Update on COVID-19 Projections

Science Advisory and Modelling Consensus Tables
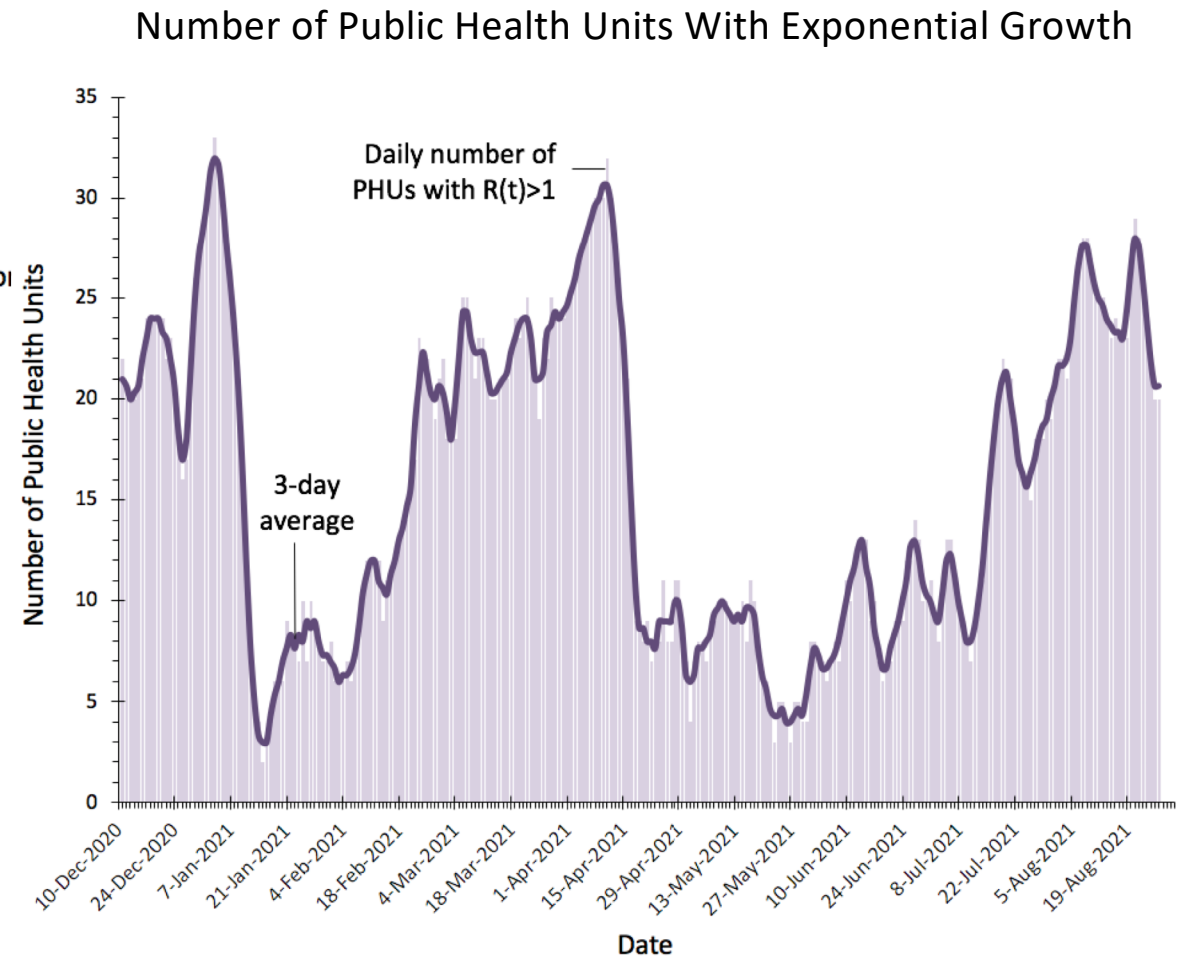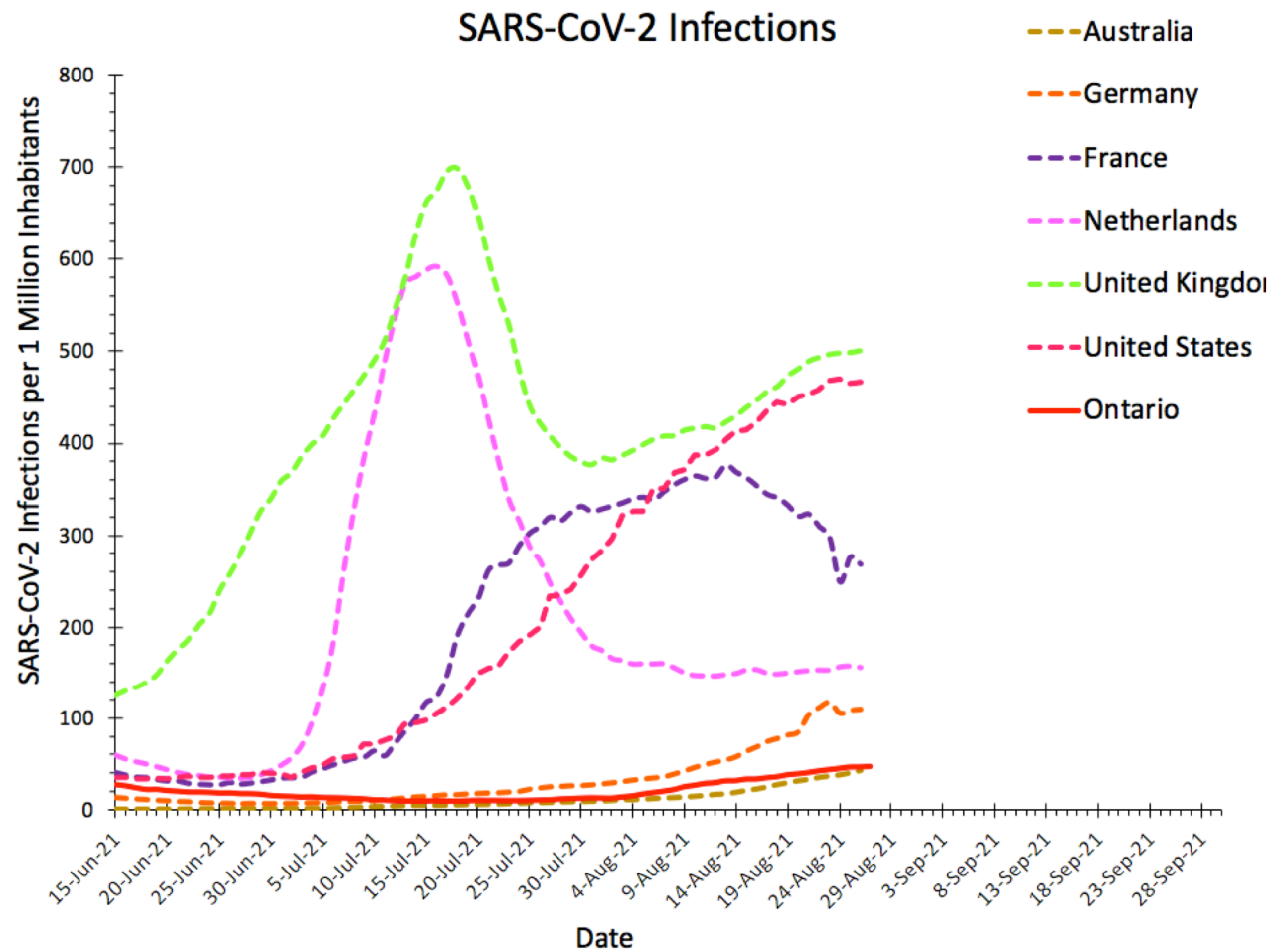
September 1, 2021

