Update on COVID-19 Projections
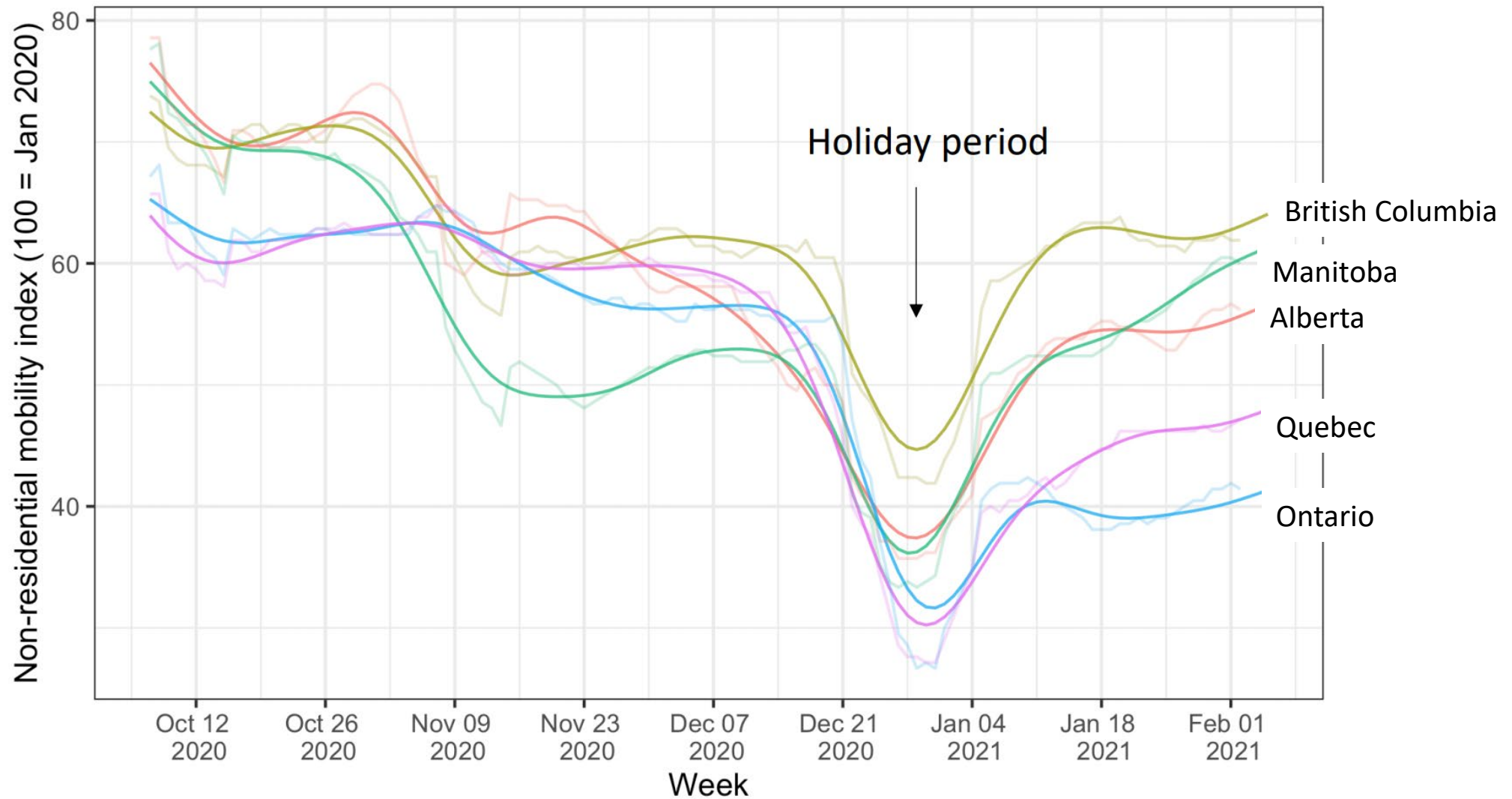
Science Advisory and Modelling Consensus Tables
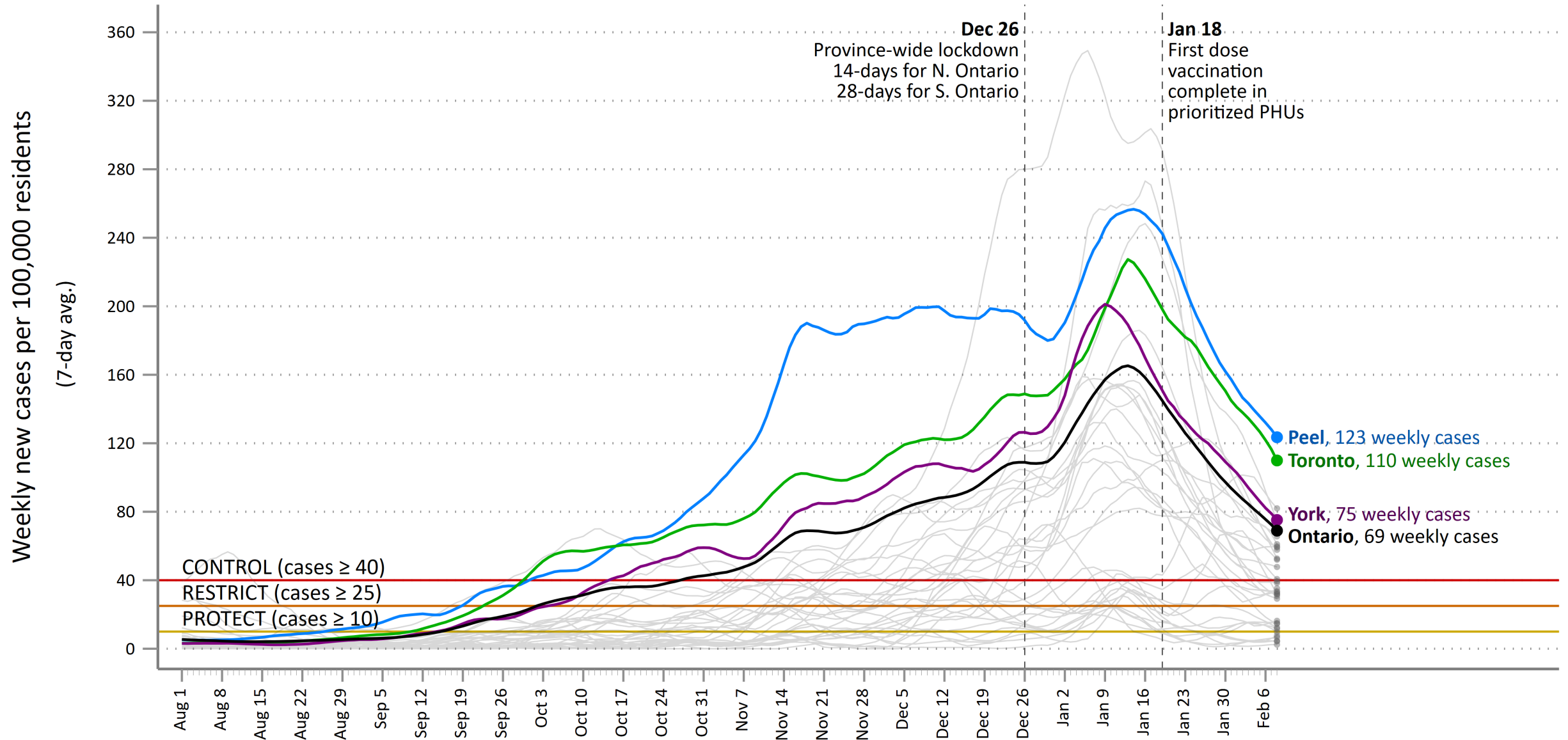
February 11, 2021

Key Findings

- Public health measures are paying off in declining mobility, cases, positivity, and hospitalizations.
- Focussing vaccination on long-term care homes is paying off with declining daily deaths.
- ICU occupancy is flat and the access to care deficit continues to grow.
- The B.1.1.7 Variant of Concern is spreading. Cases will likely grow again in late February with ICU admissions increasing afterwards.
- Aggressive vaccination and sticking with stay-at-home order will help avoid a third wave and a third lockdown.
- Some key mental health indicators are unchanged. However, important measures such as emergency department admissions, opioid deaths and care for eating disorders are worsening.

# Declines in mobility have helped reduce cases

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

Weekly new cases per 100,000 residents (7-day avg.)

