Update on COVID-19 Projections

Science Advisory and Modelling Consensus Tables

March 11, 2021

Key Findings

- **Vaccination in long-term care has paid off.**

- **Progress otherwise has stalled.** Declines in community cases and test positivity have levelled off. Cases are increasing in most Public Health Units as we see mobility rise.

- Variants of concern continue to spread across Ontario. Our ability to control the rate of spread will determine whether we return to normal or face a third wave of infection. We know what works: **continued masking and distancing are essential to controlling variants of concern**.

- **Our behaviour over the next few weeks is critical in determining the quality of our summer**.

- High volumes of postponed care and missed screening and preventative care mean that there will be a substantial and prolonged surge in need for care across sectors. **Our actions now affect our ability to access care later.**

- Controlling cases, increasing vaccinations where they will have the greatest impact, and accelerating vaccinations overall are how we beat the pandemic.

Staff and resident cases continue to decrease and deaths have flattened (no resident deaths in last five days)
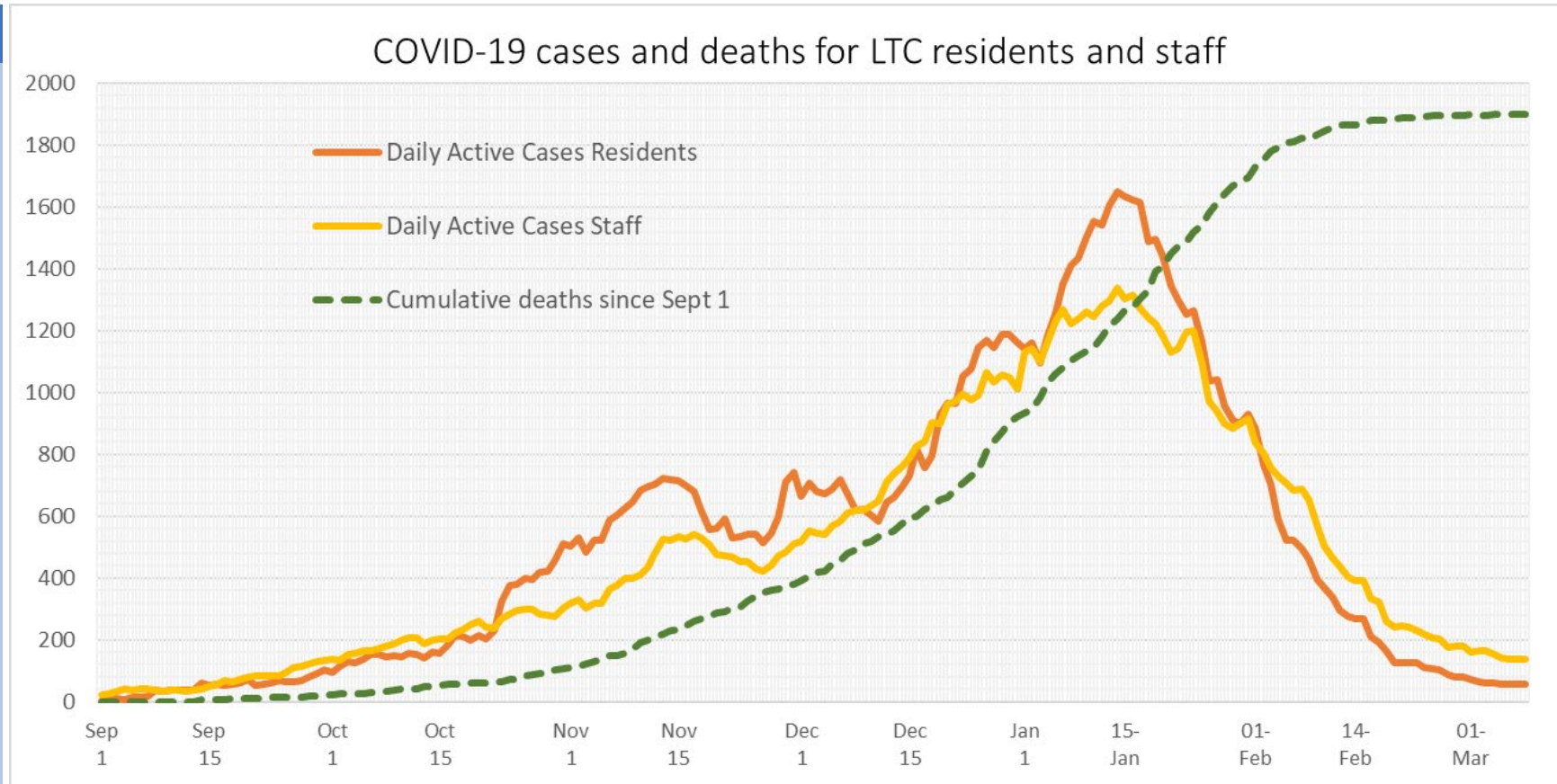
LTC Home cases and outbreaks

Current status

25 LTC homes have outbreaks involving resident cases.

**13 Public Health Units have no homes in outbreak.**

Almost half of LTC homes in outbreak are in York, Toronto and Peel.

Total number of resident deaths in Wave 2 has been greater than in Wave 1 (1,900 vs 1,848).

COVID-19 cases and deaths for LTC residents and staff

- Daily Active Cases Residents
- Daily Active Cases Staff
- Cumulative deaths since Sept 1

