

# Update on COVID-19 Projections

Science Advisory and Modelling Consensus Tables

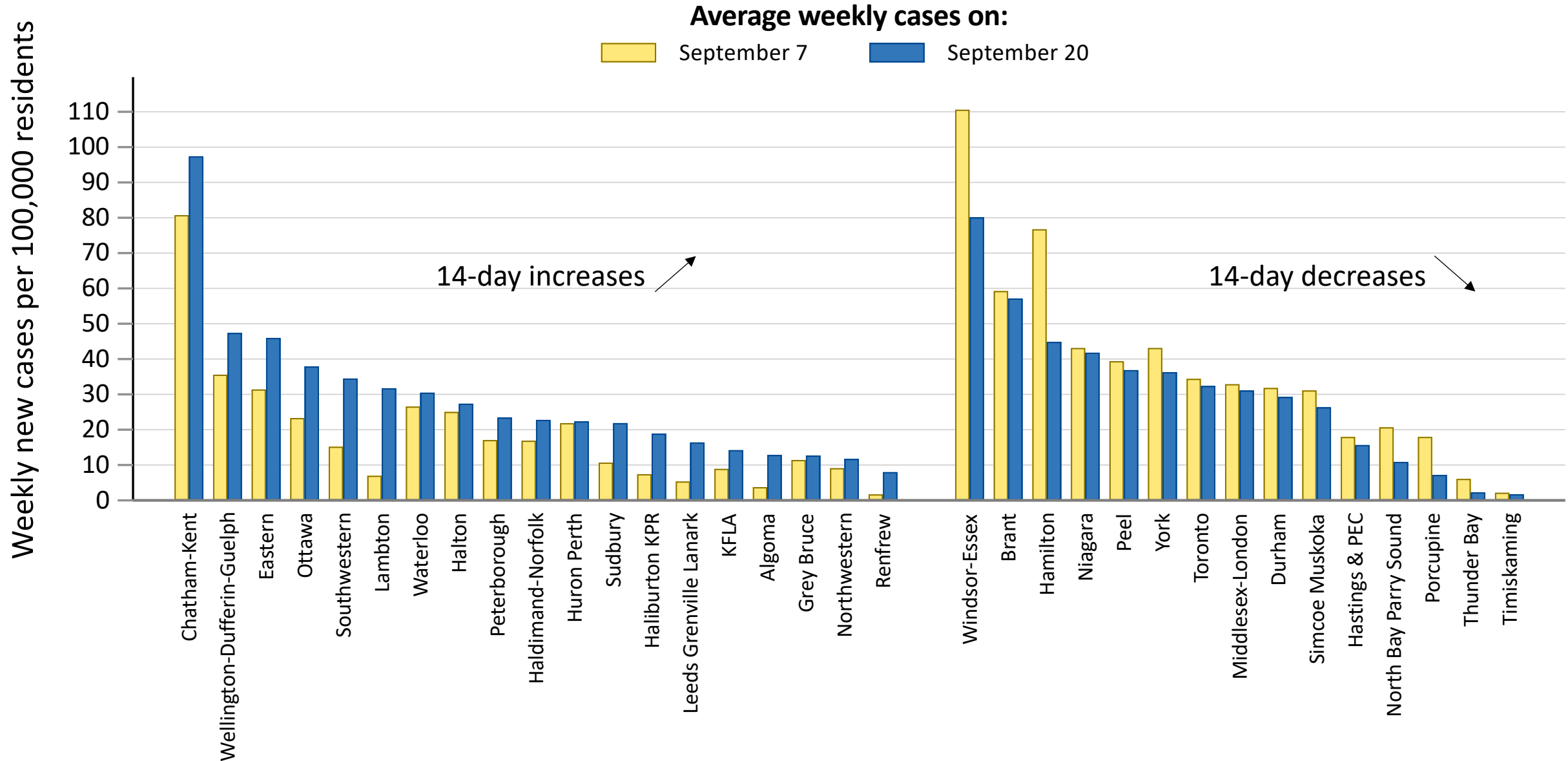
September 28, 2021



# Key Findings

- New cases, hospitalisations and ICU occupancy are not increasing. There is a wide range for case projections, reflecting the fragile situation and high degree of instability as colder weather approaches with more time indoors.
- Continued control over case growth requires high vaccination rates in the eligible population, continued public health measures, and a flattening of growth in mobility.
- The risk of contracting COVID-19, being hospitalized for COVID-19, and entering the ICU is several times higher for unvaccinated individuals.
- Vaccination coverage is increasing slowly.
- Post COVID-19 Condition – or Long COVID – will substantially impact the health of thousands of Ontarians