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

Jan 18
First dose
vaccination
complete in
prioritized PHUs

CONTROL (cases ≥ 40)
RESTRICT (cases ≥ 25)
PROTECT (cases ≥ 10)

Peel, 123 weekly cases
Toronto, 110 weekly cases
York, 75 weekly cases
Ontario, 69 weekly cases

Aug 1, Aug 8, Aug 15, Aug 22, Aug 29, Sep 5, Sep 12, Sep 19, Sep 26, Oct 3, Oct 10, Oct 17, Oct 24, Oct 31, Nov 7, Nov 14, Nov 21, Nov 28, Dec 5, Dec 12, Dec 19, Dec 26, Jan 2, Jan 9, Jan 16, Jan 23, Jan 30, Feb 6

Data source: Case and Contact Management System (CCM), data up to February 8

4

COVID-19 testing % positivity across PHUs
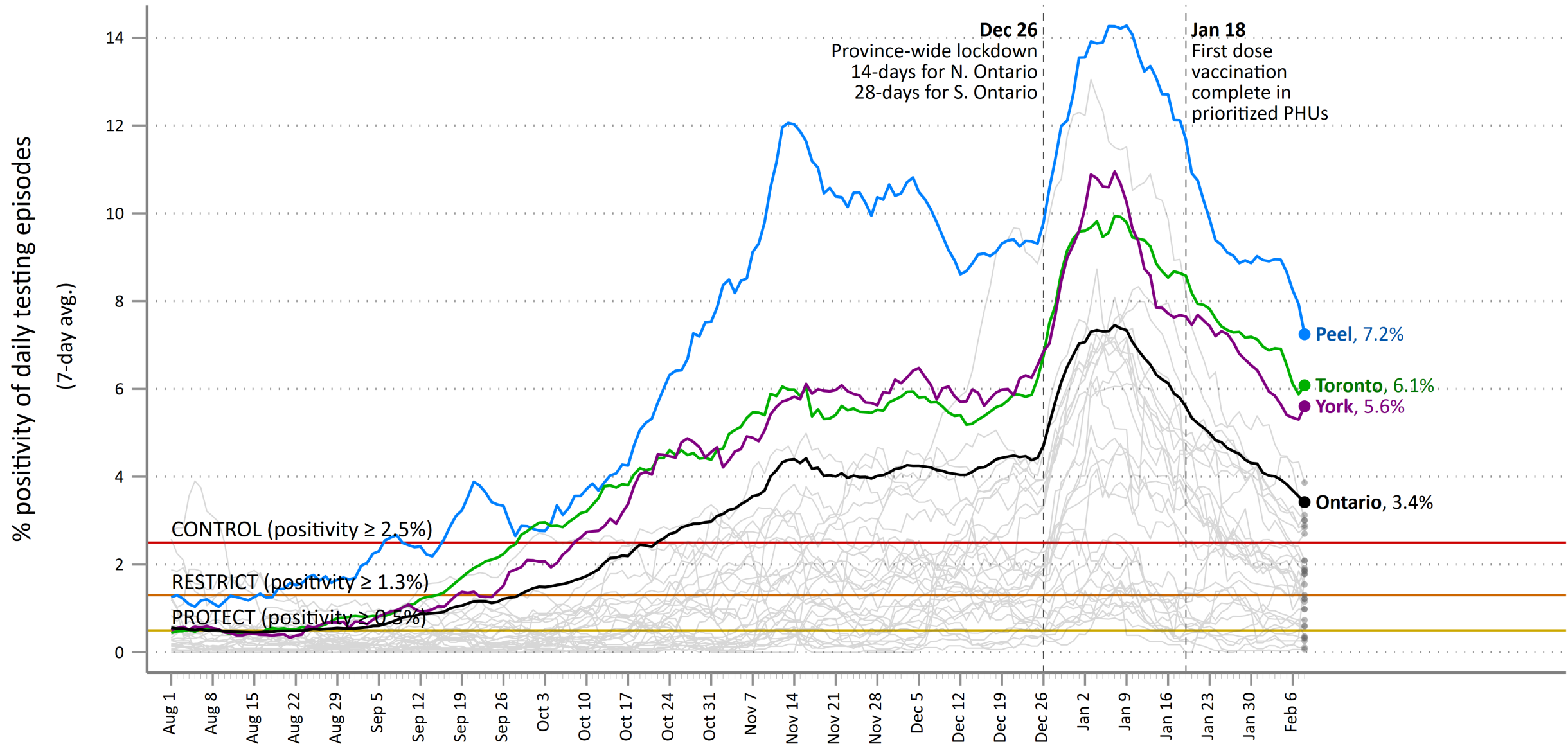
Data source: Ontario Laboratory Information System (OLIS), data up to February 8

Cases and percent positivity declined across age groups.
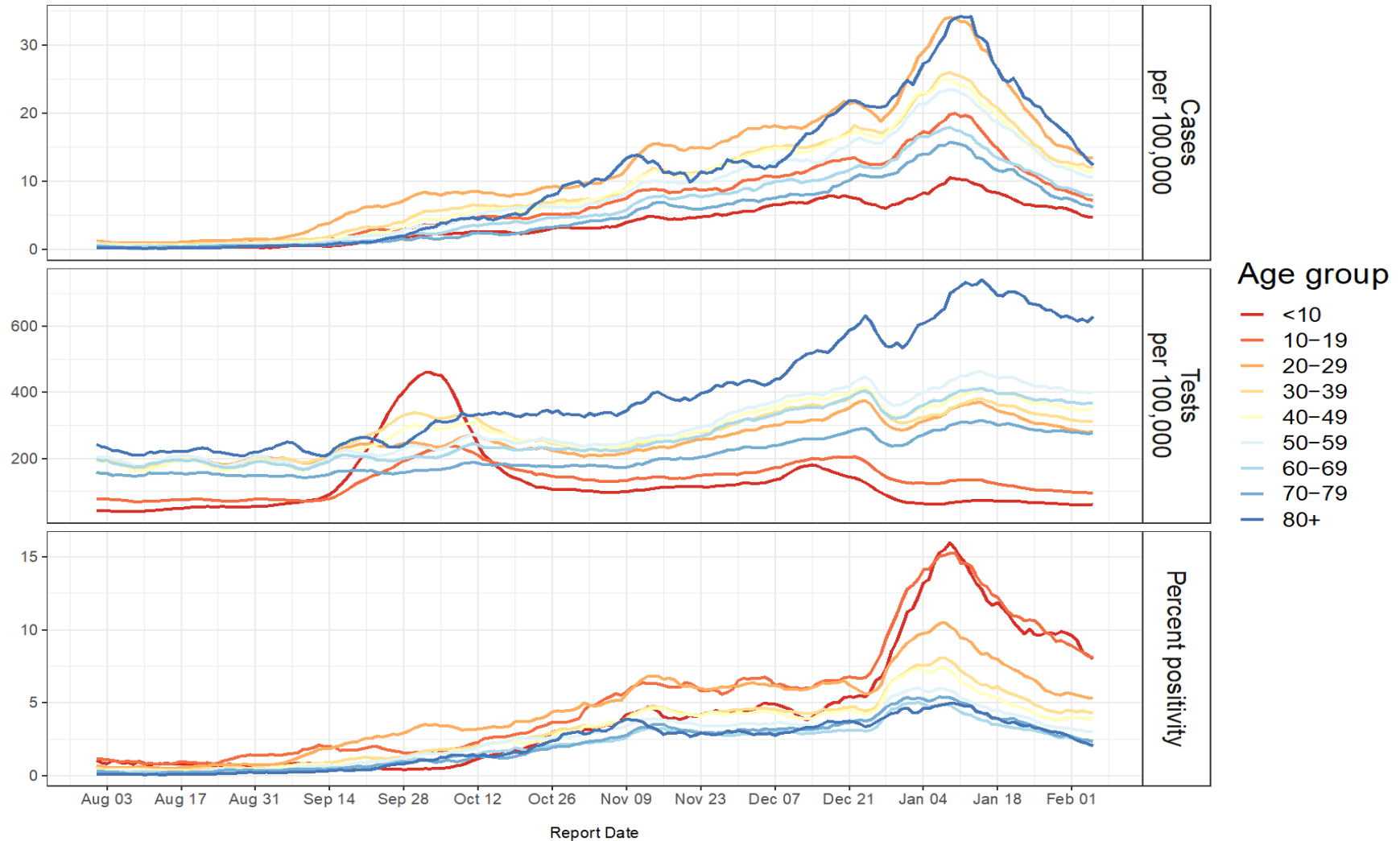
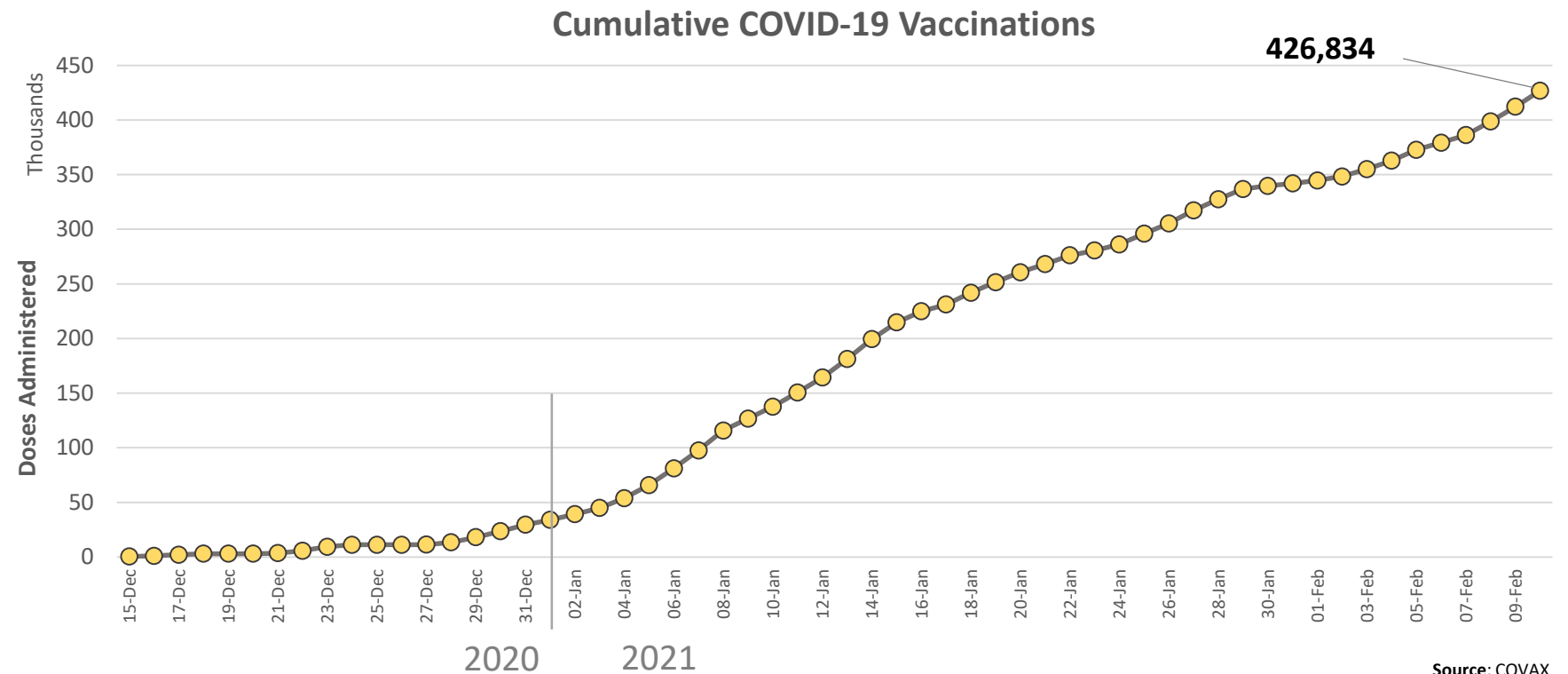# Cumulative COVID-19 vaccine dose administrations (426,834 doses to Feb 10, 2021)

