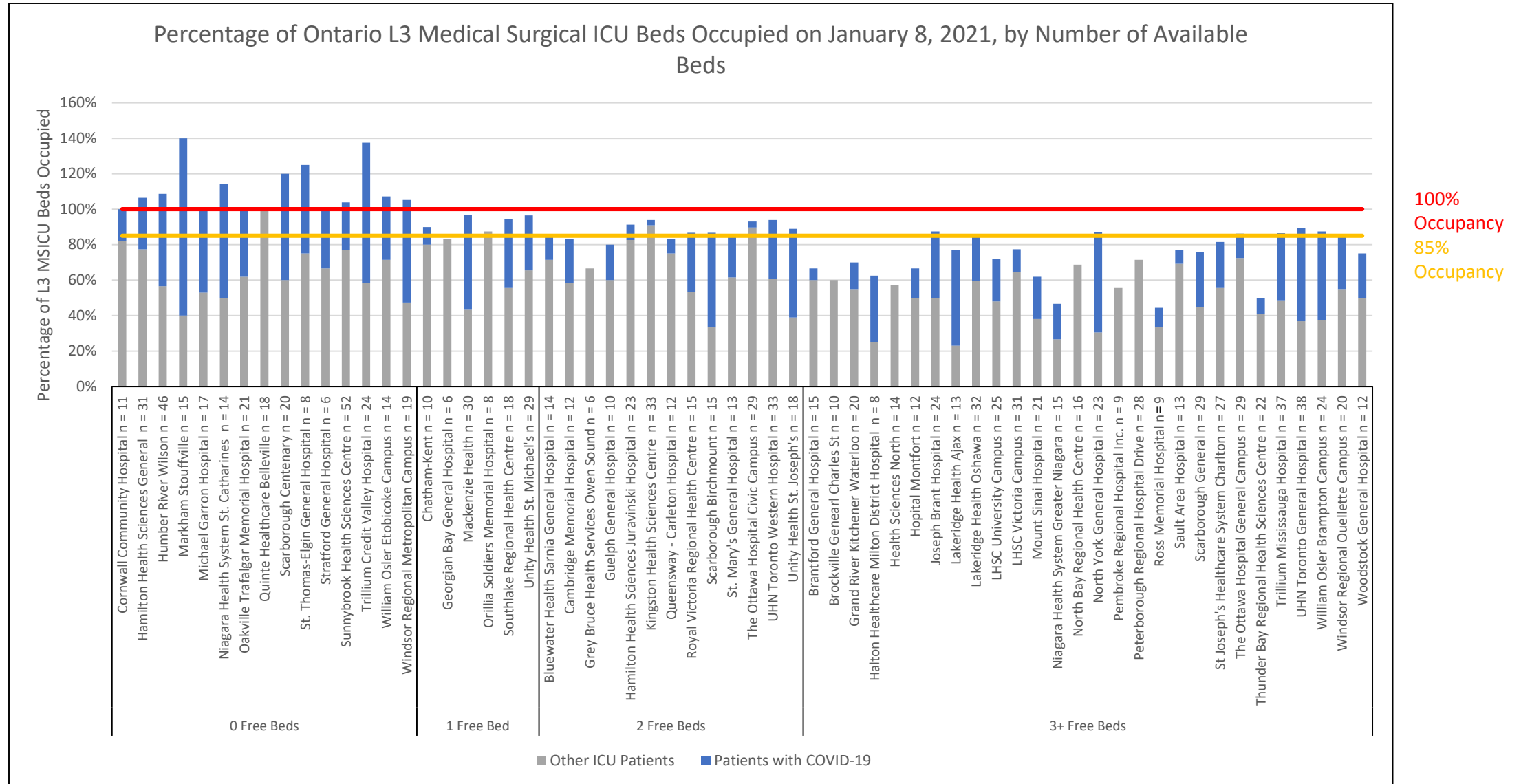
At 9% growth rate (not shown): >2,000 occupancy Feb 5