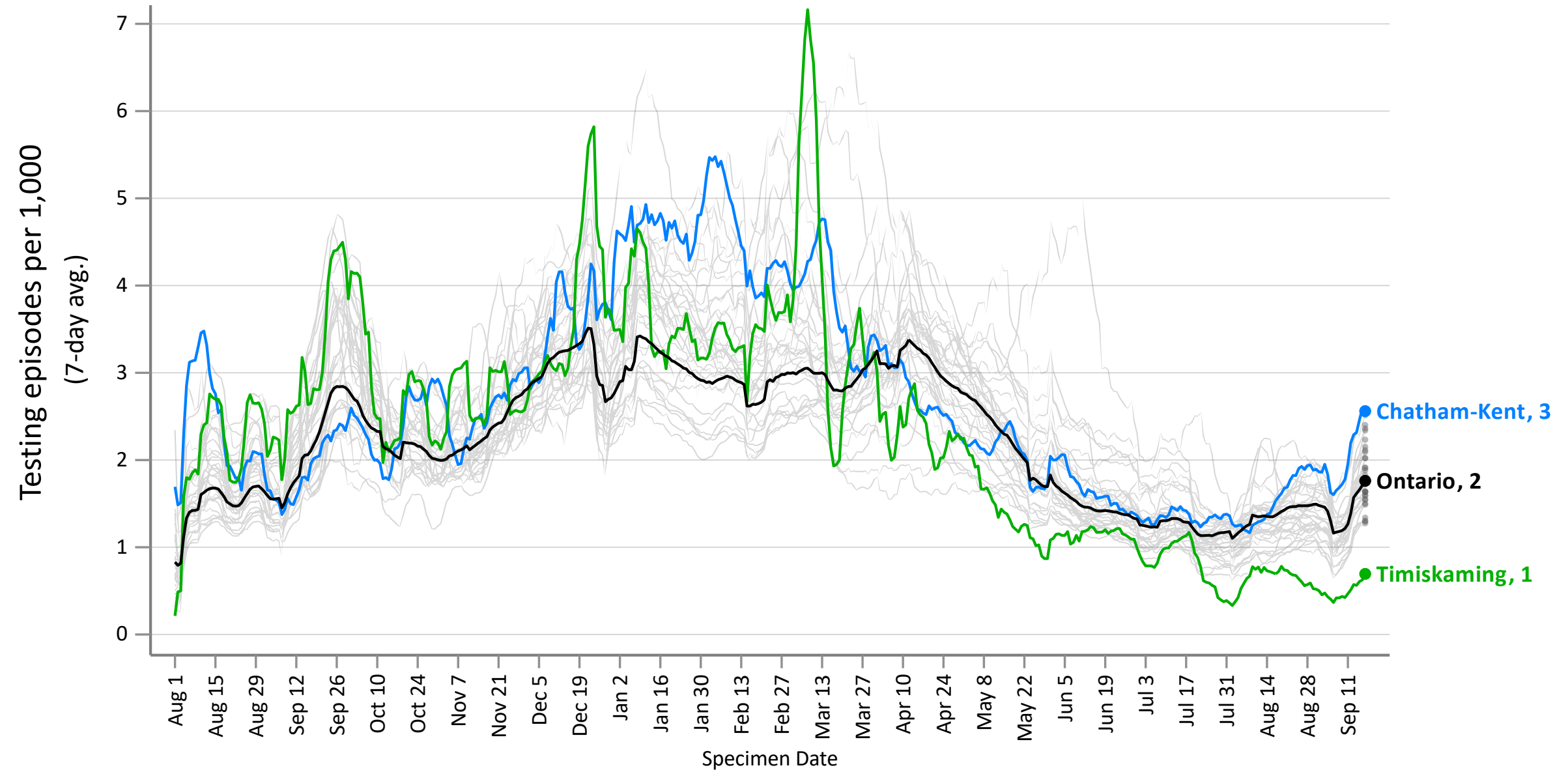
# Cases are increasing in 19 of 34 public health units