Vaccine dose administrations

Current status

Since December 15, 2020, 426,834 vaccine dose administrations have been reported in COVax.

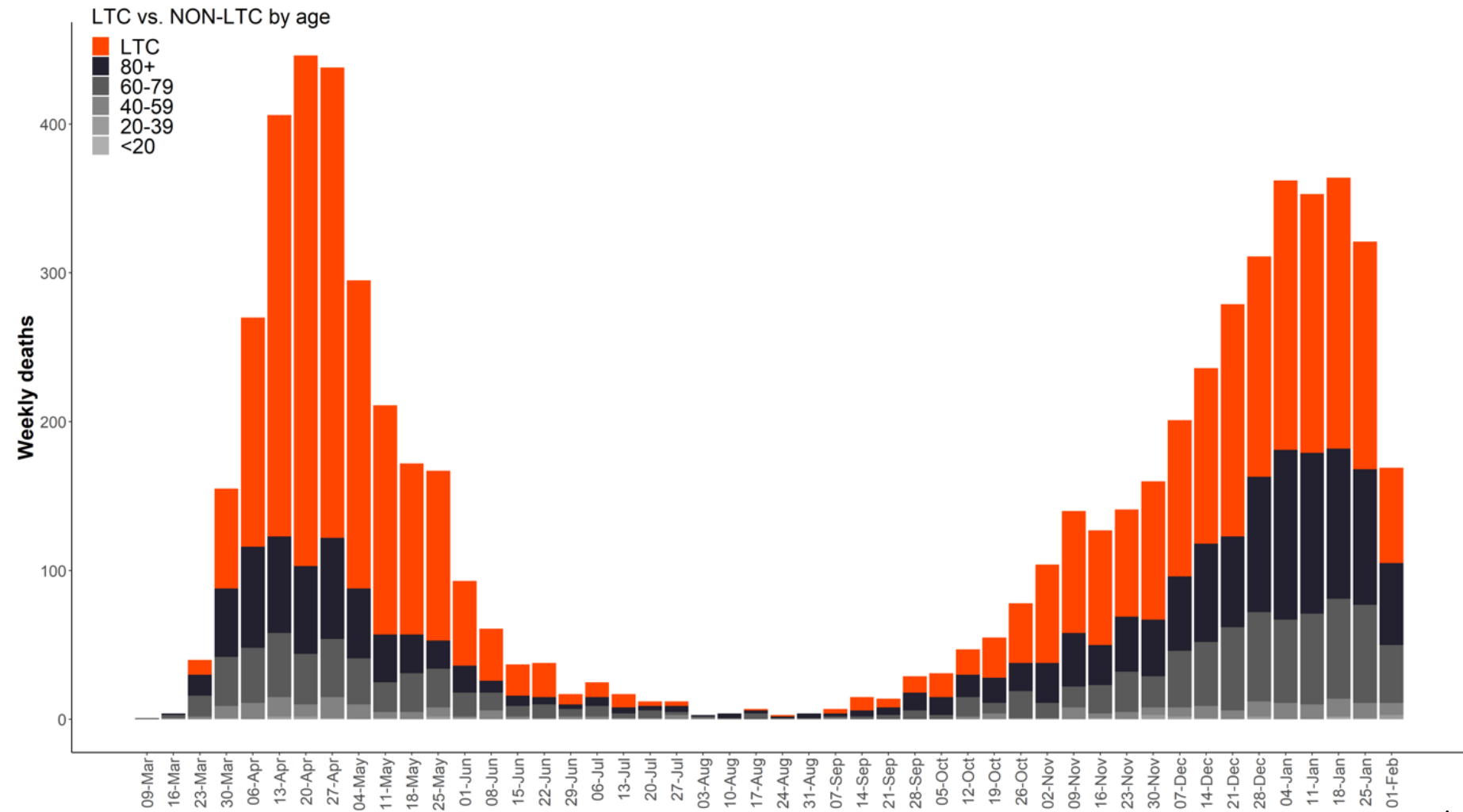These administrations include Pfizer and Moderna vaccines.

92% of vaccine administrations have been since Jan 1, 2021.

Cumulative COVID-19 Vaccinations

426,834

Source: COVAX

The majority of deaths arise from long-term care.

COVID Deaths

Analysis: COVID-19 ModCollab.
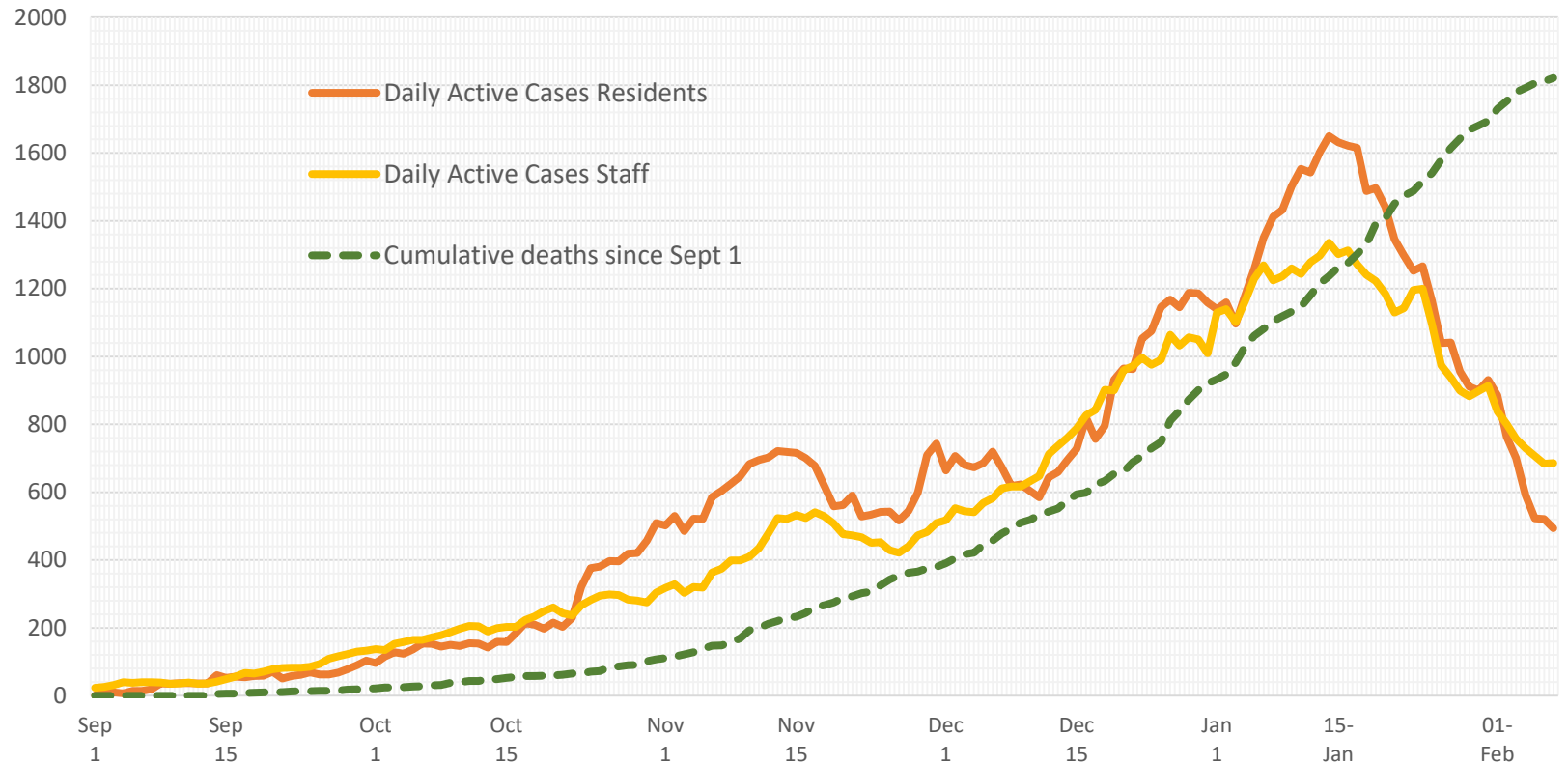**Data:** CCM+