Data Source: Ministry of Long Term Care Tracker, March 8 extraction based on data reported up to 3:30 pm March 7, 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.
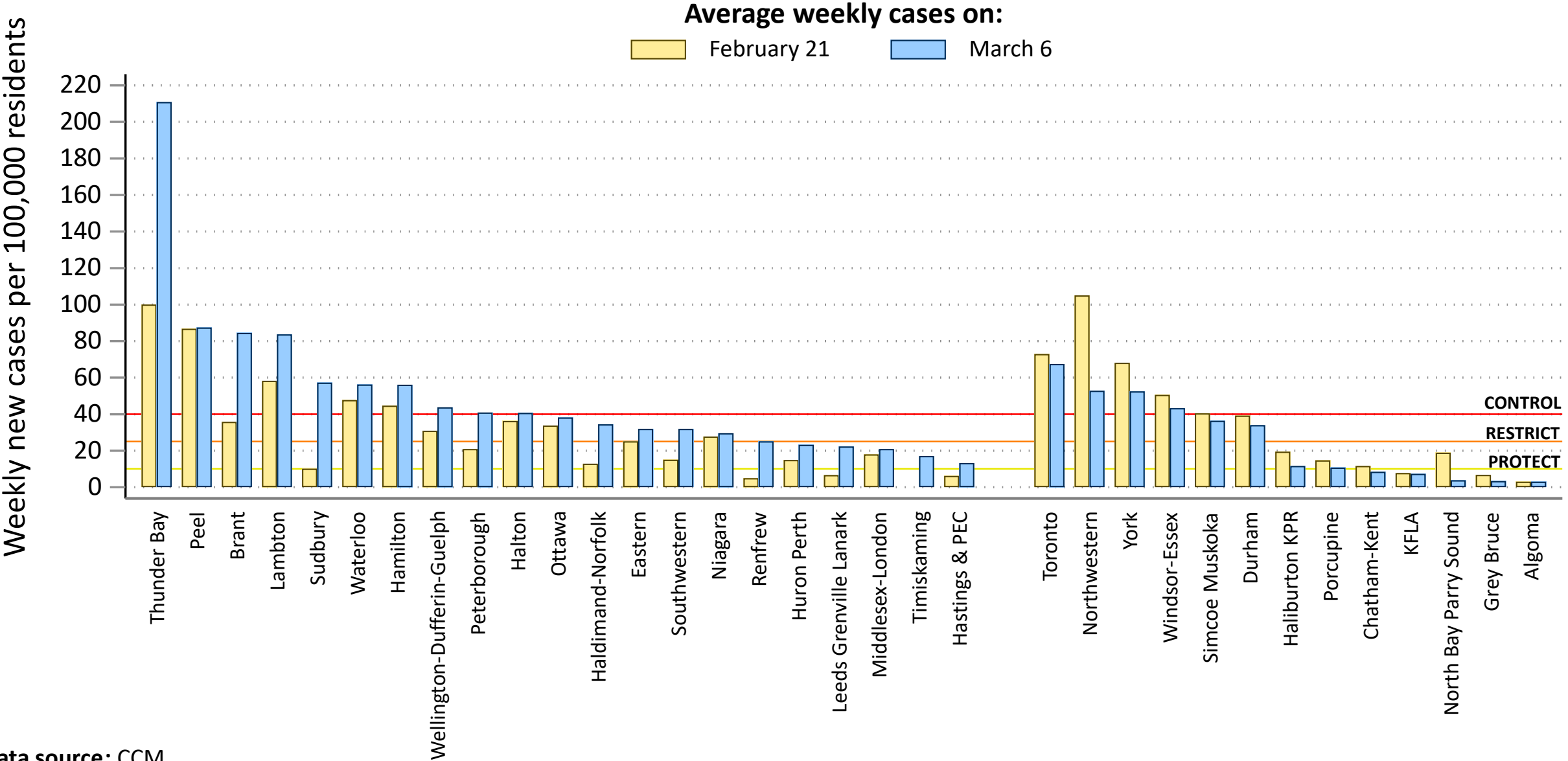
Increasing mobility brings the risk of rising case numbers in the community
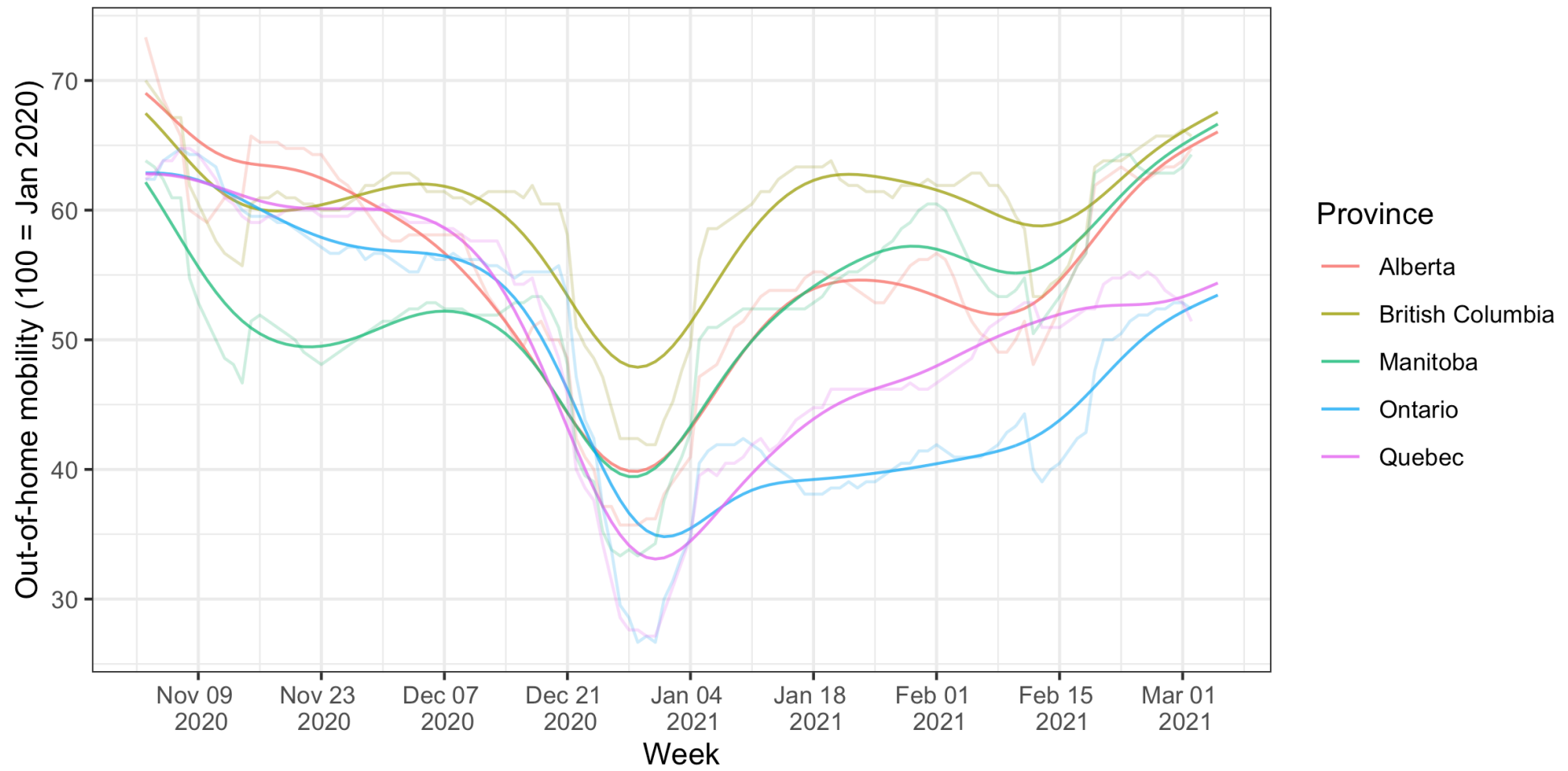
The ***mobility index*** is the estimated proportion of time spent outside of home − 100 represents January 2020 levels.
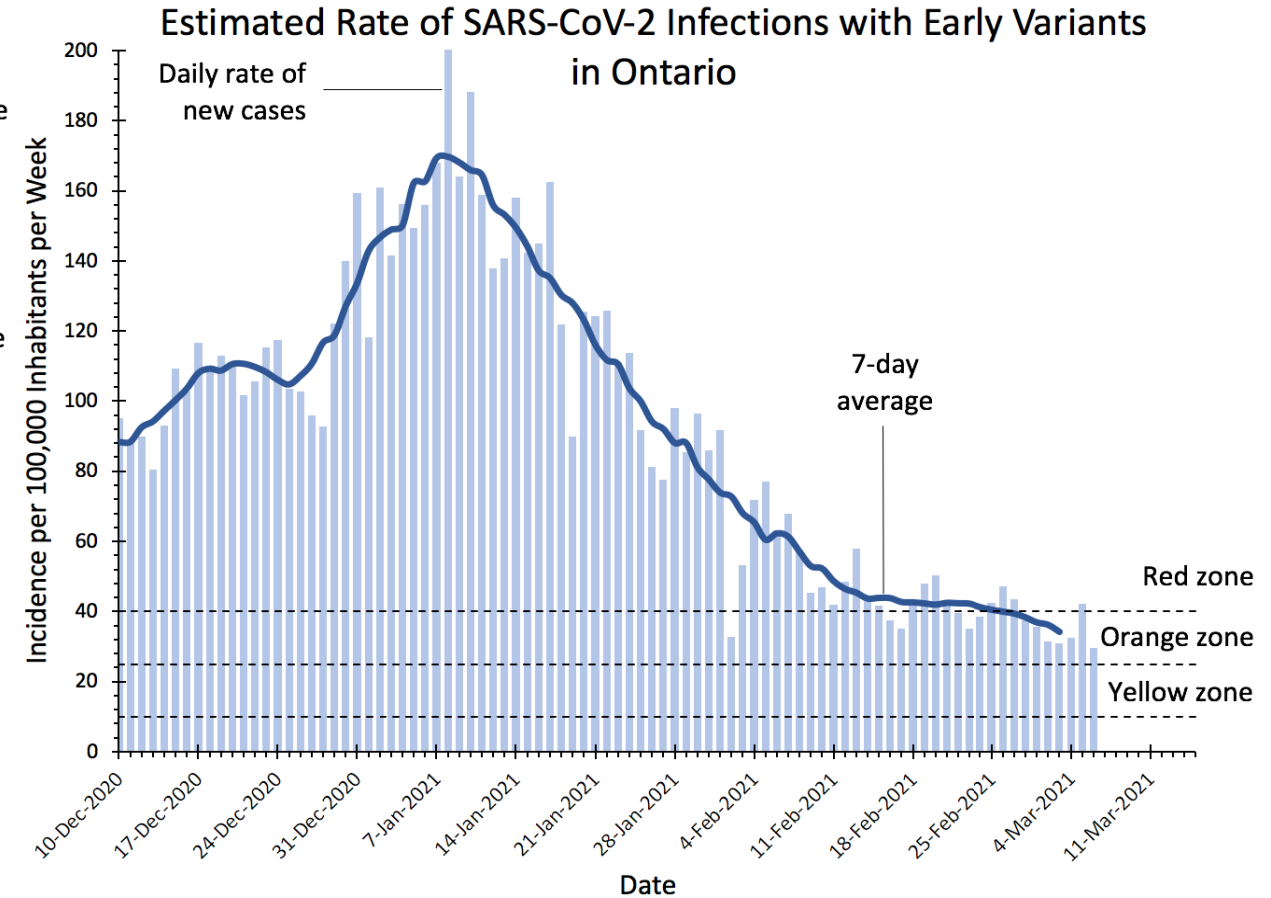Data from: https://www.google.com/covid19/mobility/