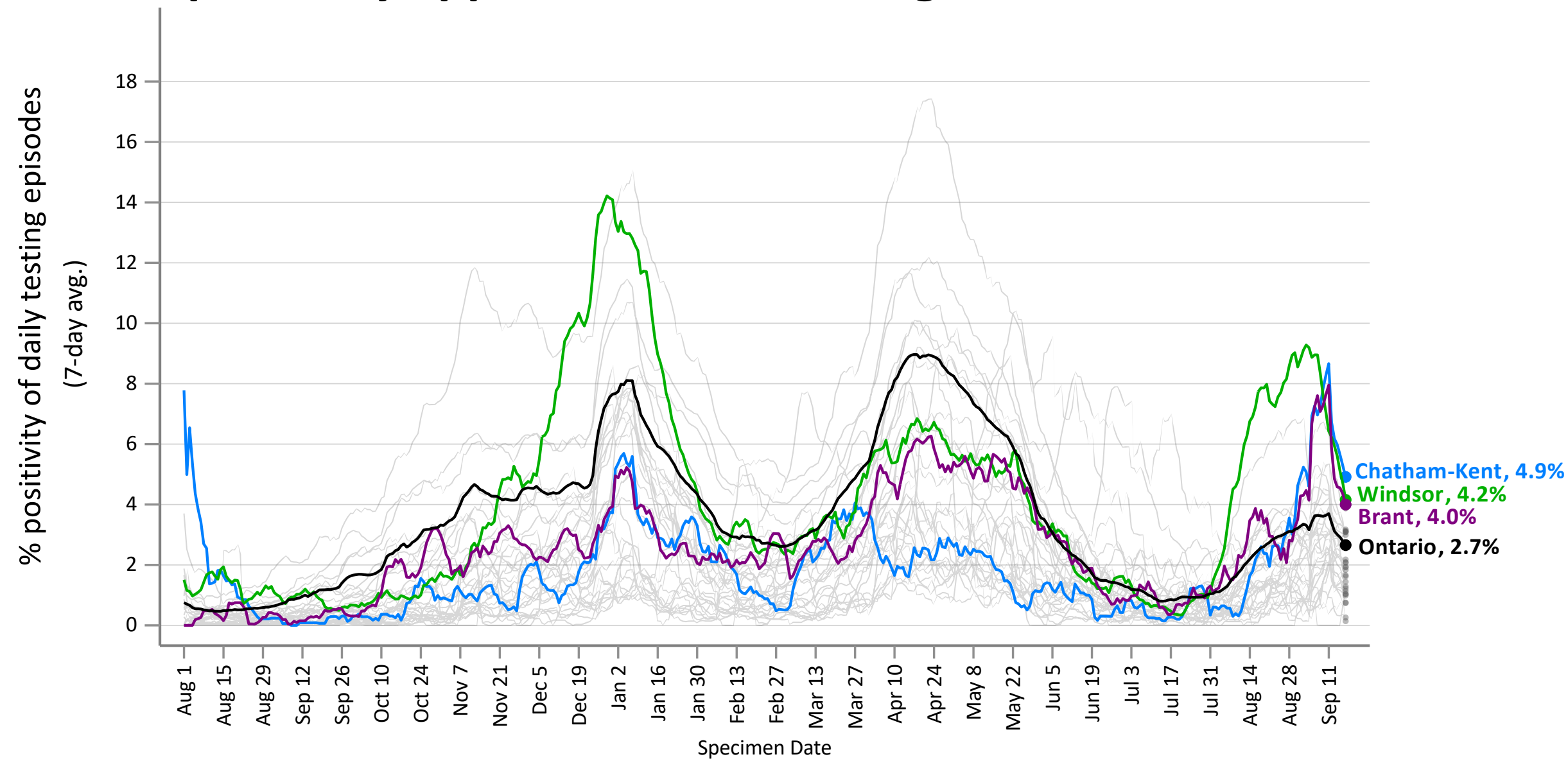
Data source: CCM

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

# With the start of school, testing rates are up across Ontario

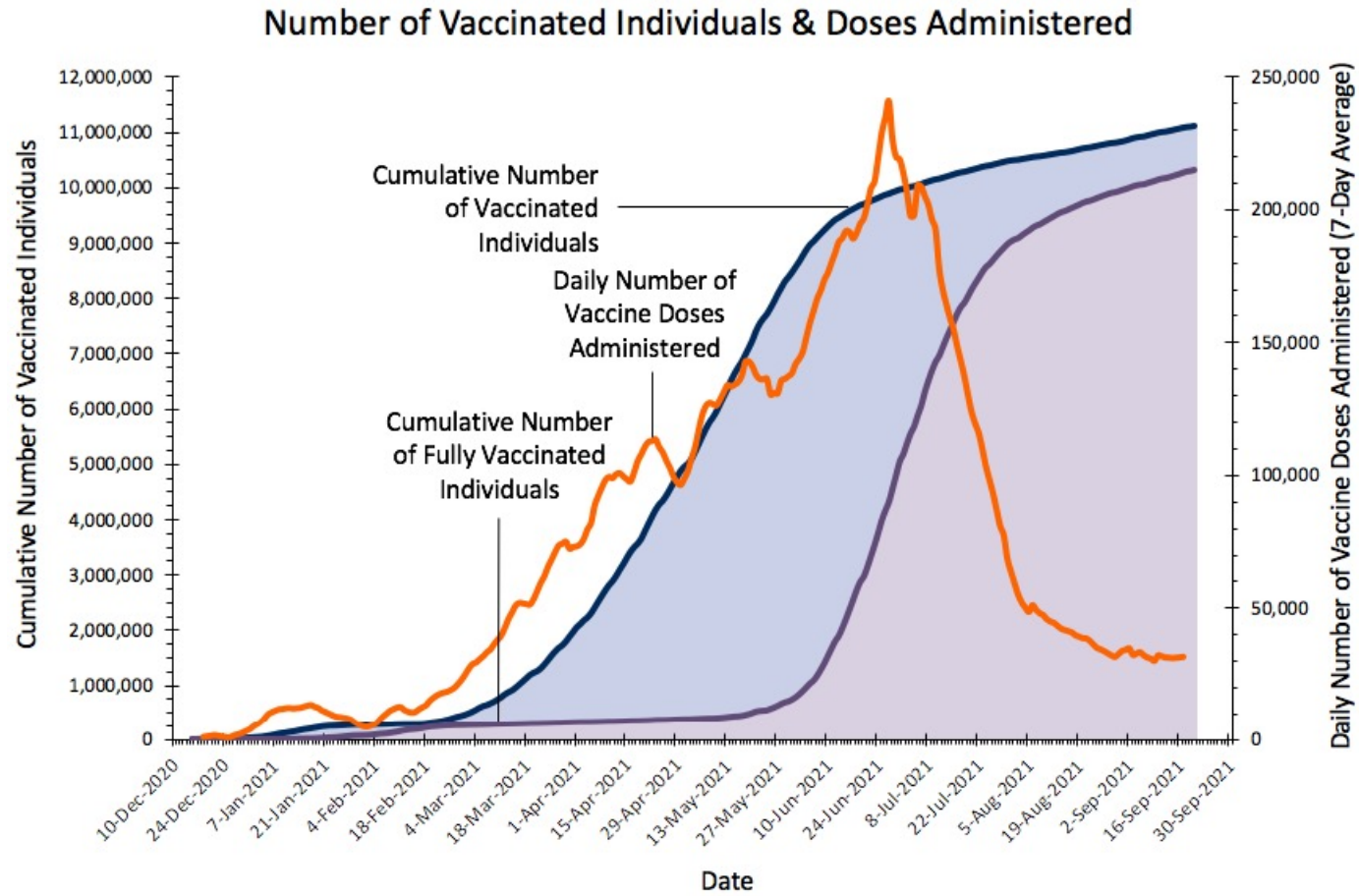