Long-term care key indicators improved.

Current status

213 LTC homes have COVID-19 outbreaks (34% of all homes) with 90 outbreaks involving resident cases.

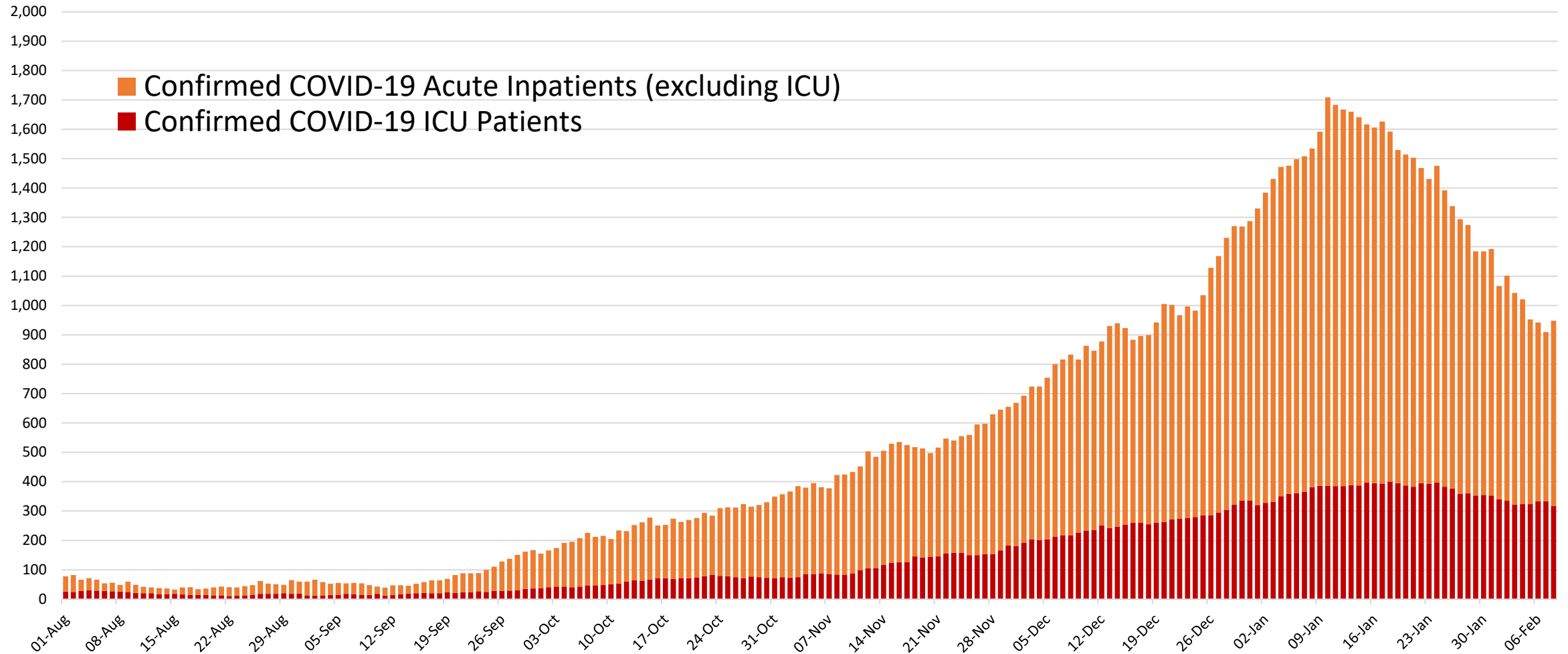**25 of 34 PHUs have at least 1 home in outbreak.**

Since January 1st 900 LTC residents and 3 staff have died of COVID-19. Wave 2 deaths (1,821) now roughly equal to Wave 1 (1,848).

COVID-19 cases and deaths for LTC residents and staff

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

Hospitalizations dropped and ICU occupancy stabilized.

Data Sources: Daily Bed Census Summary COVID-19 Report + Critical Care Information System. Extracted via MOH SAS VA February 9, 2021. Does not include patients in alternative health facilities (AHFs)

The highly transmissible B.1.1.7 variant will soon dominate.

- Variants are likely between 5% and 10% of cases now.
- To prevent an increase in total cases Re for B.1.1.7 needs to be below 0.7.
- Current Re is between 0.8 and 0.9, it has only approached 0.7 once.
- Public Health Measures appear to be effective against all variants.
- First cases of B.1.351 (detected in South Africa) and P.1 (detected in Brazil) detected in Ontario.

Predictions: QueensU
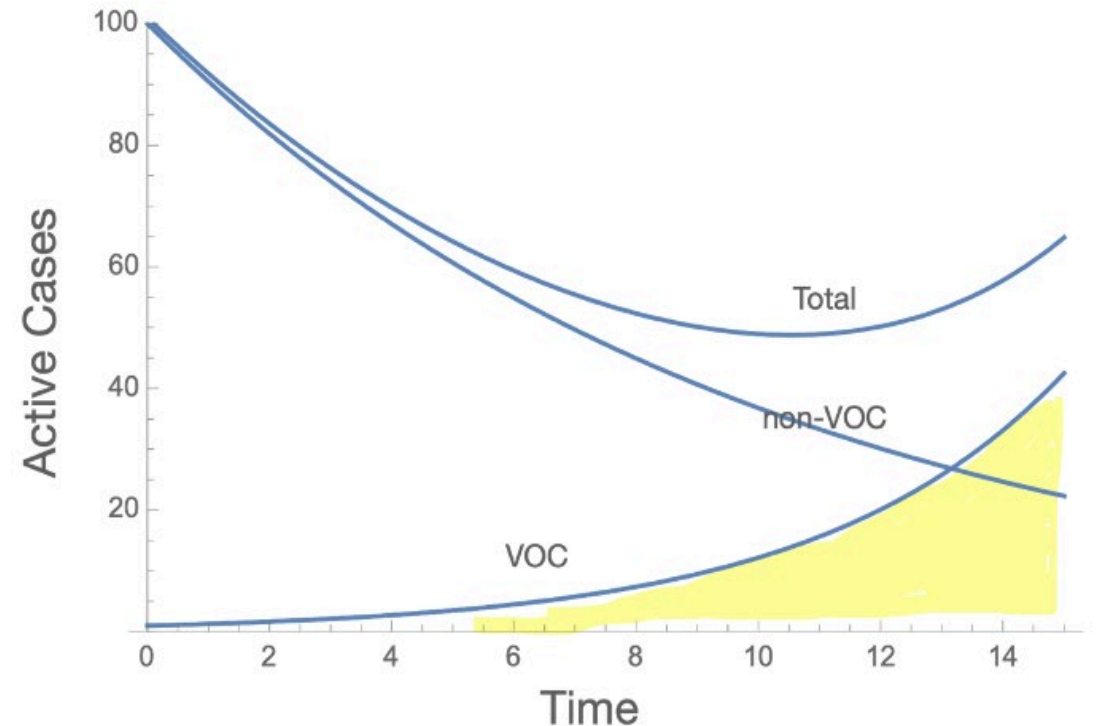
To control growth with variants, we must push R to 0.7