Key Findings

- Like other jurisdictions, Ontario is in the 4th wave of the COVID-19 pandemic. Our models, federal models, and models in other jurisdictions predict a substantial 4th wave.

- Vaccination offers substantial protection against severe health outcomes. We do not expect to see the same proportion of severely ill cases in the vaccinated. Among the unvaccinated, we do expect to see a rapid increase in the number of seriously ill people needing hospital care as workplaces and education re-open in September.

- The fourth wave will affect all age groups with the potential to exceed ICU capacity.

- Because of the Delta variant and to avoid a lockdown in the Fall, vaccination needs to accelerate substantially above 85% of eligible population aged 12+ fully vaccinated and we need to reduce contacts to about 70% of pre-pandemic levels until vaccination is high enough to protect the population:
  - Reducing indoor density, maintaining physical distancing, limiting large gatherings;
  - Continuing indoor mask policies and working from home; and
  - Implementing policies that accelerate vaccination (e.g. certificates, mandates, outreach).
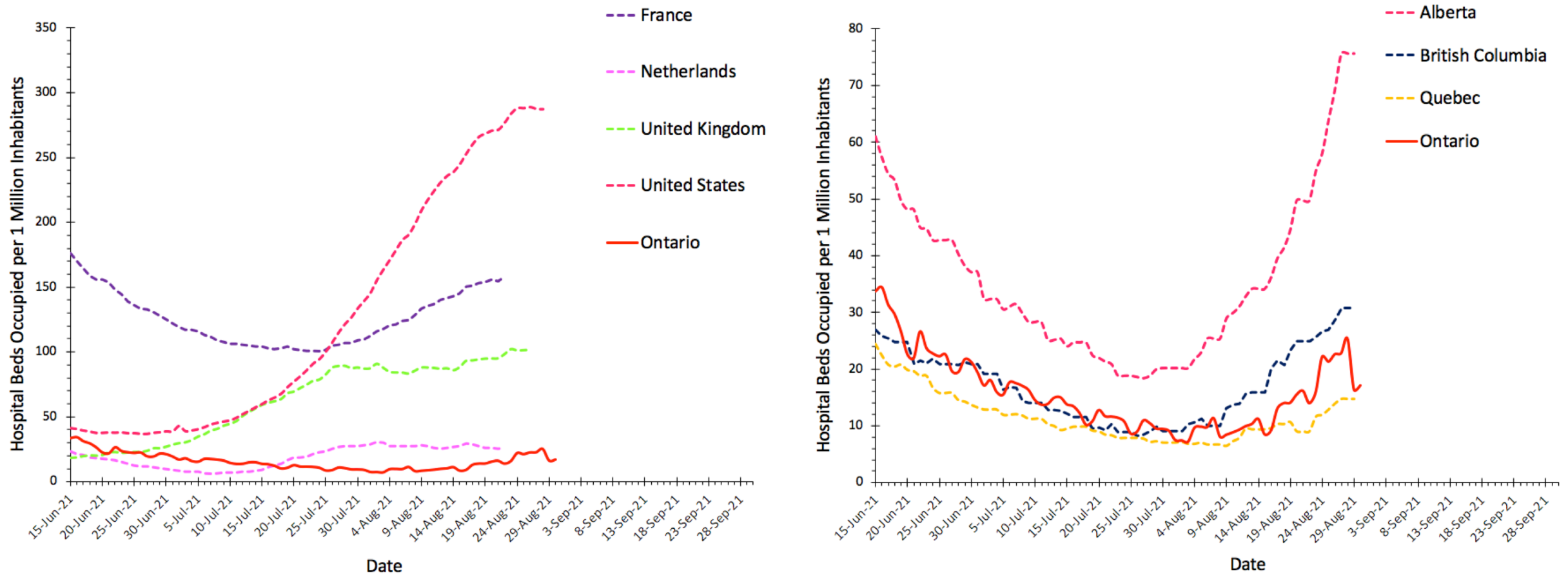
Following peer jurisdictions, Ontario is at the start of the 4th wave of the COVID-19 pandemic
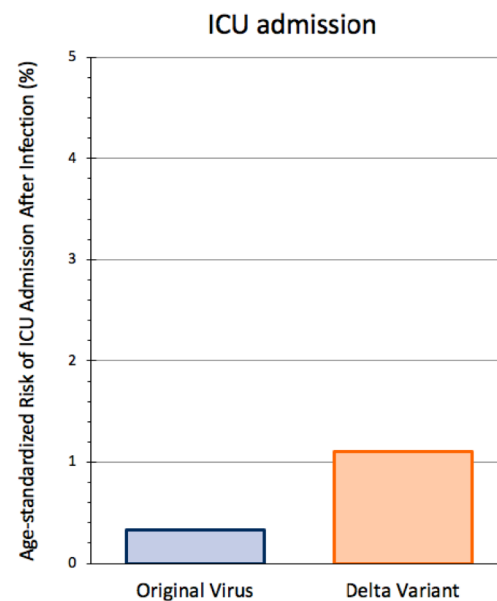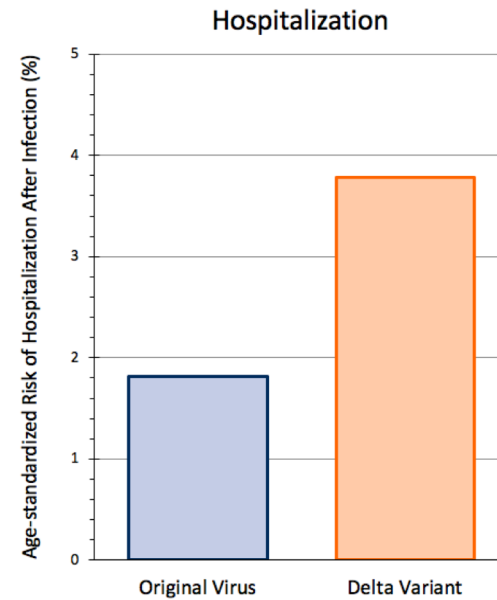