COVID-19 hospitalizations and ICU admissions continue to climb

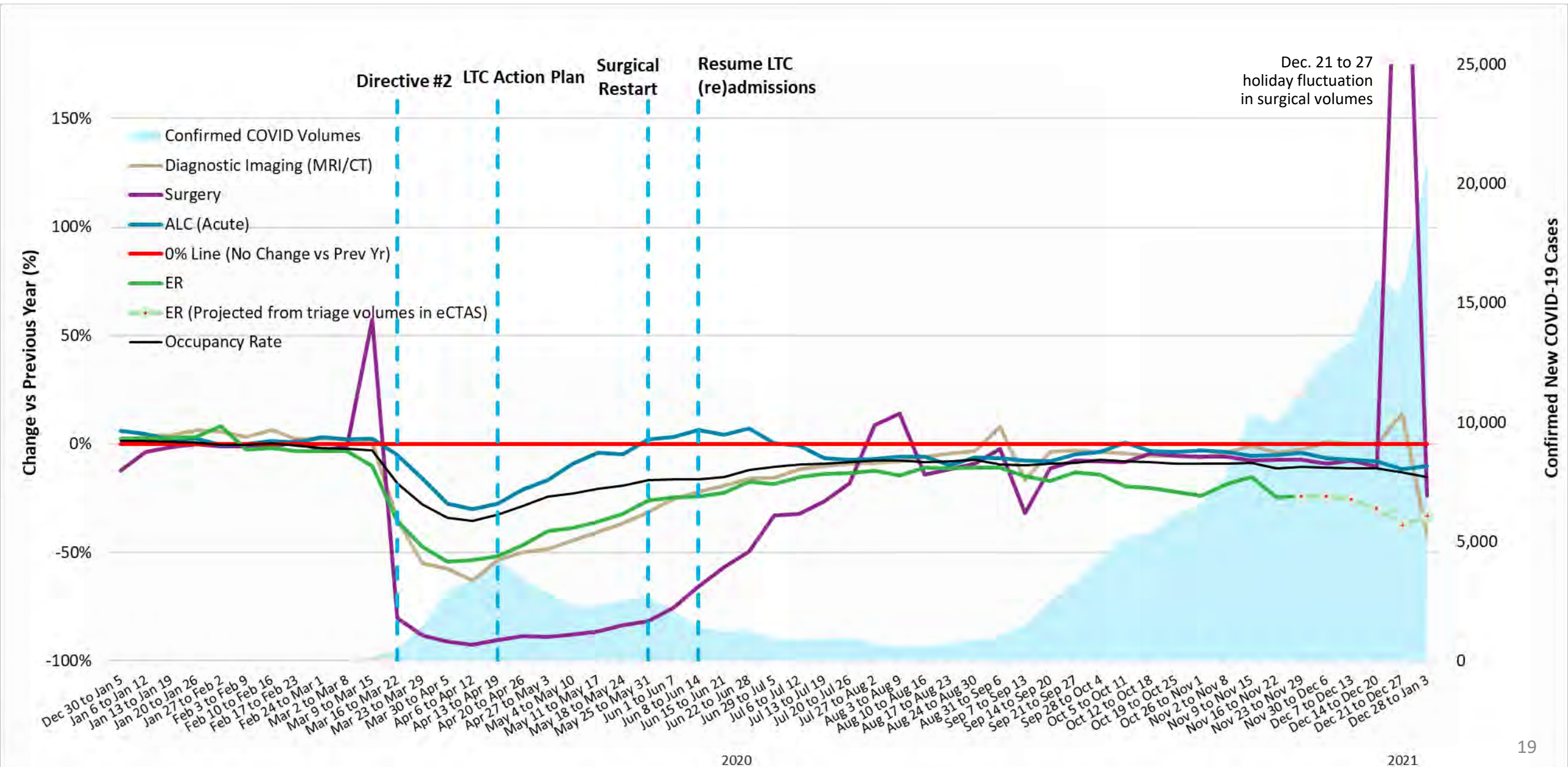


Data Sources: Daily Bed Census Summary COVID-19 Report + Critical Care Information System, extracted January 9