Cases are increasing or past "Restrict" in most Public Health Units

Average weekly cases on:

☐ February 21   ☐ March 6

Y-axis: Weekly new cases per 100,000 residents

Reference lines: CONTROL (40), RESTRICT (25), PROTECT (10)

Data source: CCM
Data note: Data for the most recent day have been censored to account for reporting delays

New variants of concern spread more easily than early variants

Estimated Rate of SARS-CoV-2 Infections with New Variants of Concern in Ontario

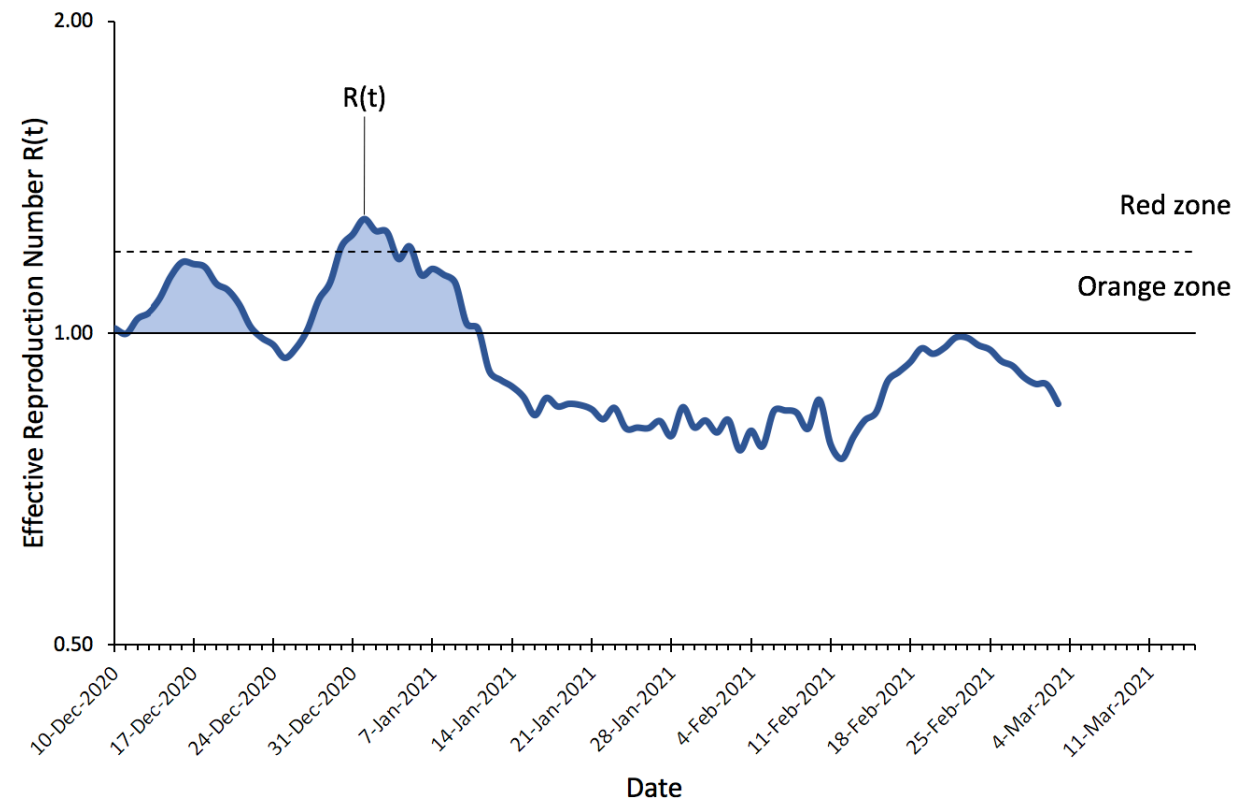Estimated Rate of SARS-CoV-2 Infections with Early Variants in Ontario
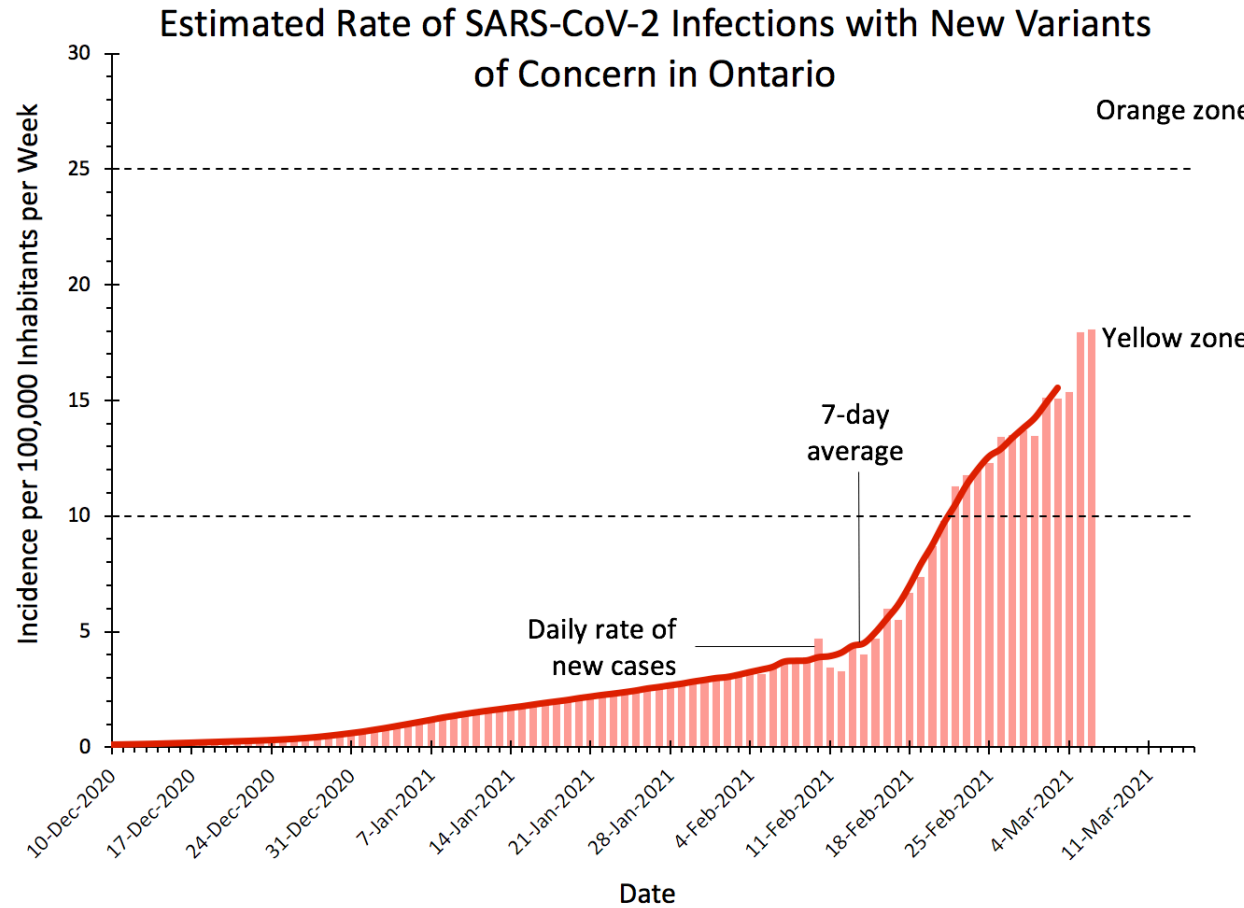
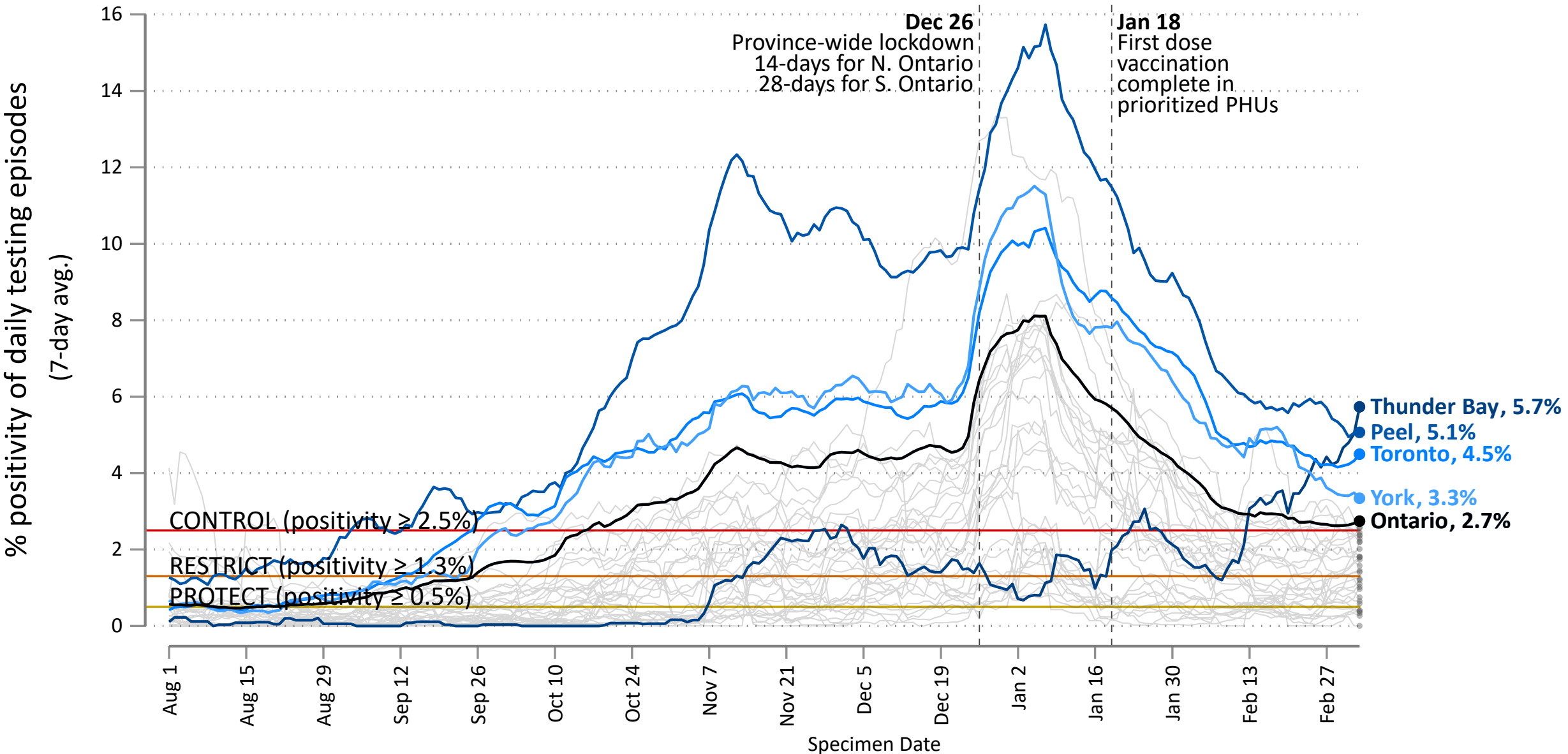# New variants of concern spread more easily than early variants