# Test positivity appears to be declining



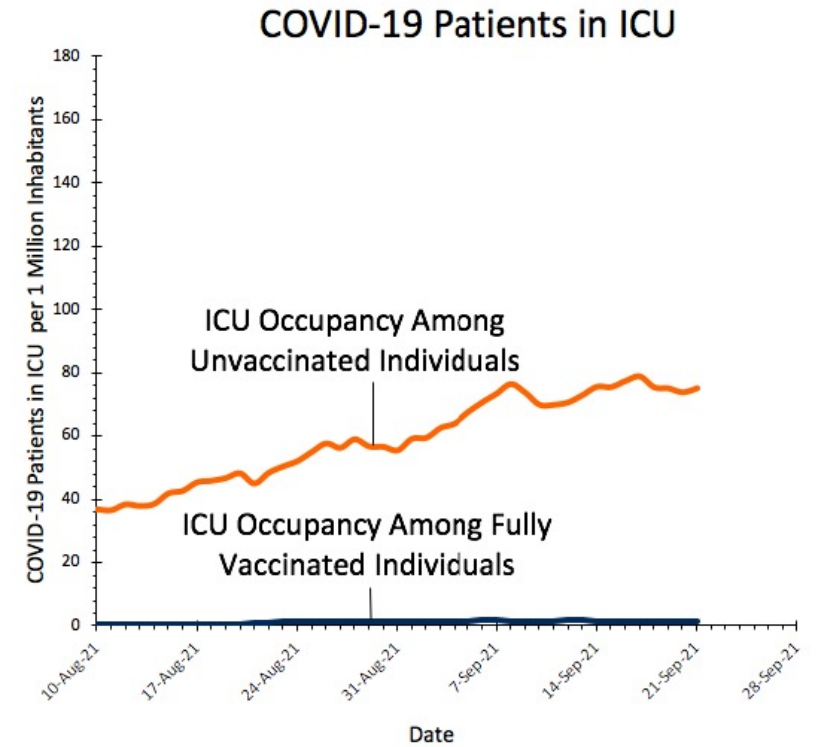
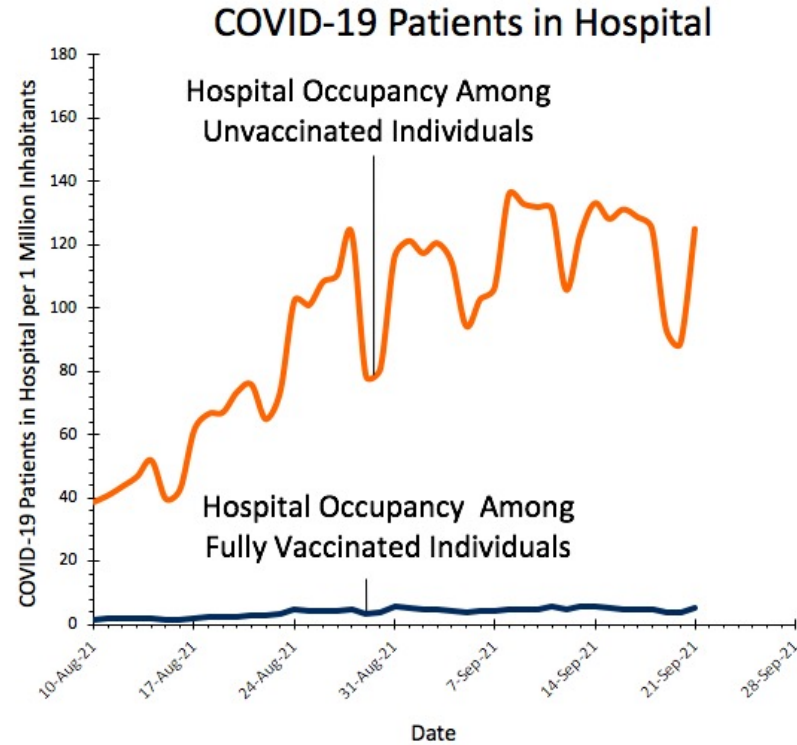
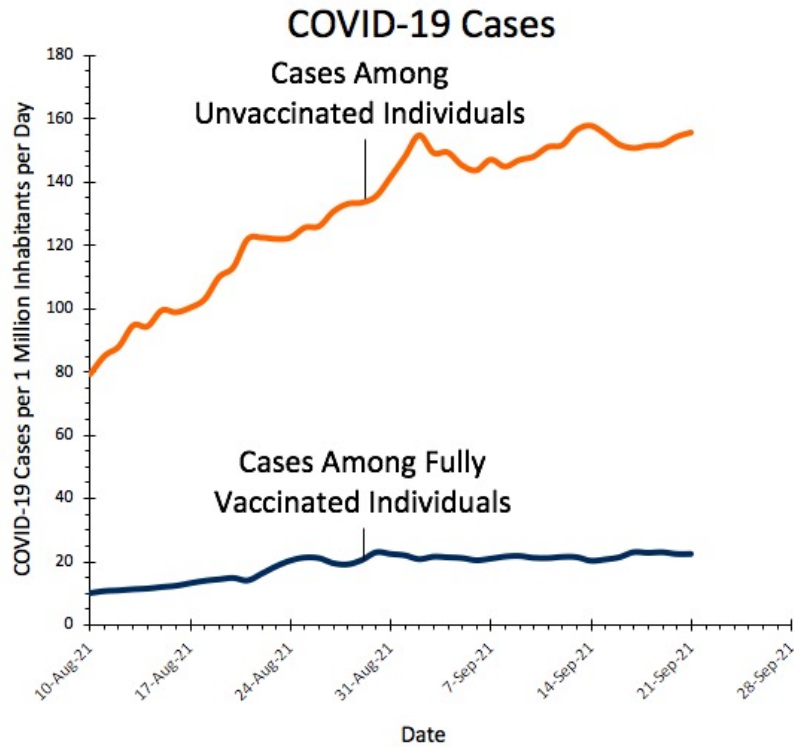
Data source: OLIS via SAS VA, data up to September 17  
The most recent 3 days have been removed to account for incomplete data.