Toronto Forecast OV R = 0.7
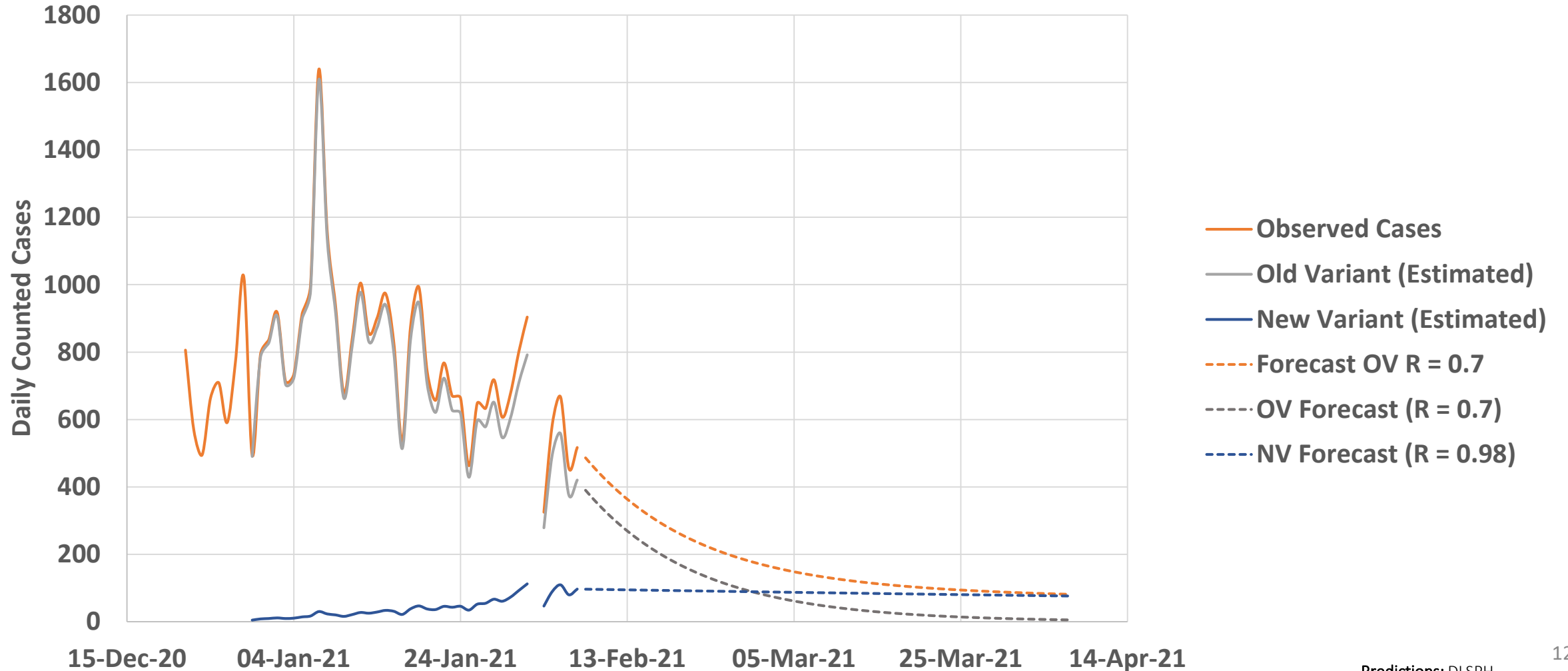
At R=0.9 (just above current) variant triggers exponential growth

Toronto Forecast OV R = 0.9

Legend:
- **Observed Cases**
- **Old Variant (Estimated)**
- **New Variant (Estimated)**
- **Forecast OV R = 0.9**
- **OV Forecast (R = 0.9)**
- **NV Forecast (R = 1.26)**

Predictions: DLSPH

13
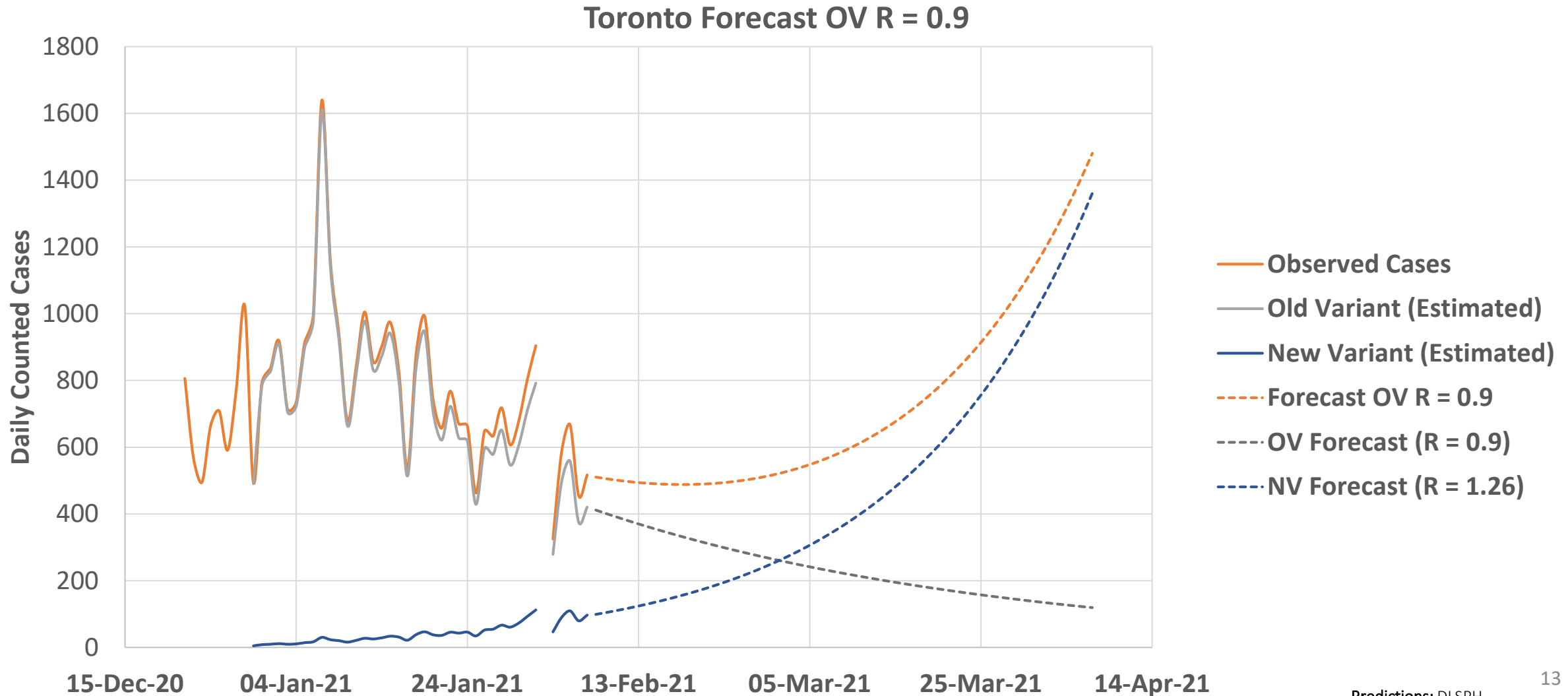
If public health measures are lifted, cases could rise dramatically depending on spread of B.1.1.7.
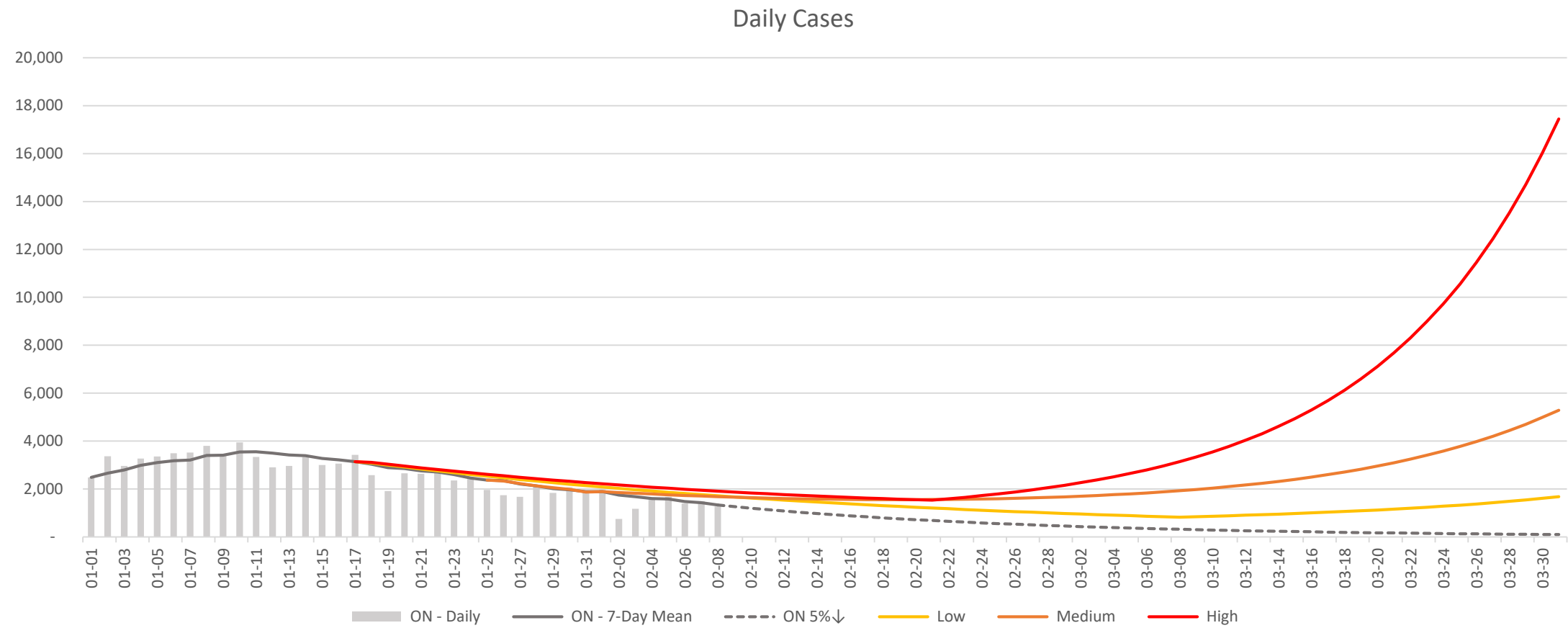
Daily Cases