Effective Reproduction Number R(t) for New Variants of Concern in Ontario
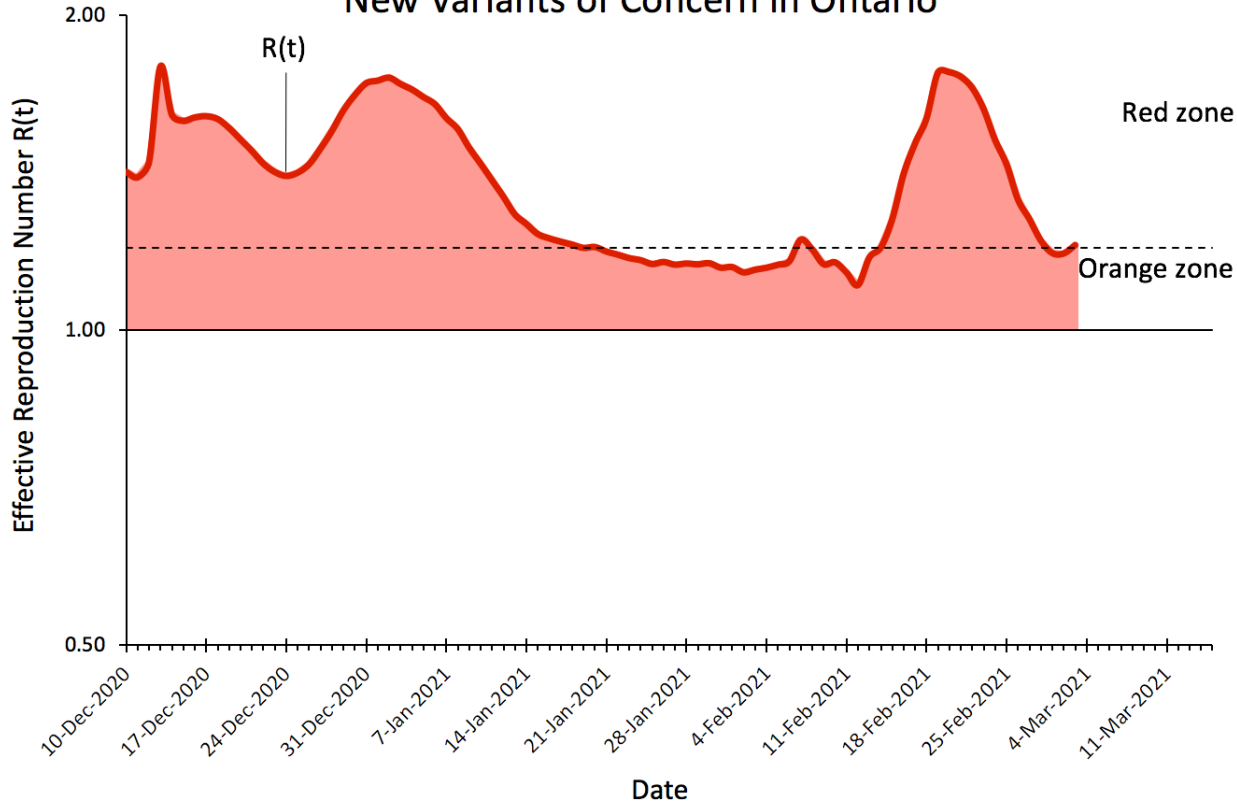
Effective Reproduction Number R(t) for Early Variants in Ontario