# Vaccination coverage is increasing slowly

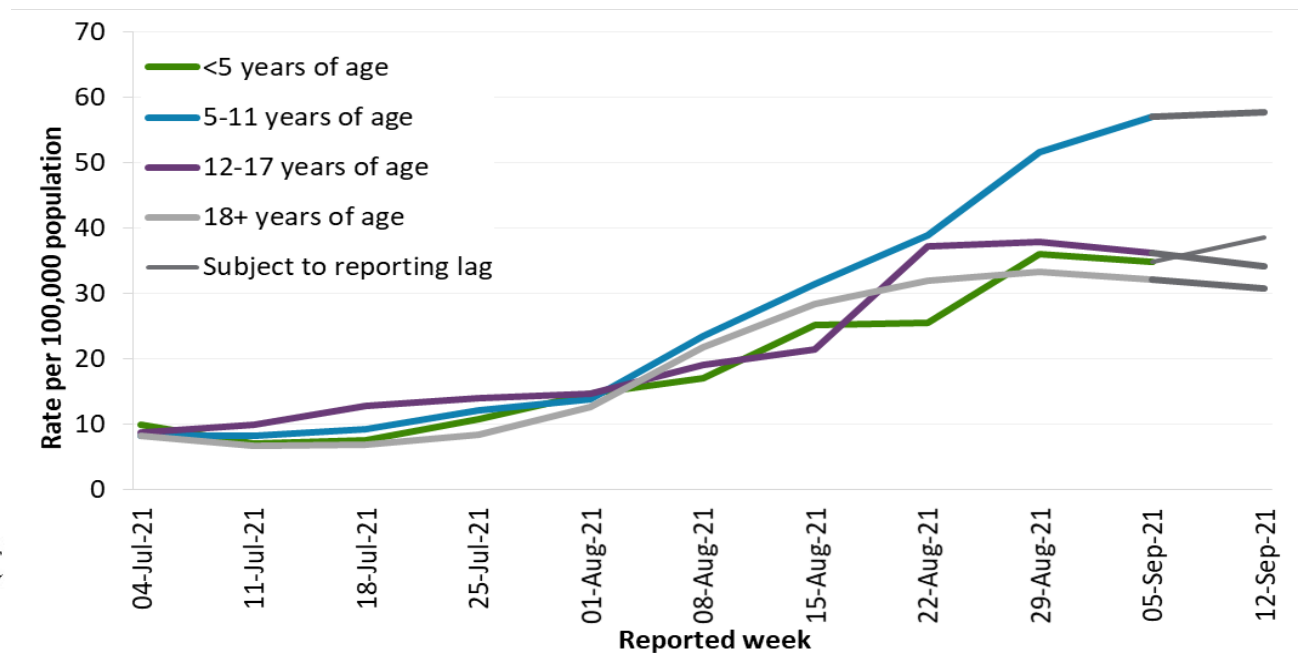
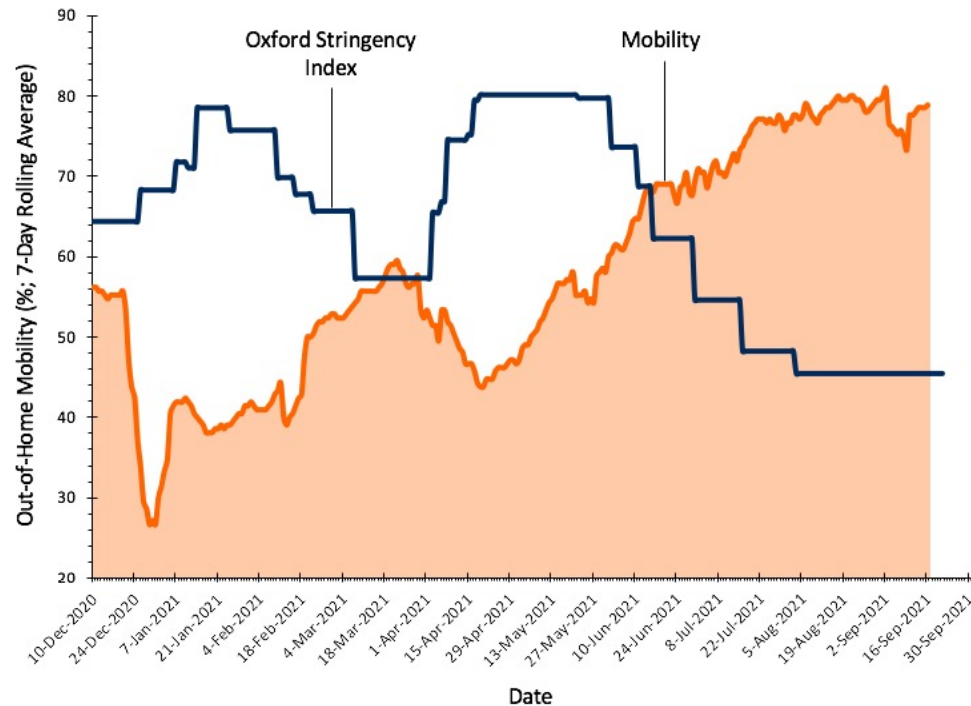