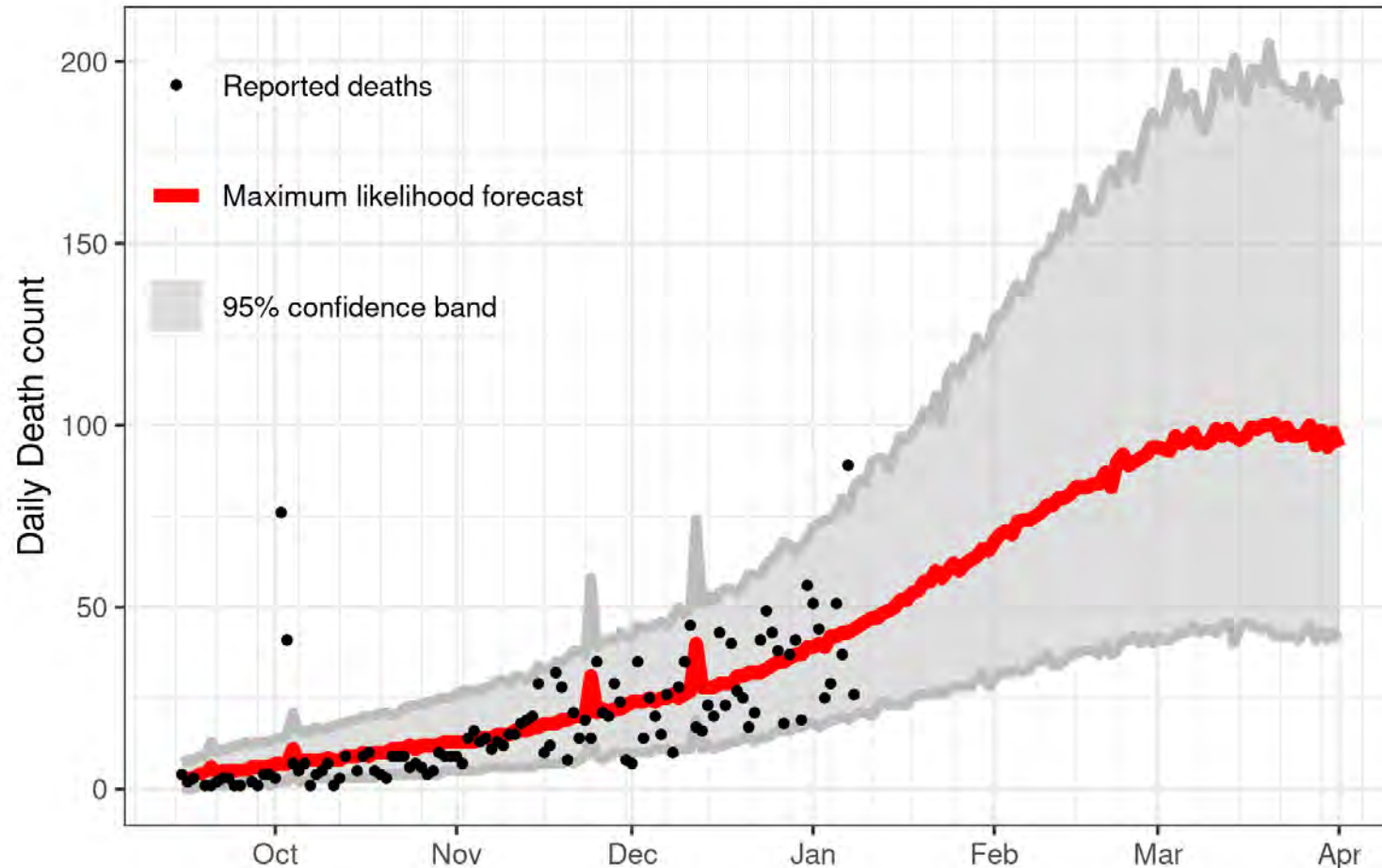
One quarter of hospitals have no ICU beds free, another quarter have only 1 or 2 beds free