COVID-19 testing % positivity across Public Health Units

Dec 26
Province-wide lockdown
14-days for N. Ontario
28-days for S. Ontario

Jan 18
First dose
vaccination
complete in
prioritized PHUs

y-axis: % positivity of daily testing episodes (7-day avg.)

x-axis: Specimen Date

CONTROL (positivity ≥ 2.5%)
RESTRICT (positivity ≥ 1.3%)
PROTECT (positivity ≥ 0.5%)

Thunder Bay, 5.7%
Peel, 5.1%
Toronto, 4.5%
York, 3.3%
Ontario, 2.7%

Aug 1, Aug 15, Aug 29, Sep 12, Sep 26, Oct 10, Oct 24, Nov 7, Nov 21, Dec 5, Dec 19, Jan 2, Jan 16, Jan 30, Feb 13, Feb 27

Data source: Ontario Laboratory Information System (OLIS), data up to March 5

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Testing episodes per 100K across Public Health Units

Testing episodes per 100,000 (7-day avg.)

Specimen Date

Timiskaming, 552
Thunder Bay, 539
Ontario, 287
Grey Bruce, 190
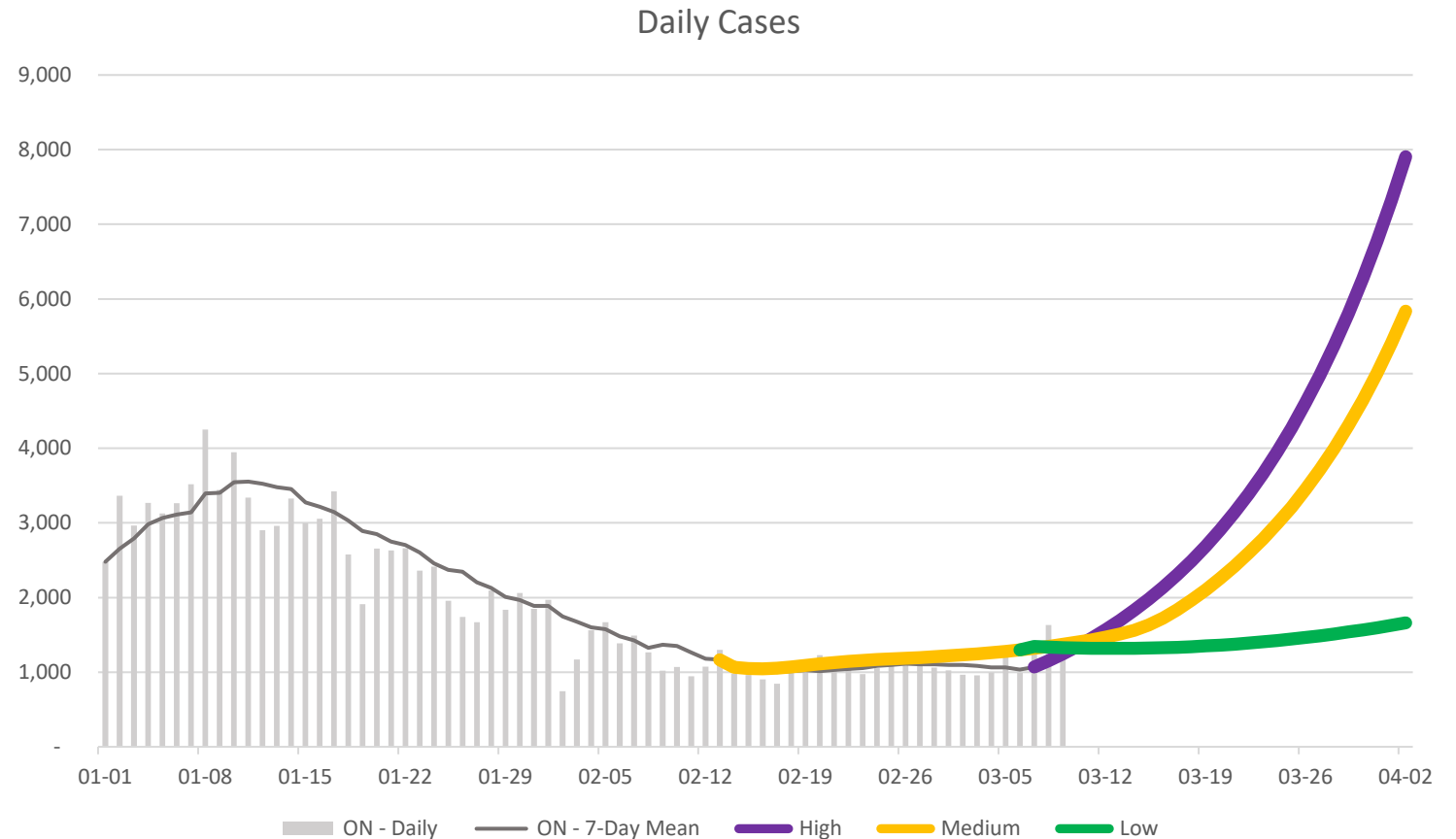Windsor-Essex, 184
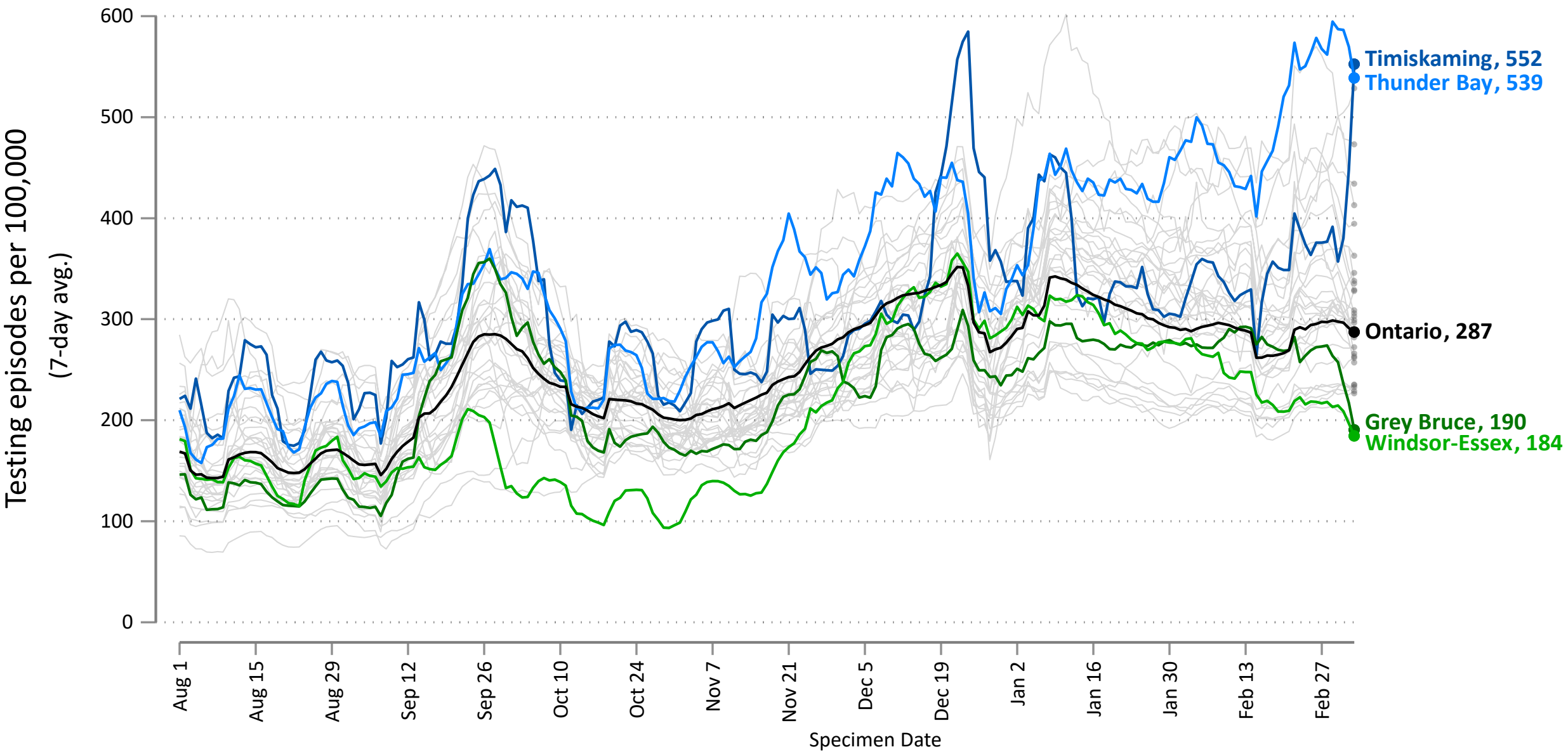
Data source: Ontario Laboratory Information System (OLIS), data up to March 5