SARS-CoV-2 Infections

Legend:
- Australia
- Germany
- France
- Netherlands
- United Kingdom
- United States
- Ontario

Number of Public Health Units With Exponential Growth

Daily number of PHUs with R(t)>1

3-day average

The 4th wave is putting increasing pressure on hospital and ICU capacity in a number of jurisdictions
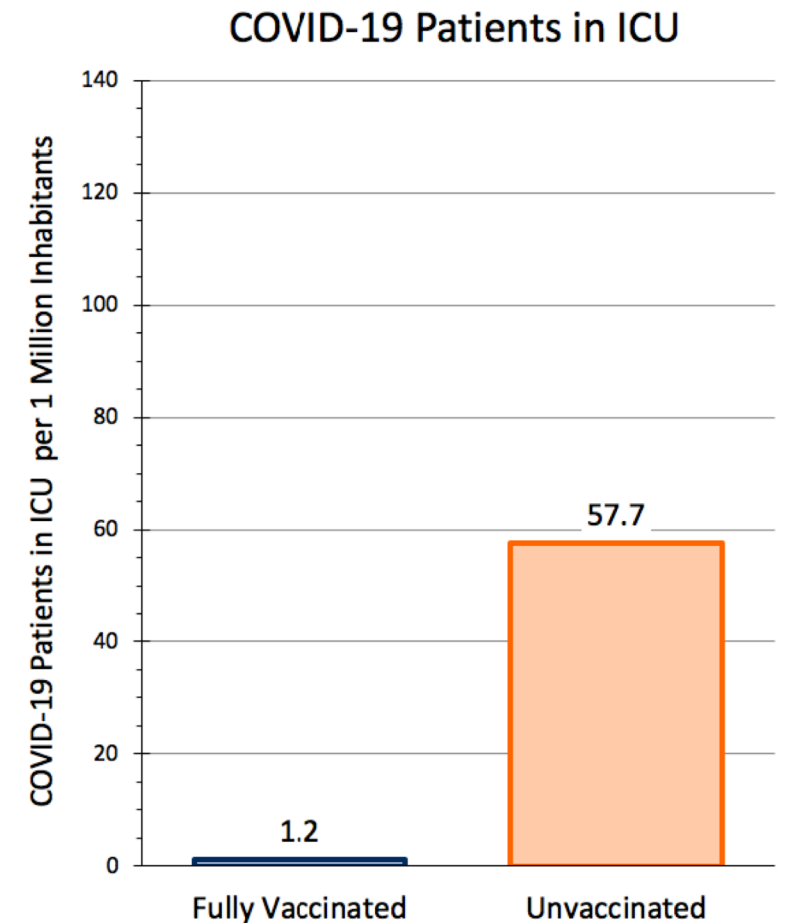

COVID-19 Patients in Hospital

Analysis: Secretariat of the Science Advisory Table

Data: https://data.ontario.ca/, https://resources-covid19canada.hub.arcgis.com and https://ourworldindata.org/explorers/coronavirus-data-explorer

The Delta Variant is an acute threat to public health

Original Virus — 2-3

Delta — 6-8

Hospitalization

Age-standardized Risk of Hospitalization After Infection (%)

Original Virus — Delta Variant

ICU admission

Age-standardized Risk of ICU Admission After Infection (%)