ON - Daily   ON - 7-Day Mean   ON 5%↓   Low   Medium   High

The majority of ICU admissions arise outside of long-term care homes.

COVID ICU Admission

LTC vs. NON-LTC by age
- LTC
- 80+
- 60-79
- 40-59
- 20-39
- <20
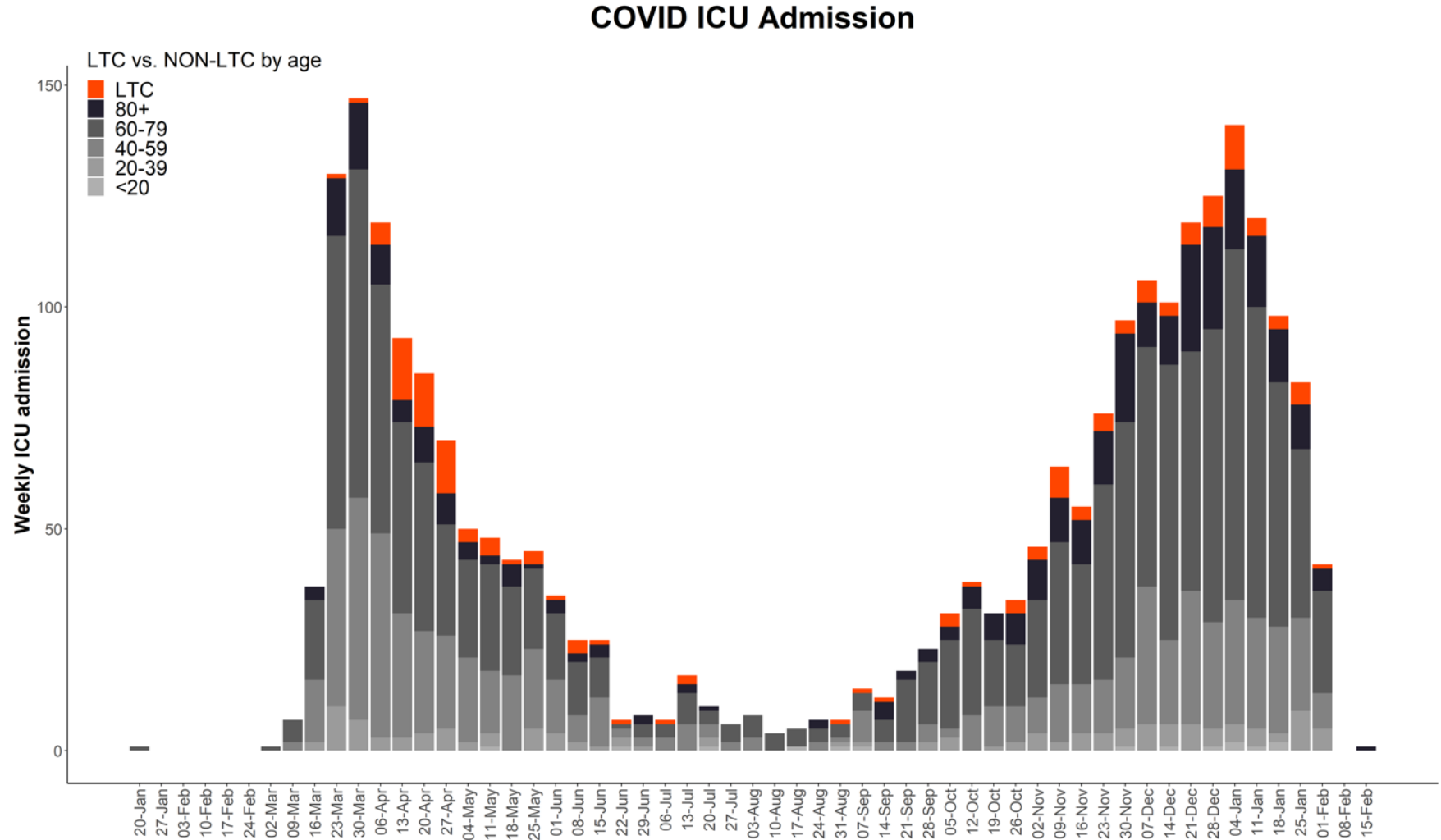
ICU Occupancy will follow changes in case rates by two weeks. Growth could start as early as the second week in March.

ICU Occupancy

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

Predictions: COVID-19 ModCollab.
Data (Observed ICU Occupancy): CCSO
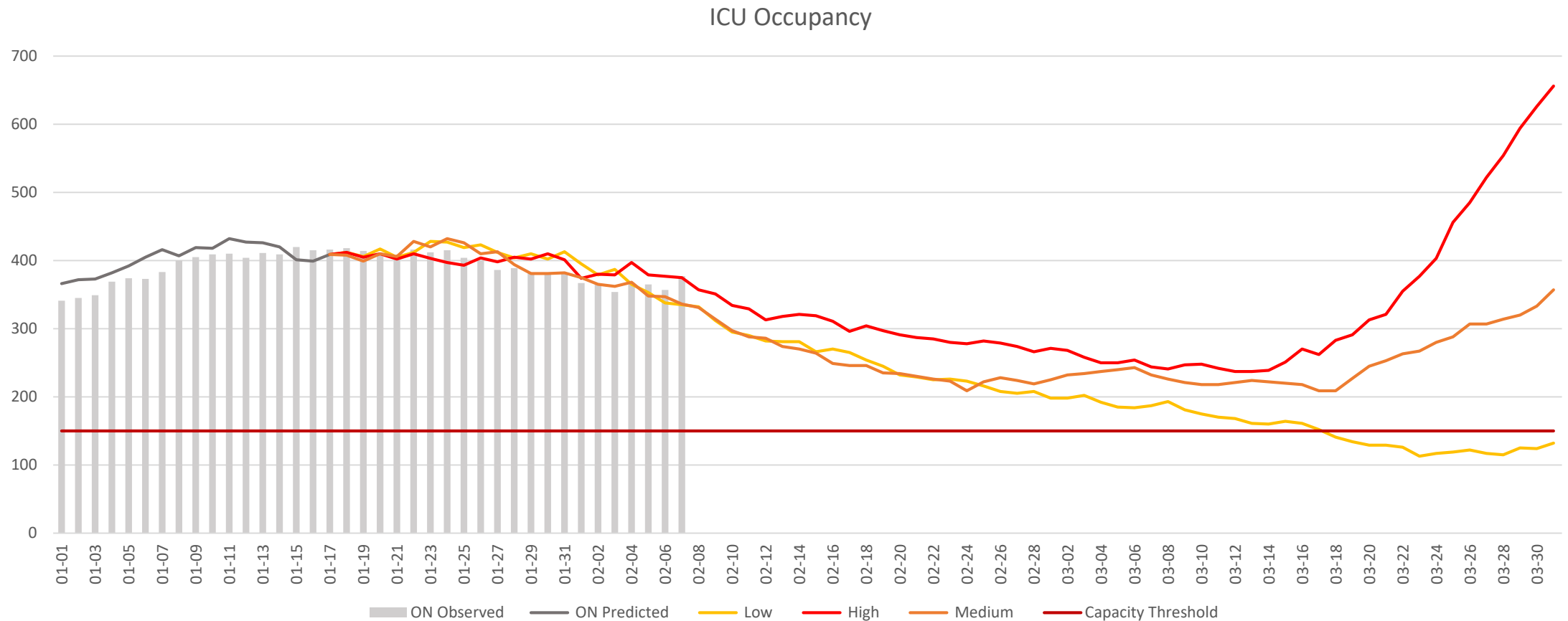
The impact of the Pandemic has been inequitable and will continue to be inequitable