Case projections depend heavily on spread of variants
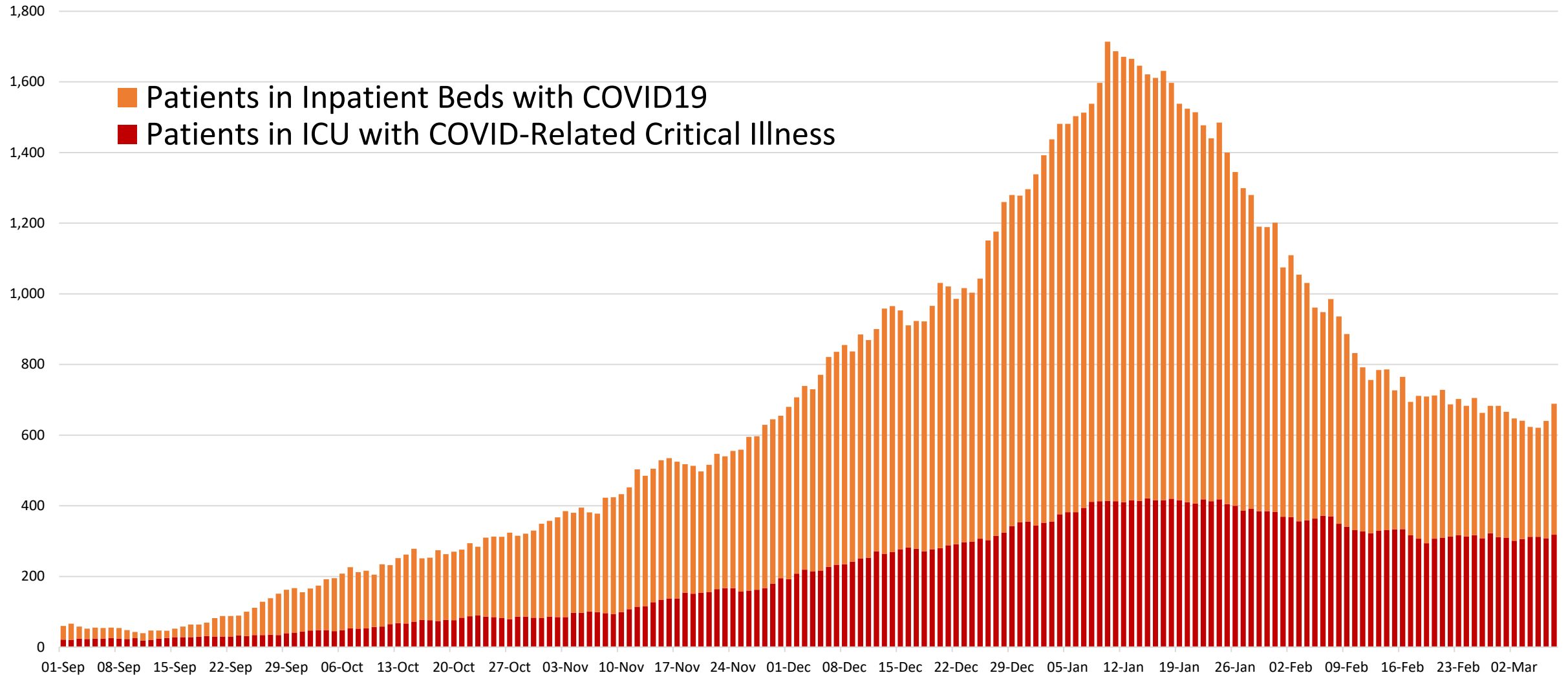
Scenarios based on 5 models, 3-5 scenarios each.

Optimistic scenario reflects:
- Modeling approach
- Low increase of VOCs over time
- Low transmissibility of VOCs
- Degree and timing of relaxing public health measures

Daily Cases

Predictions informed by modeling from COVID-19 ModCollab, Fields Institute, McMasterU, PHO, YorkU
Data (Observed Cases): covid-19.ontario.ca

COVID-19 hospitalization and ICU occupancy decreases have levelled off.

Legend:
- Patients in Inpatient Beds with COVID19
- Patients in ICU with COVID-Related Critical Illness

As with cases, ICU projections depend heavily on variants and public health measures

ICU Occupancy

Legend: ON Observed, ON Predicted, High, Medium, Low, Capacity Threshold

Predictions: COVID-19 ModCollab.
Data (Observed ICU Occupancy): CCSO
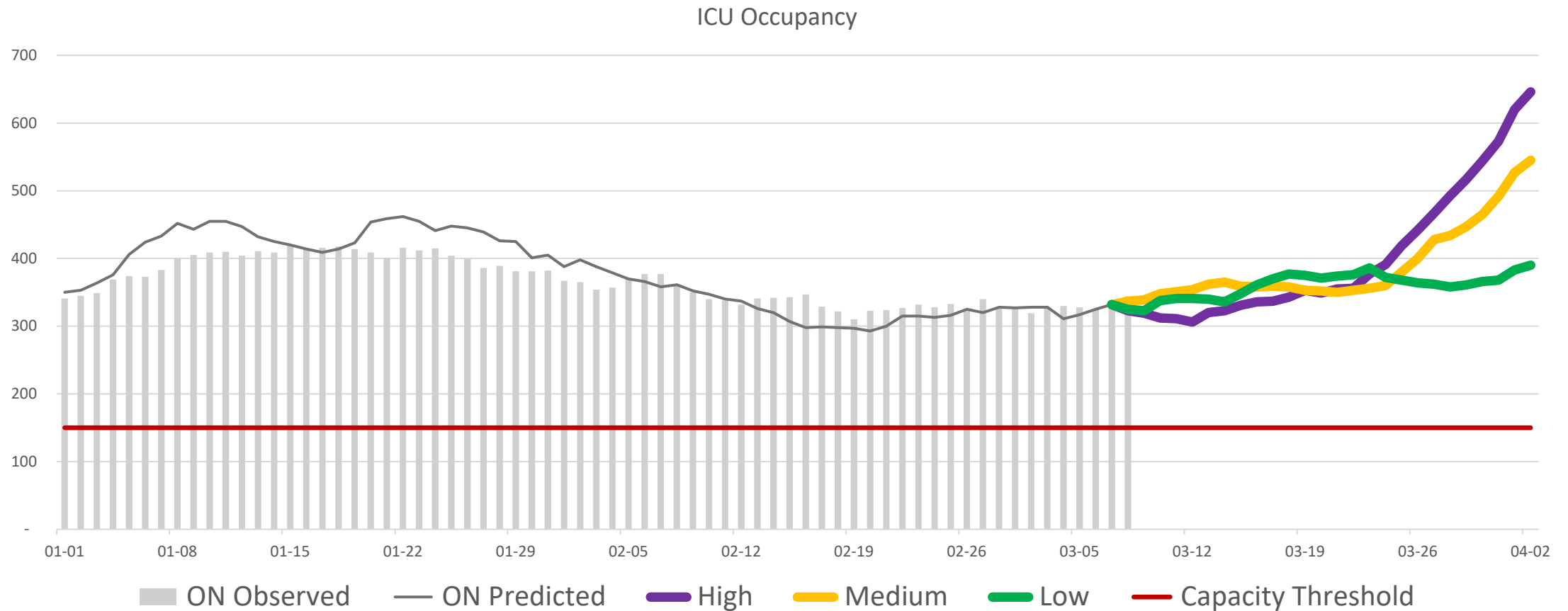
Estimated surgery backlog is building

