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

- **Sept 17** In-person classes for all major school boards
- **Sept 19** Limits on social gathering sizes
- **Sept 25** Restrictions on bars and restaurants
- **Oct 9** Modified Stage 2 begins in Toronto, Ottawa, and Peel
- **Oct 16** Modified Stage 2 begins in York
- **Nov 23** Toronto and Peel enter 28-day lockdown
- **Dec 4** Middlesex-London + T-Bay to Restrict. Haliburton to Protect
- **Dec 14** York and Windsor-Essex enter lockdown
- **Dec 26** Province-wide lockdown 14 days N. ON 28 days S. ON

**Data source:** Case and Contact Management System, data up to January 8
COVID-19 testing % positivity across PHUs

Data source: Ontario Laboratories Information System (OLIS), data up to January 4
Percent of COVID test results returned within 2 days across PHUs

Data source: Ontario Laboratories Information System (OLIS), data up to January 4
### Weekly % positivity by age group

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<td>0.4</td>
<td>0.5</td>
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**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)

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Data Source: Ministry of Long-Term Care Tracker, Dec 19th extraction based on data reported up to 3:30 pm Jan 9th, 2021. Data are self-reported by the long-term care homes to the Ministry of Long-Term Care. Daily case and death figures may not immediately match the numbers posted by the local public health units (i.e. iPHIS database) due to lags in reporting time.
Projections: second wave cumulative LTC resident COVID-19 deaths >2,600 by Feb 14 in worst case scenario

Projected and actual cumulative LTC resident COVID-19 deaths (Sep 1, 2020-Feb 14, 2021)

- **Projected deaths**
- **Actual cumulative deaths (MLTC tracker)**

1,119 actual deaths as of Jan 9, 2021

2,639 projected deaths as of Feb 14, 2021 (worst case)

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

Predictions: MOH Capacity Planning and Analytics Division

Data: (CumulativeDeaths): MLTC Tracker Tool
Long-term Care Outbreaks
July 1, 2020

Size of outbreak (staff and residents)
Long-term Care Outbreaks
October 1, 2020

Size of outbreak (staff and residents)
Long-term Care Outbreaks
January 7, 2021

Size of outbreak (staff and residents)
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.
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?

- Occasionally or never: 35%
- Most of the time/sometimes: 40%
- All the time: 25%

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

- 3 or more: 32%
- 1-2: 28%
- None: 50%

• And if so, did you observe restrictions?

- Didn’t observe restrictions: 34%
- Observed restrictions: 66%

Survey: Fields Institute
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

Over the past 4 weeks:
- **72.2% increase** in hospitalizations
- **61.2% increase** in ICU patients

**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

Sources: Public Health England Technical Reports; Davies NG et al (LSHTM)
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. 1 case infected with B.1.1.7 from the UK entering Ontario mid-Oct,
2. Transmissibility of variant 56% greater than other circulating variants (based on UK data),
3. Continue current restrictions.

Predictions: QueensU
## Key components of hard lockdowns in peer jurisdictions

<table>
<thead>
<tr>
<th>Strict stay-at-home order / movement restrictions</th>
<th>Victoria, Australia</th>
<th>France (Fall)</th>
<th>UK*</th>
<th>Germany*</th>
<th>Netherlands*</th>
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<tbody>
<tr>
<td>Non-essential retail closed</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Bars, restaurants, gyms etc. closed</td>
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<td>✓</td>
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<tr>
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</table>

✓ = fully imposed, ✓ = partially imposed, ✗ = not imposed, *Currently in lockdown
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Content provided by Modelling Consensus and Scientific Advisory Table members and secretariat


* Chairs of Scientific Advisory or Modelling Consensus Tables