Cumulative Excess Deaths in Ontario (March 4 to Aug 25, 2020) Excluding LTCH residents: by Income Quintile
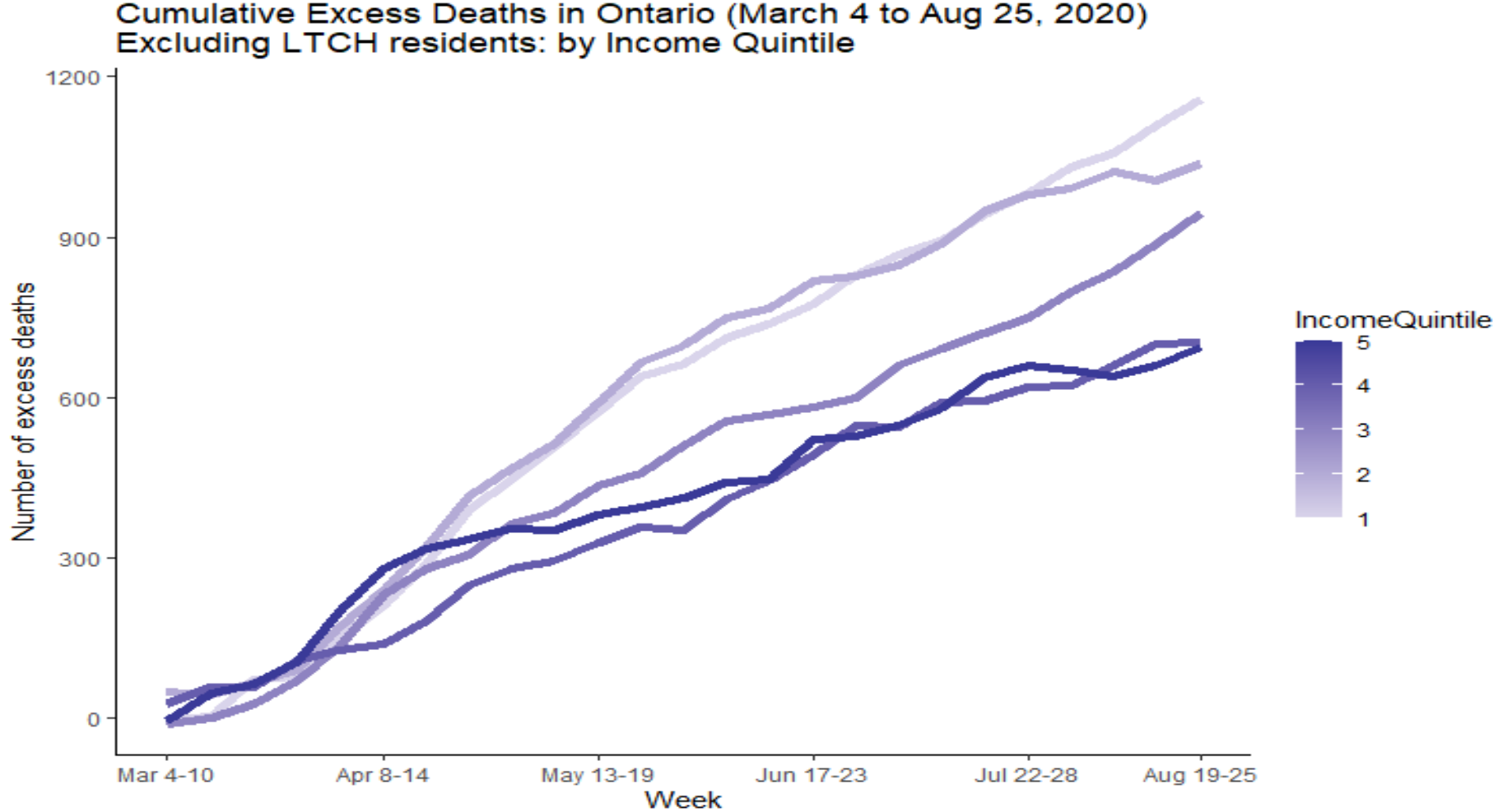
Mental health medication dispensing has been stable

Individuals dispensed benzodiazepines (per 1,000 population) [ICES data]

Analysis: ODPRN

Data: ICES data is updated quarterly, with up to a 3 month reporting lag
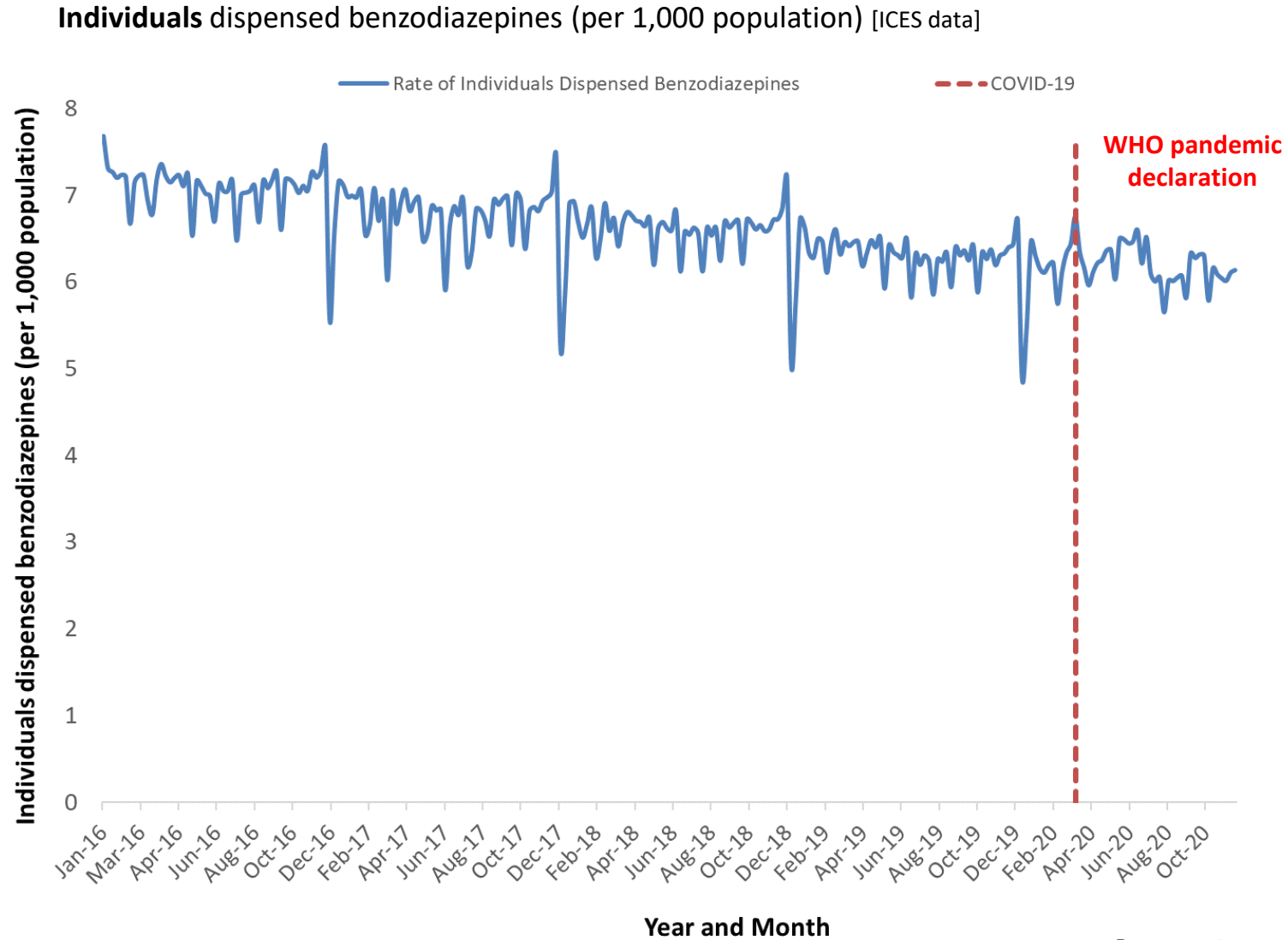
Emergency department visits for mental health and addictions care have declined

WHO pandemic declaration

Mental Health-related ED visits — Substance Use-related ED visits

6%

-2%

-15%

-17%

-38%

-43%

Percent

2020-02-23 · 2020-03-23 · 2020-04-23 · 2020-05-23 · 2020-06-23 · 2020-07-23 · 2020-08-23 · 2020-09-23 · 2020-10-23 · 2020-11-23 · 2020-12-23 · 2021-01-23