# Vaccination continues to be highly effective

Unvaccinated people have a 7-fold higher risk of symptomatic COVID-19 disease, a 25-fold higher risk of being in the hospital and 60-fold higher risk of being in the ICU compared to the fully vaccinated



# Our 4<sup>th</sup> wave has flattened due to continued public health measures and vaccination but cases in children are increasing



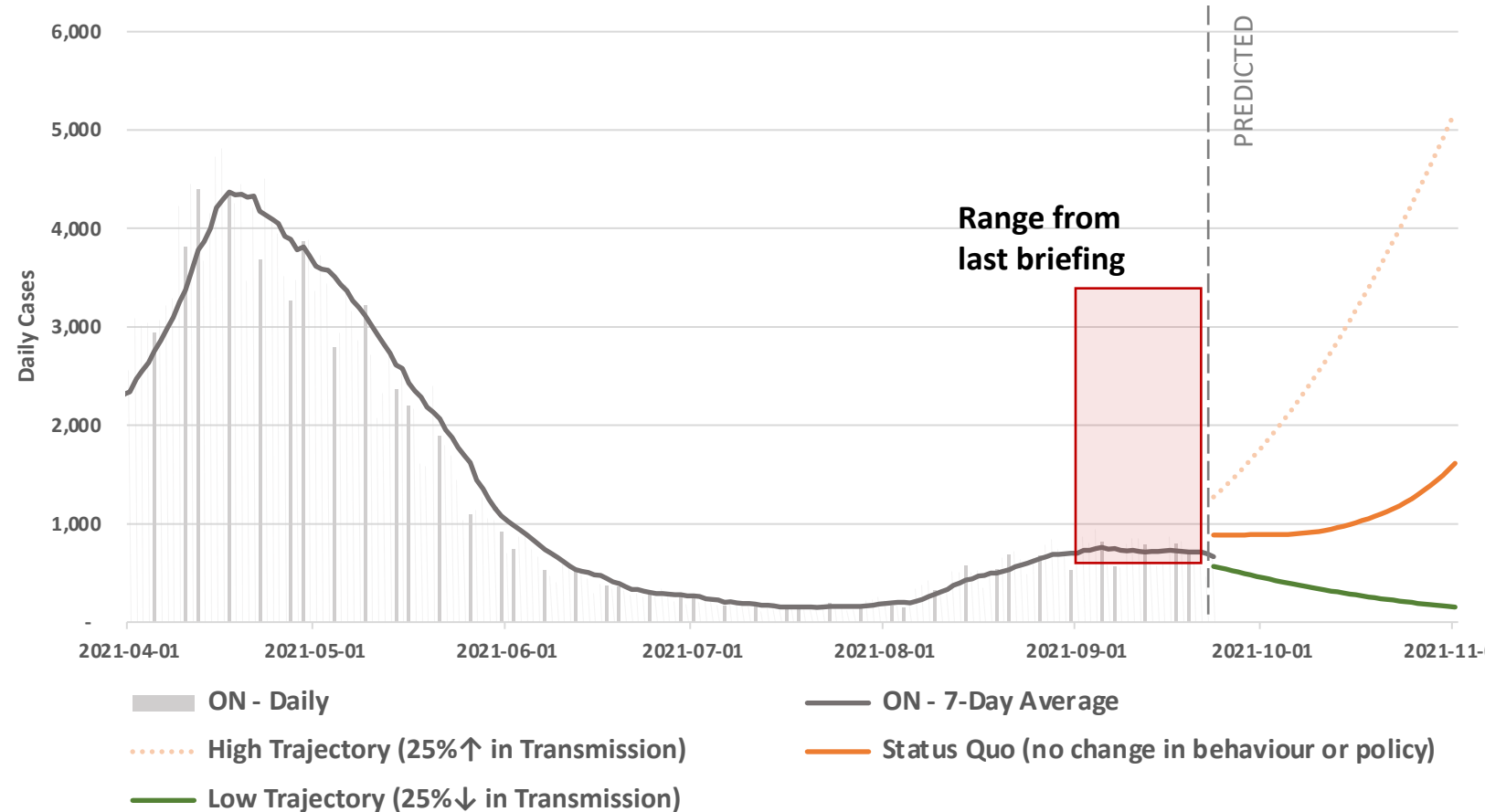


# There is a wide range for case projections, reflecting the fragile situation and high degree of instability as colder weather approaches.