Original Virus — Delta Variant
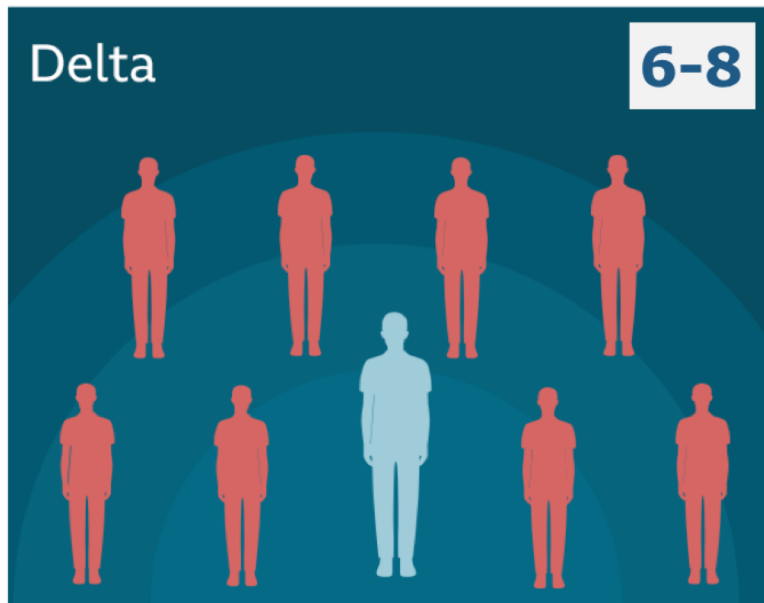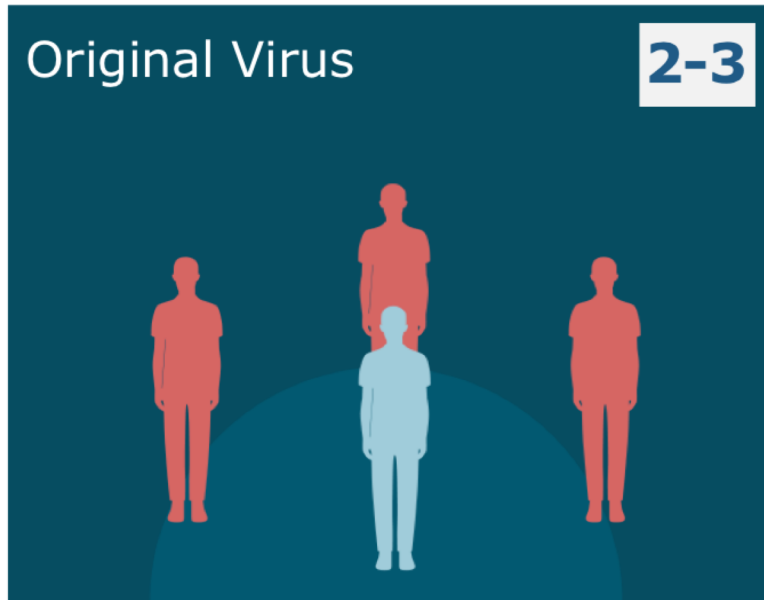
- The Delta variant is more than twice as transmissible than the original SARS-CoV-2 virus.

- For delta, R_0 is 6-8: one infected individual (blue) is expected to infect 6-8 additional people without control measures

- The risk of hospital and ICU admission after infection is 2 to 3 times higher after infection with the Delta variant as compared with the original SARS-CoV-2 virus.