19
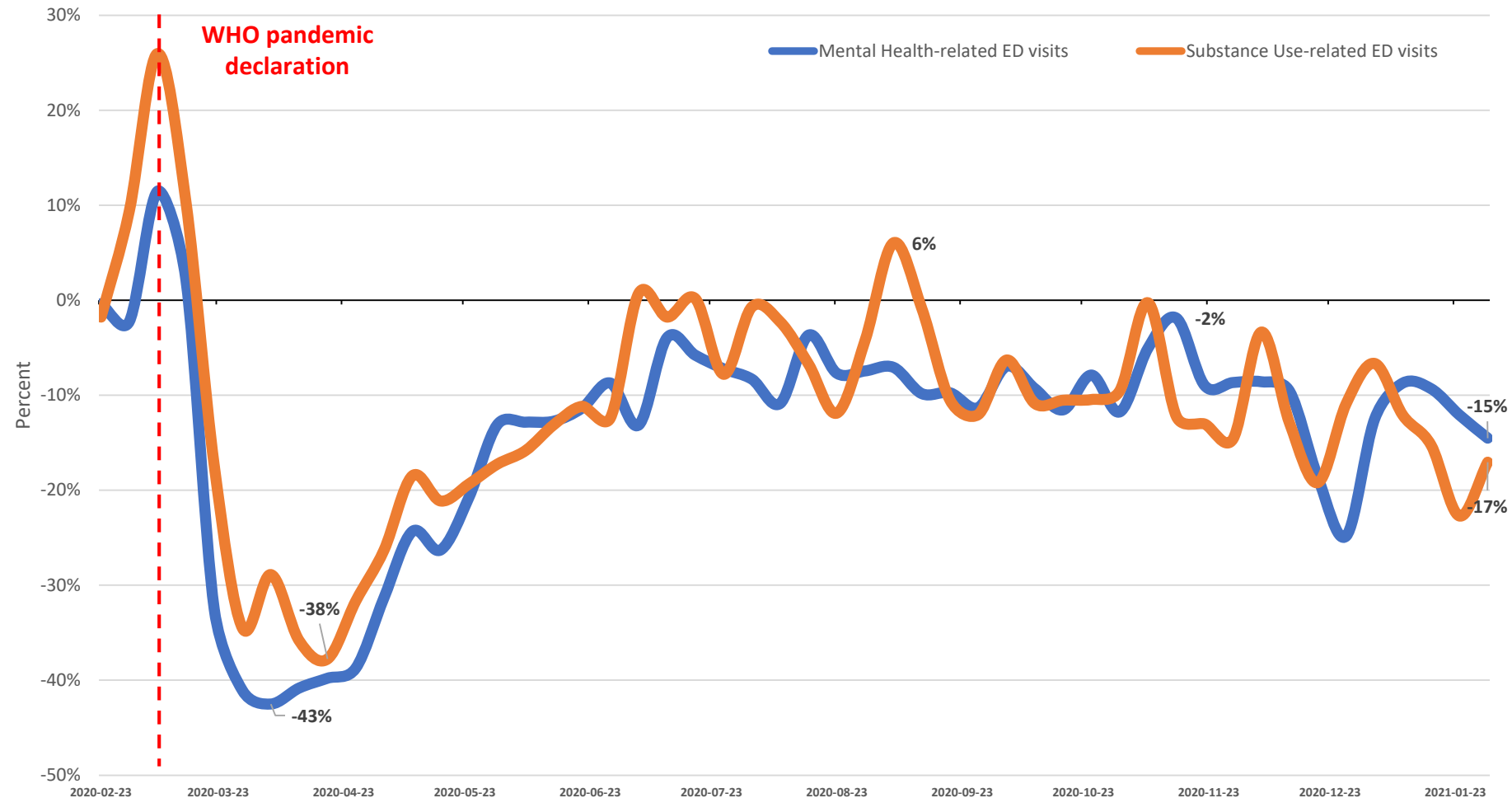
Overdose deaths have continued to climb
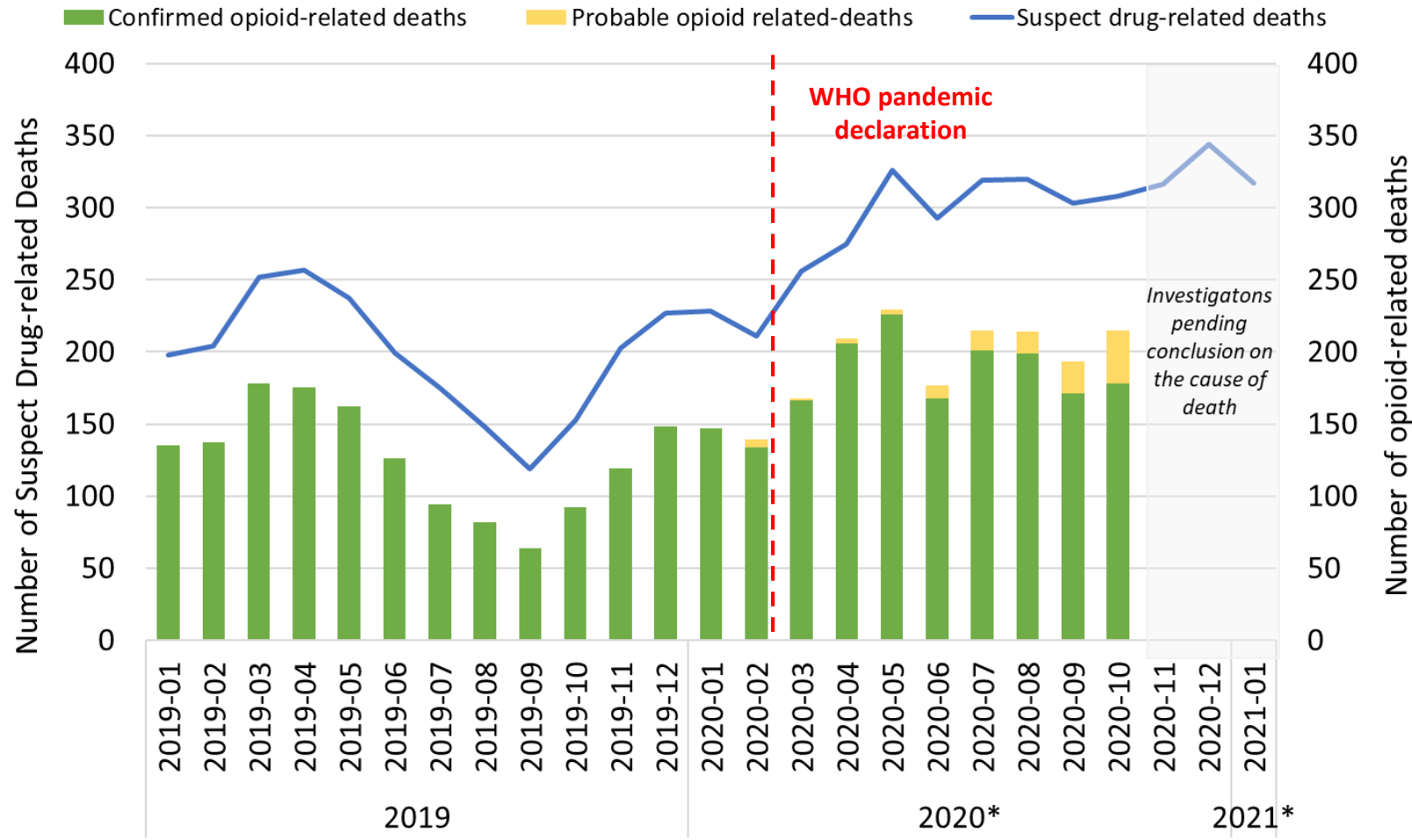
Notes:
Data provided by the office of the Chief Coroner of Ontario (OCC); Suspect drug-related deaths are identified based on **preliminary information** reported by the investigating coroners to the office of the Chief Coroner of Ontario. It takes several months for these investigations to be completed and acute drug toxicity deaths to be confirmed; Opioid-related deaths includes confirmed and probable, and are considered **preliminary;** Once investigations are complete, acute opioid toxicity is typically deemed to be at least one of the substances directly contributing to about 65%-80% of suspected-drug related deaths (depending on the time period)

Analysis: ODPRN
Data: Chief Coroner of Ontario

Eating disorder visits and admissions have increased.

Hospitalizations and emergency department visits* for eating disorders among children and adolescents (3 to 17 years) in Ontario by 4-week average, Jan 2017 to Sept 2020

Legend: Emergency department visits — Hospitalizations

Y-axis: Crude rate per 100,000 population (0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5)

X-axis: 4-week average (Jan-17 to Sep-20)

Analysis: OH MHA Centre of Excellence
Data: ICES)

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