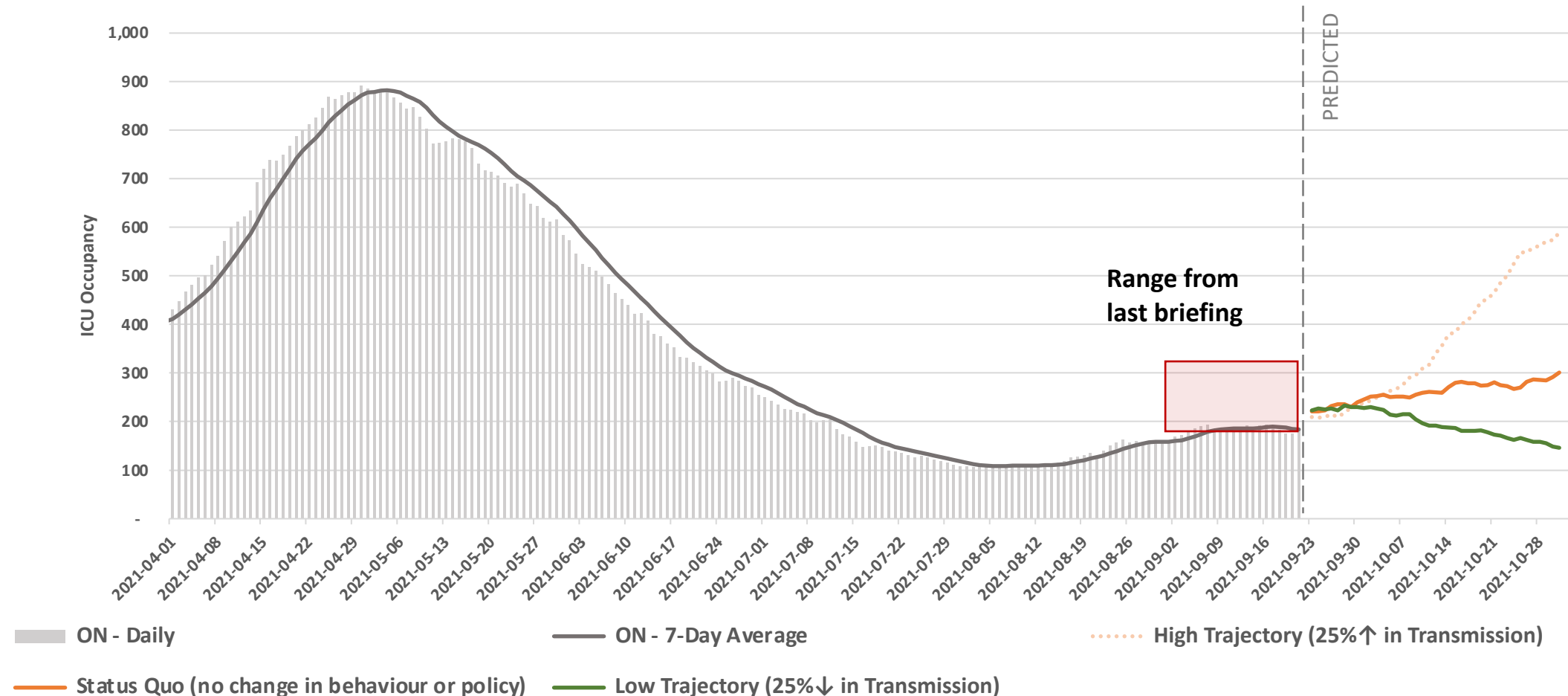
Figure shows predictions based on a consensus across models from 5 scientific teams.

High uncertainty in estimates because:

- Uncertainty in vaccine effectiveness against infection
- Too early to see impact of increased contacts with return to school and workplaces
- Seasonality and time spent indoors vs. outdoors