Cumulative backlogged surgical cases: **227,410**

March 15: Provincial hospital shutdown

May 26: Surgical restart implemented

Cumulative number of backlogged scheduled surgery cases

250,000
200,000
150,000
100,000
50,000
0

Mar-20 · Apr-20 · May-20 · Jun-20 · Jul-20 · Aug-20 · Sep-20 · Oct-20 · Nov-20 · Dec-20 · Jan-21 · Feb-21
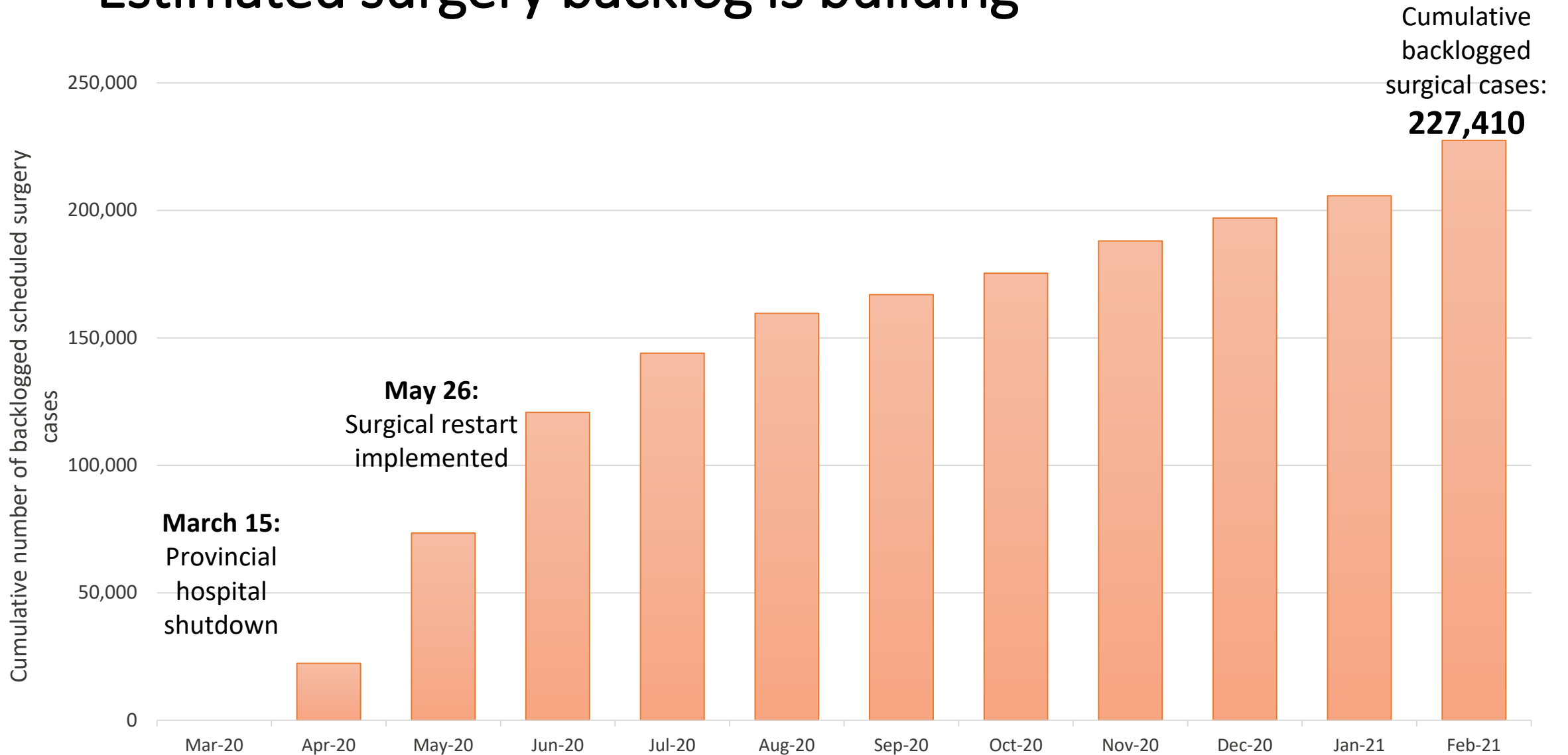
Cancer Screening volumes have declined substantially with long-term consequences for cancer outcomes

Cancer Screening Test Volumes in 2019 and 2020

Cancer Screening Services Resumed

Legend: Fecal tests — Screening mammography — Pap tests
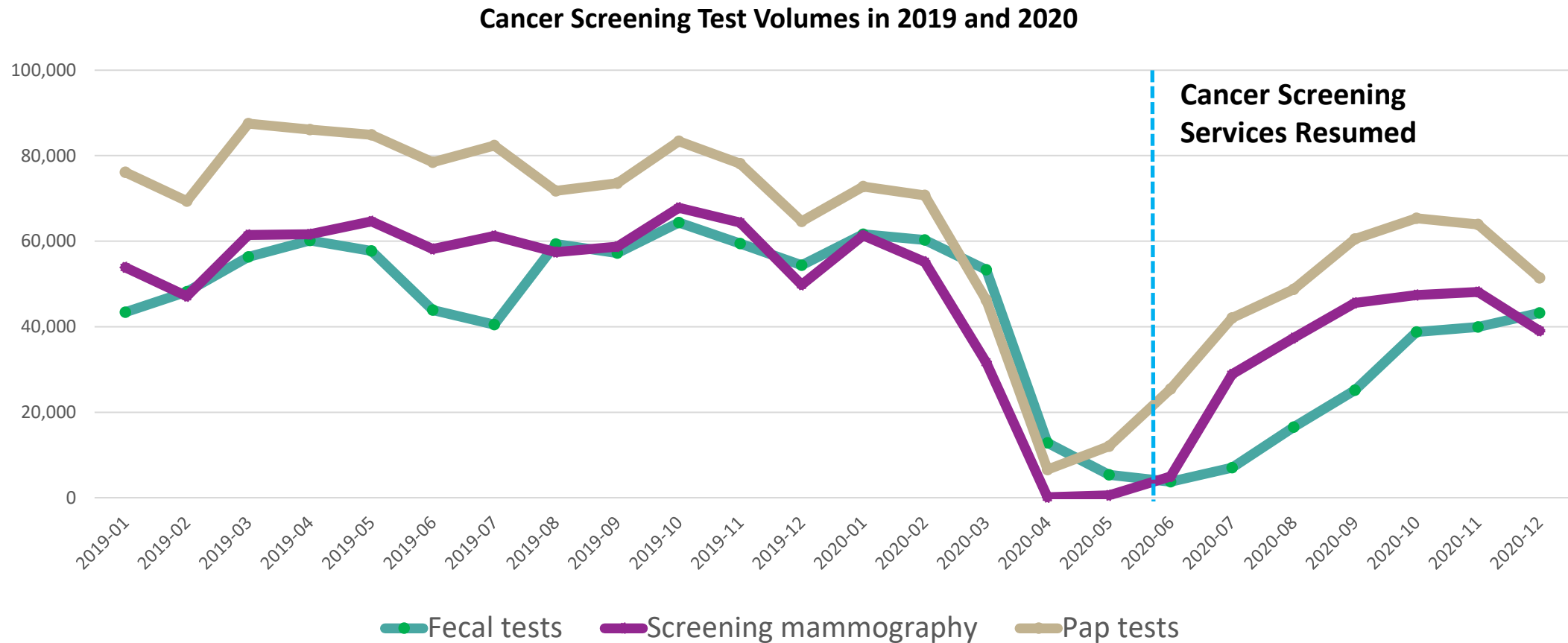
More Ontarians are getting vaccinated, focusing coverage on areas where impact is greatest will be important.