Vaccination continues to be highly effective

Unvaccinated people have a 6-fold higher risk of symptomatic COVID-19 disease, a 30-fold higher risk of being in the hospital and 48-fold higher risk of being in the ICU compared to the fully vaccinated
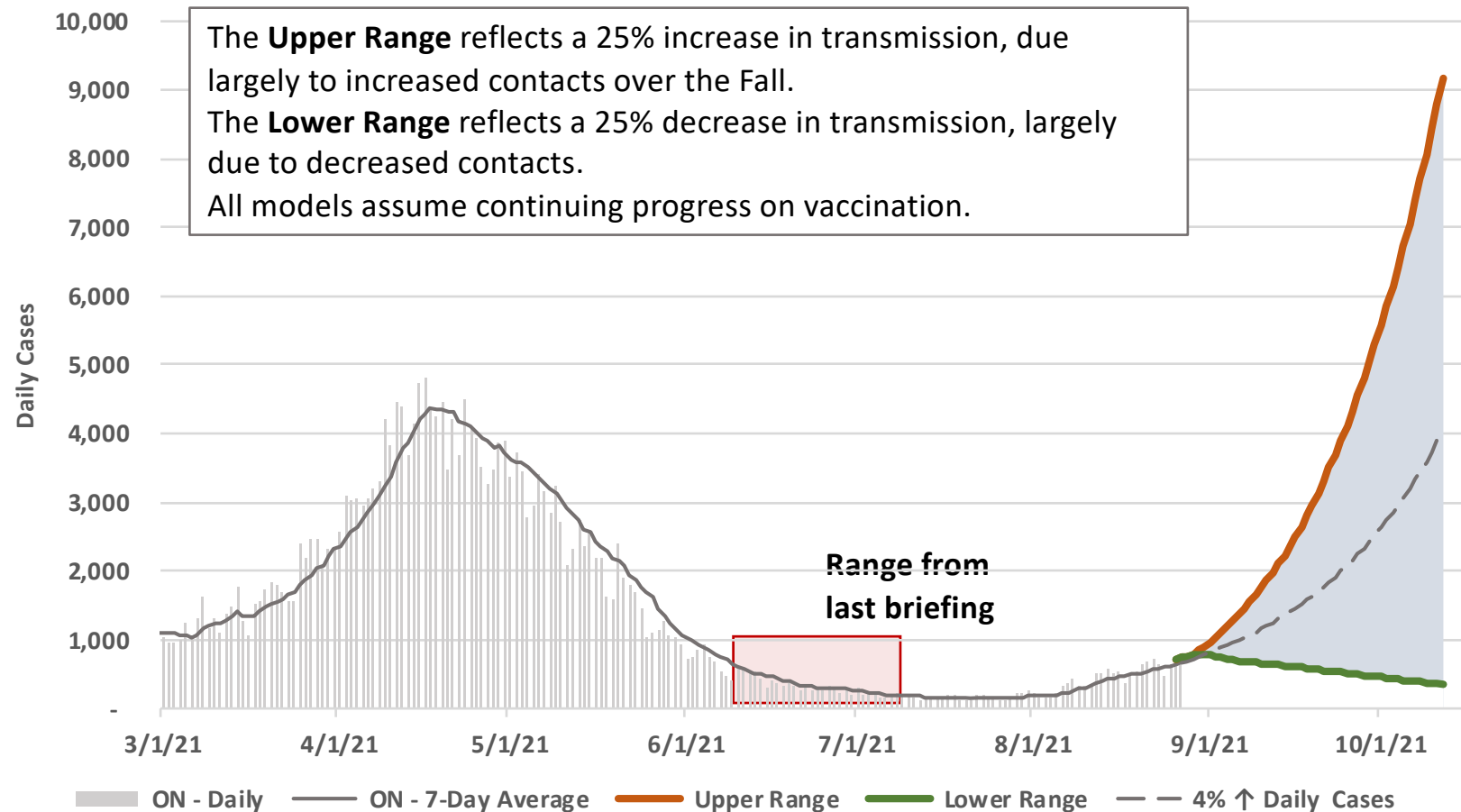
Public health measures, together with vaccination, can help control the 4th wave

Figure shows predictions based on a consensus across models

- 5 teams at five Ontario universities build models using different approaches and assumptions
- Each team runs multiple scenarios reflecting key factors like vaccination and contacts
- The teams meet to review and determine a representative range of likely scenarios

The **Upper Range** reflects a 25% increase in transmission, due largely to increased contacts over the Fall.
The **Lower Range** reflects a 25% decrease in transmission, largely due to decreased contacts.
All models assume continuing progress on vaccination.

Range from last briefing

Daily Cases

ON - Daily   ON - 7-Day Average   Upper Range   Lower Range   — — 4% ↑ Daily Cases

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If we cannot reduce transmission, and accelerate vaccination, ICU occupancy could exceed Wave 3 by October

Range from last briefing

Legend: ON - Daily · ON - 7-Day Average · Upper Range · Lower Range

Y-axis: ICU Occupancy (-, 200, 400, 600, 800, 1,000)