Access to care continues to decline below 2019 levels



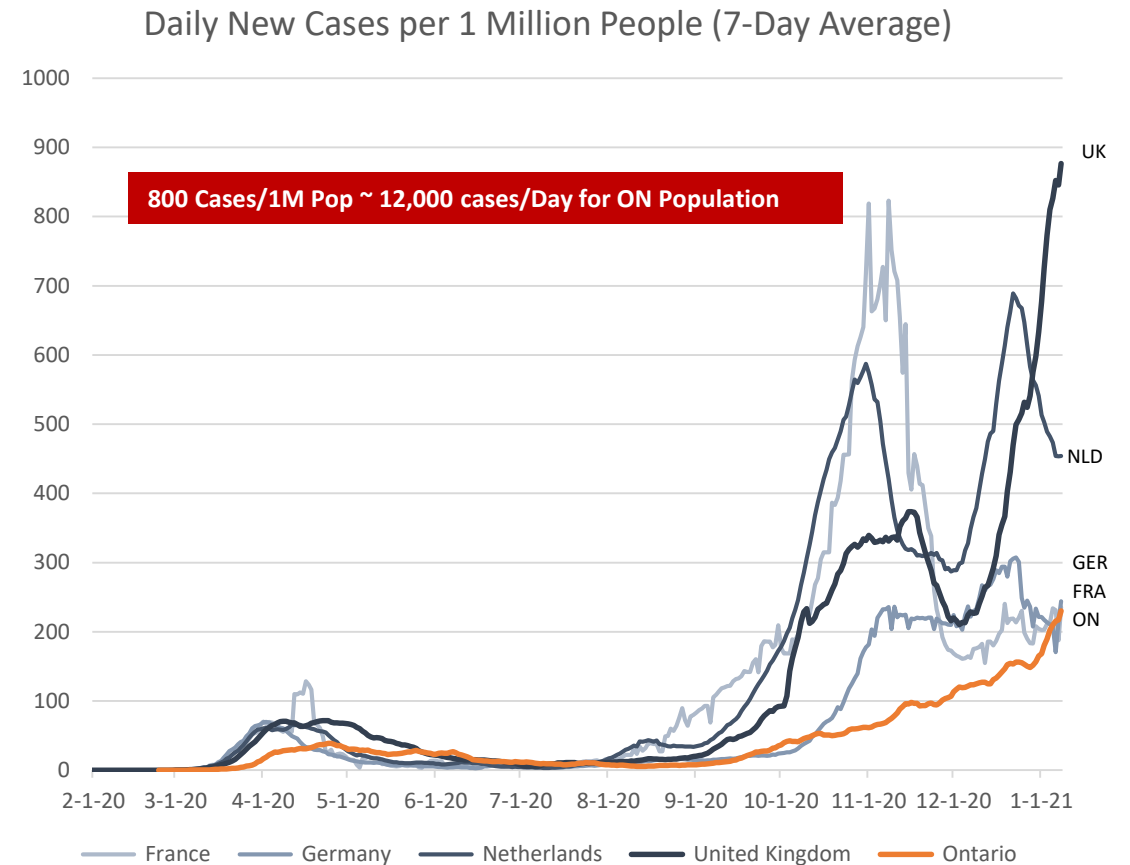
Daily mortality is increasing under current restrictions, doubling from 50 to 100 deaths per day between now and end of February



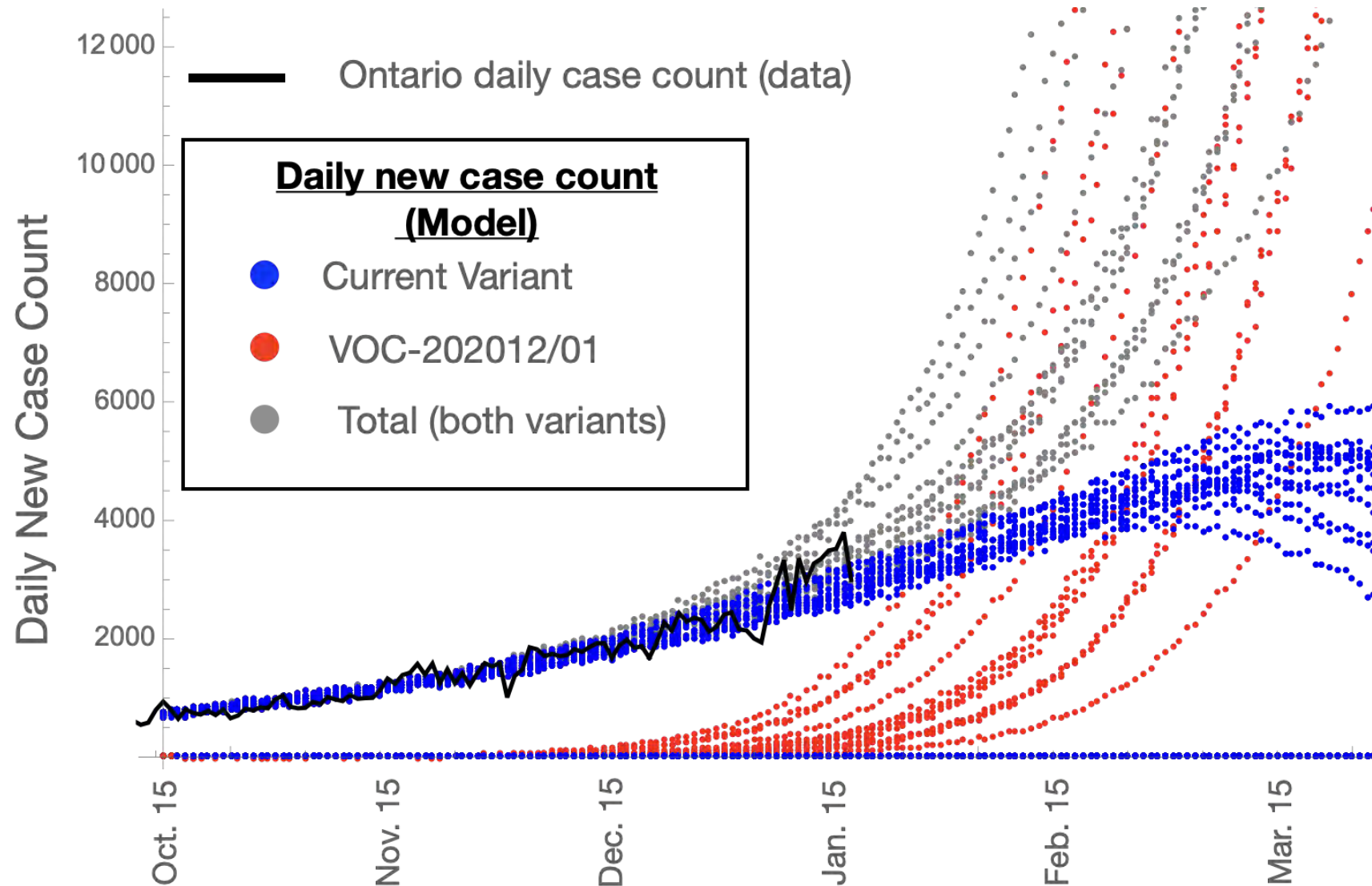
Assumption: continue current restrictions.