— Individuals that have received at least 1 dose — Individuals that have been fully vaccinated (2 doses)

Y-axis: Cumulative # of Individuals (0 to 700000)
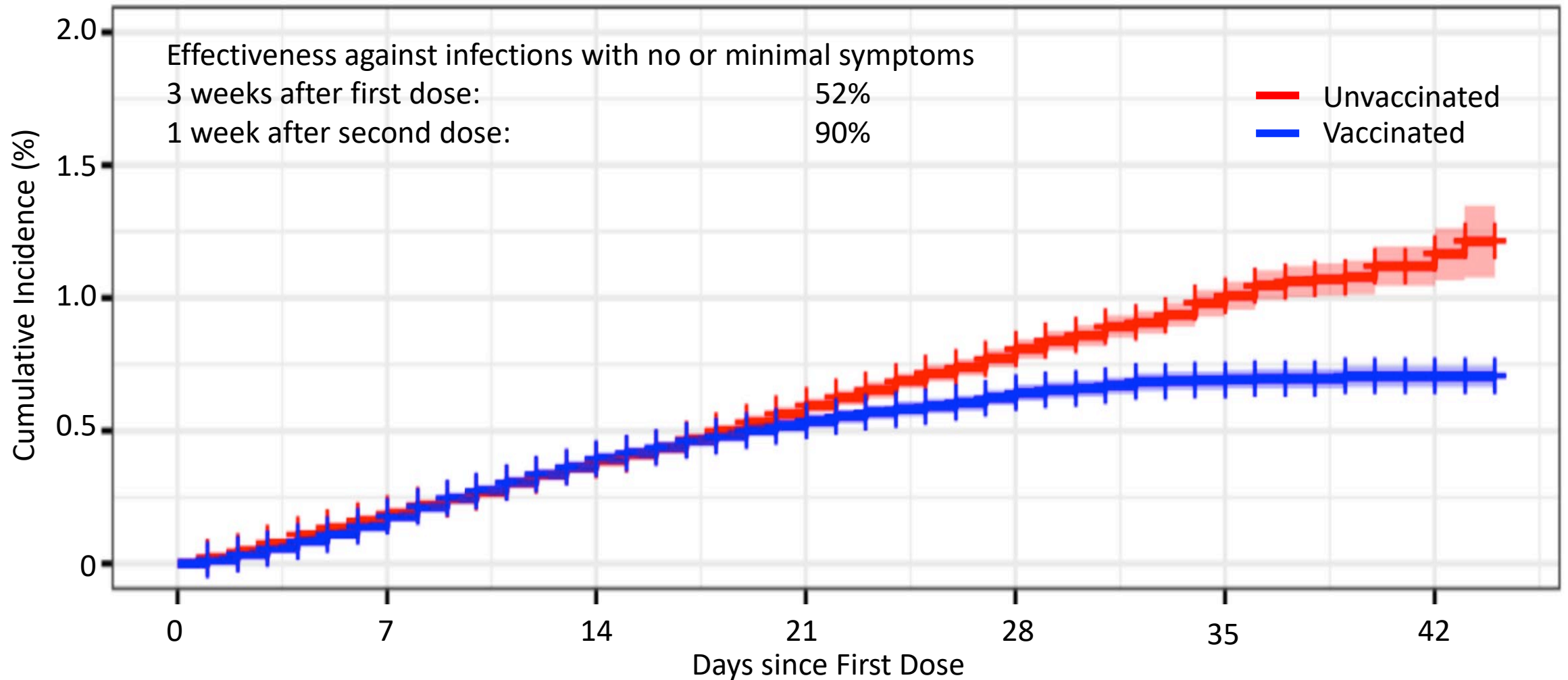
X-axis: Time Given (2020-12-15 to 2021-03-07)
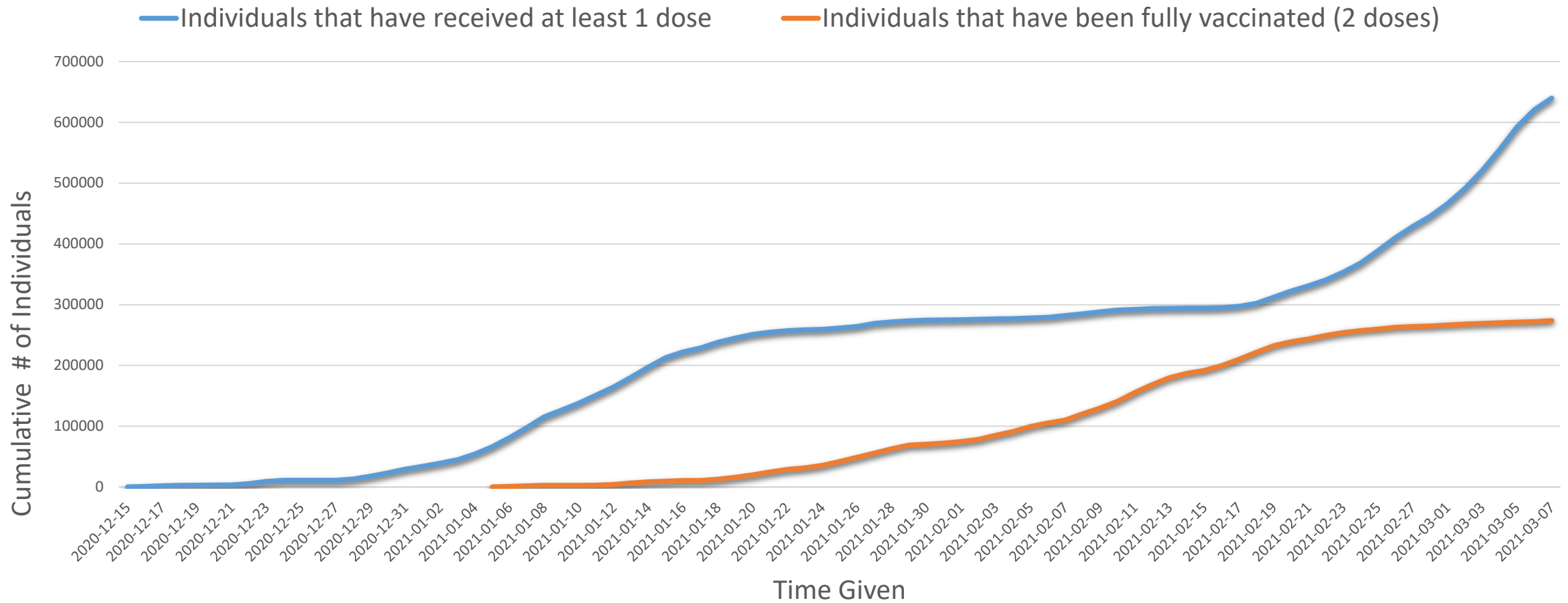
Source: COVax-ON data March 8, 2021 – 2:10 PM
- Data for Time Given between 12/15/2020 to 03/07/2021
- Dose 1 Administered was determined based on the first Time Given for each client.
- Dose 2 Administered was determined based on the last Time Given for each client where there is more than 1 dose administered

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Real-world evidence suggests vaccines reduce infection and decrease transmission

Effectiveness against infections with no or minimal symptoms
3 weeks after first dose: 52%
1 week after second dose: 90%

Cumulative Incidence (%)

Days since First Dose

Dagan et al, N Engl J Med 2021; evidence is for Pfizer-BioNTech BNT162b2 mRNA Covid-19 Vaccine

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