X-axis: 3/1/21, 3/8/21, 3/15/21, 3/22/21, 3/29/21, 4/5/21, 4/12/21, 4/19/21, 4/26/21, 5/3/21, 5/10/21, 5/17/21, 5/24/21, 5/31/21, 6/7/21, 6/14/21, 6/21/21, 6/28/21, 7/5/21, 7/12/21, 7/19/21, 7/26/21, 8/2/21, 8/9/21, 8/16/21, 8/23/21, 8/30/21, 9/6/21, 9/13/21, 9/20/21, 9/27/21, 10/4/21, 10/11/21
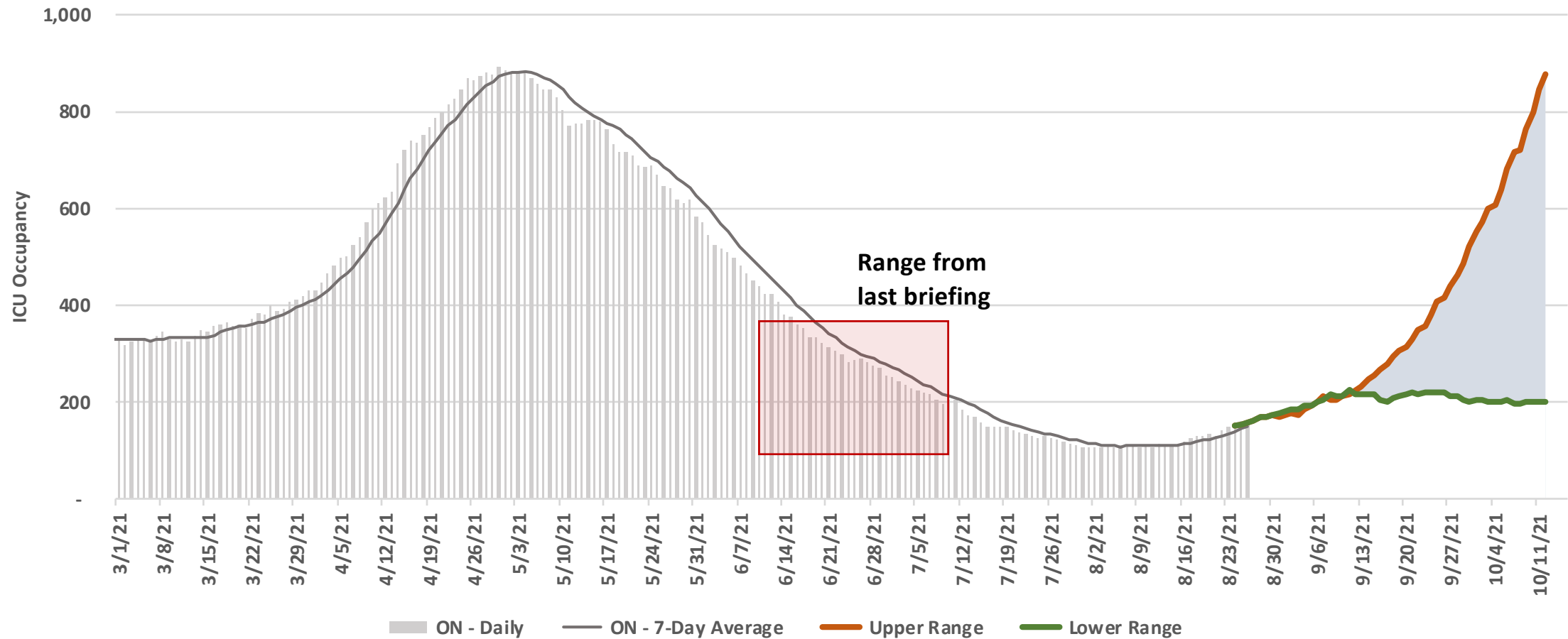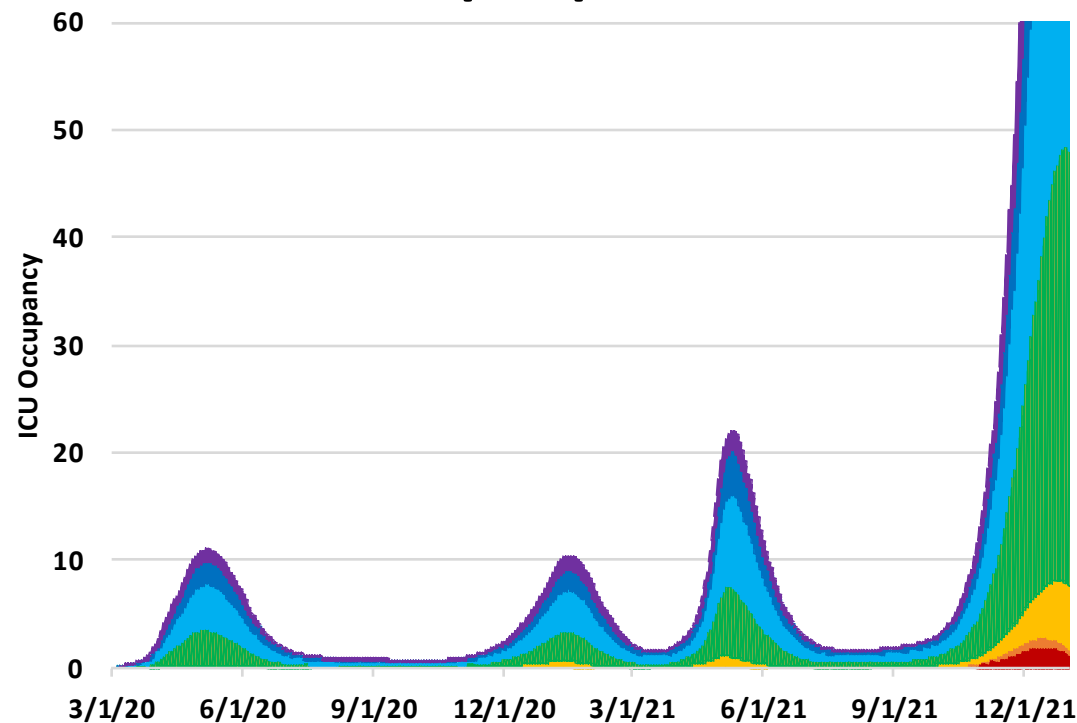
Predictions: COVID-19 ModCollab based on case predictions in previous slide..
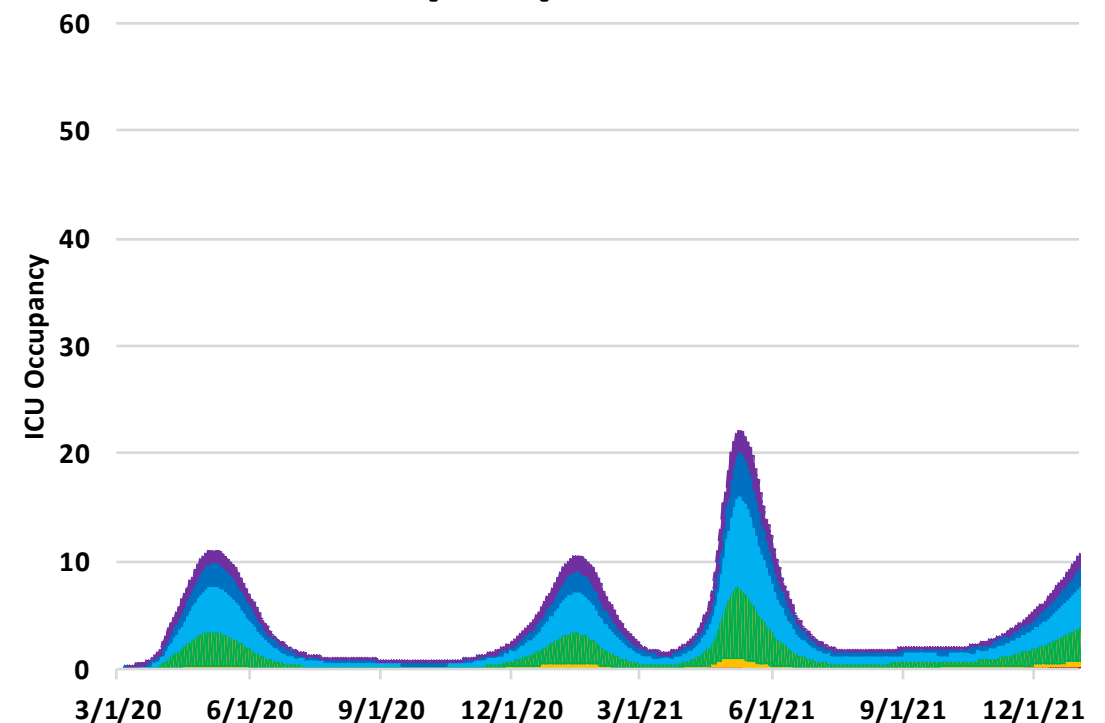**Data** (Observed ICU Occupancy): CCSO

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Contacts should be at or below 70% of pre- pandemic levels to accommodate critically ill patients

Example: London-Middlesex, predicted ICU occupancy for a population of 500,000.

4th wave likely to peak earlier in other urban communities

Contacts 80% of pre-pandemic levels

Contacts 70% of pre-pandemic levels

Legend:
- Under 12 years
- 12-17 years
- 18-24 years
- 25-49 years
- 50-59 years
- 60-69 years
- Over 70 years

Predictions: WesternU

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Substantial progress on vaccination will be necessary to protect Ontarians from COVID-19

66.9% of all Ontarians are fully vaccinated; 76.4% of eligible population 12+

Provincial COVID-19 vaccine coverage estimates (partially and fully vaccinated) by gender and age group

Data: COVax$_{ON}$; Immunizations reported up to August 21, 2021

Source: PHO https://www.publichealthontario.ca/-/media/documents/ncov/epi/covid-19-vaccine-uptake-ontario-epi-summary.pdf?sc_lang=en

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For table membership and profiles, please visit the About and Partners pages on the Science Advisory Table website.