The Novel SARS-CoV-2 variant: B.1.1.7 appears to be much more easily transmitted

- Novel SARS-CoV-2 variant, B.1.1.7, emerged in southeast England in November
- Transmissibility: 56% ↑ (95% credible interval 50-74%)
- No increase in disease severity, vaccines likely still effective



If the SARS-CoV-2 variant B.1.1.7 spreads in the community, doubling time for cases could drop to 10 days in March



Assumptions: 1 case infected with B.1.1.7. from the UK entering Ontario mid-Oct, transmissibility of variant 56% ↑ than other circulating variants (based on UK data), continue current restrictions.

Key components of hard lockdowns in peer jurisdictions

	Victoria, Australia	France (Fall)	UK*	Germany*	Netherlands*
Strict stay-at-home order / movement restrictions	✓	✓	✓	✓	✓
Non-essential retail closed	✓	✓	✓	✓	✓
Bars, restaurants , gyms etc. closed	✓	✓	✓	✓	✓
Most workplaces closed	✓	✓	✓	✓	✓
Schools closed	✓	✗	✓	✓	✓
Mandatory masking outdoors	✓	✓	✗	✗	✗
Testing blitz in high risk areas	✓	✗	✗	✗	✗
Curfew	✓	✓	✗	✓	✗
Enforcement	✓	✓	✓	✓	✓

✓ = fully imposed, ✓ = partially imposed, ✗ = not imposed, *Currently in lockdown

Key Findings

- Growth in cases has accelerated and is over 7% on the worst days.
- Almost 40% of long-term care homes have active COVID-19 outbreaks. Since January 1st 198 LTC residents and 2 LTC staff have died of COVID-19. Forecasts suggest more deaths in wave 2 in long-term care than in wave 1.
- COVID-19 ICU occupancy is now over 400 beds. Surgeries are being cancelled and the access to care deficit will continue to increase with real consequences for health.
- Mobility, and contacts between people have not decreased with the current restrictions. Survey data show that the majority of Ontarians are helping limit spread by following them. However, case numbers will not decline until more of the population follows their example.
- A new variant of concern of SARS-CoV-2 (B117) could drive much higher case counts, ICU occupancy and mortality if community transmission occurs. The doubling time for cases could drop by more than 2/3. This new variant is now in Ontario.
- Without significant reductions in contacts, the health system will be overwhelmed and mortality will exceed the first wave totals before a vaccine has time to take effect.

Content provided by Modelling Consensus and Scientific Advisory Table members and secretariat

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