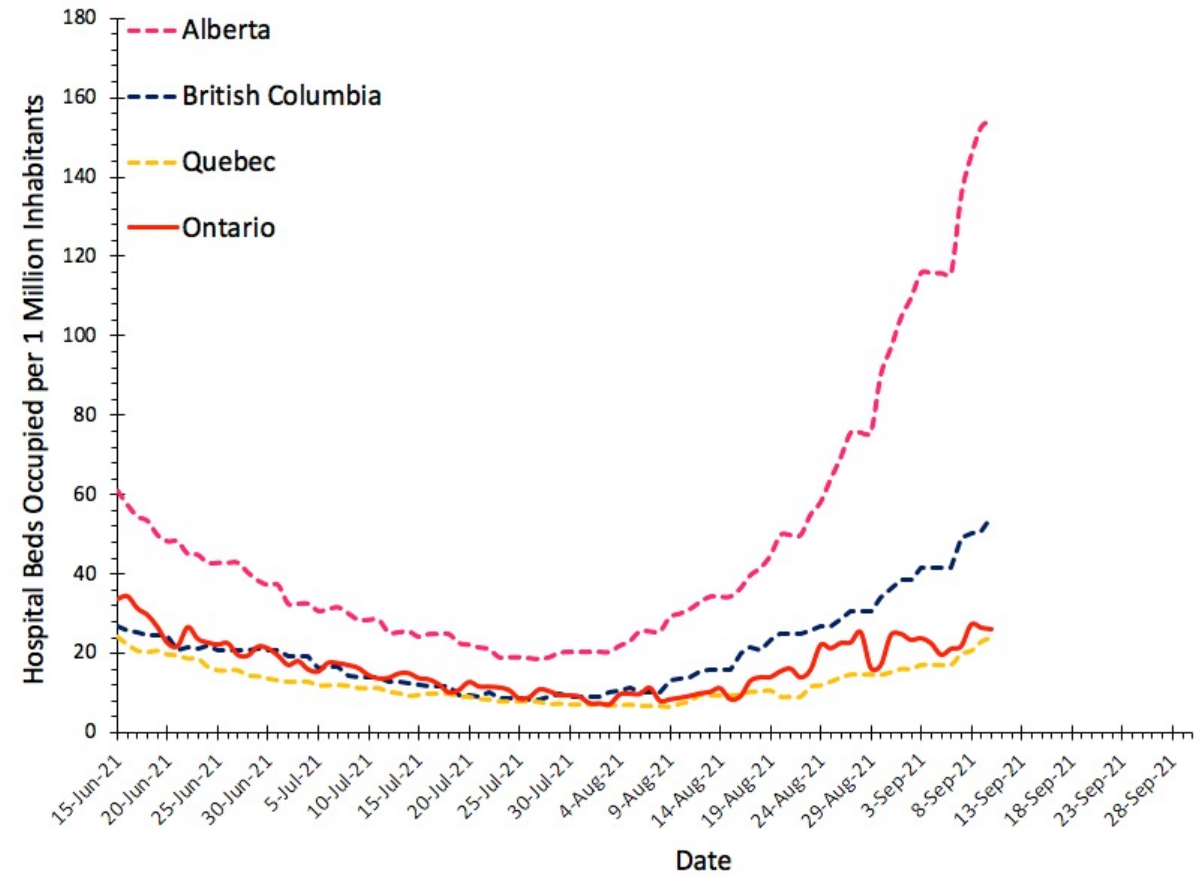
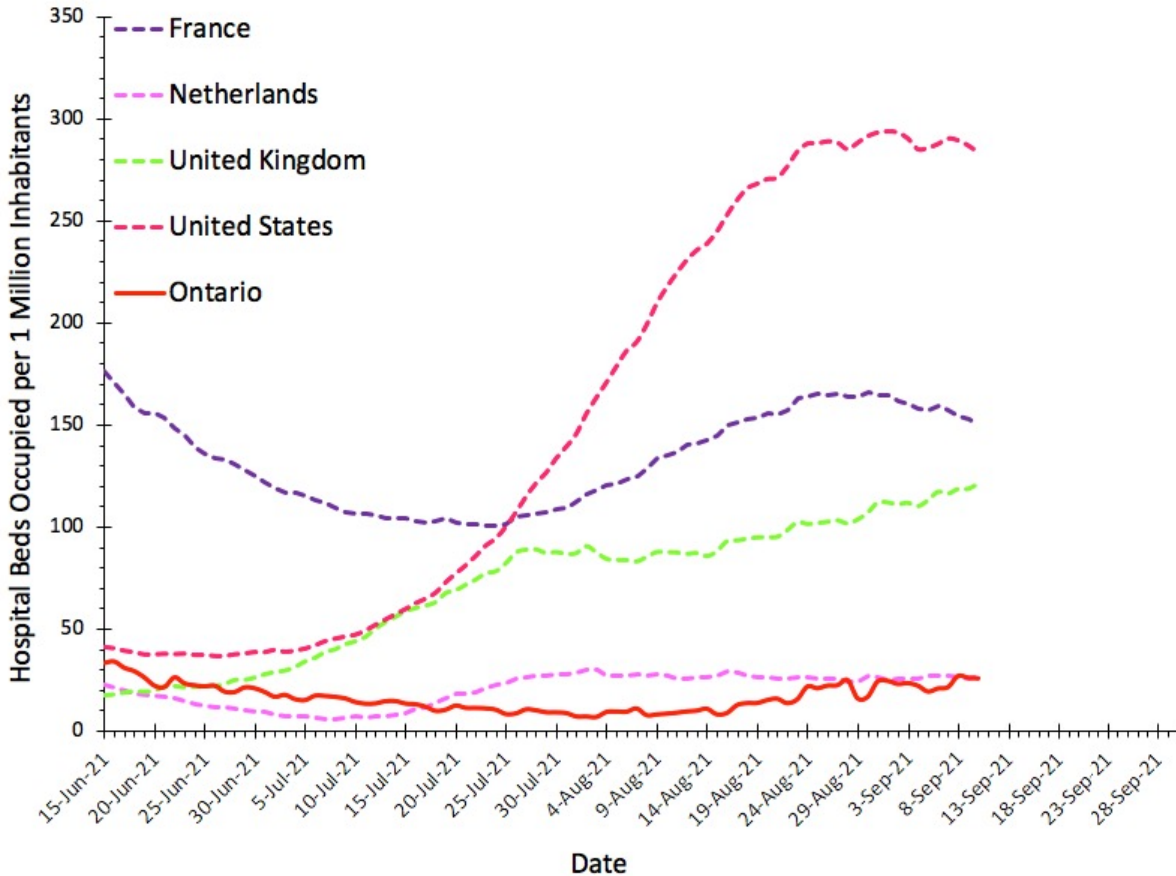


# ICU Occupancy estimates vary from under 200 beds to over 300 beds by the end of October

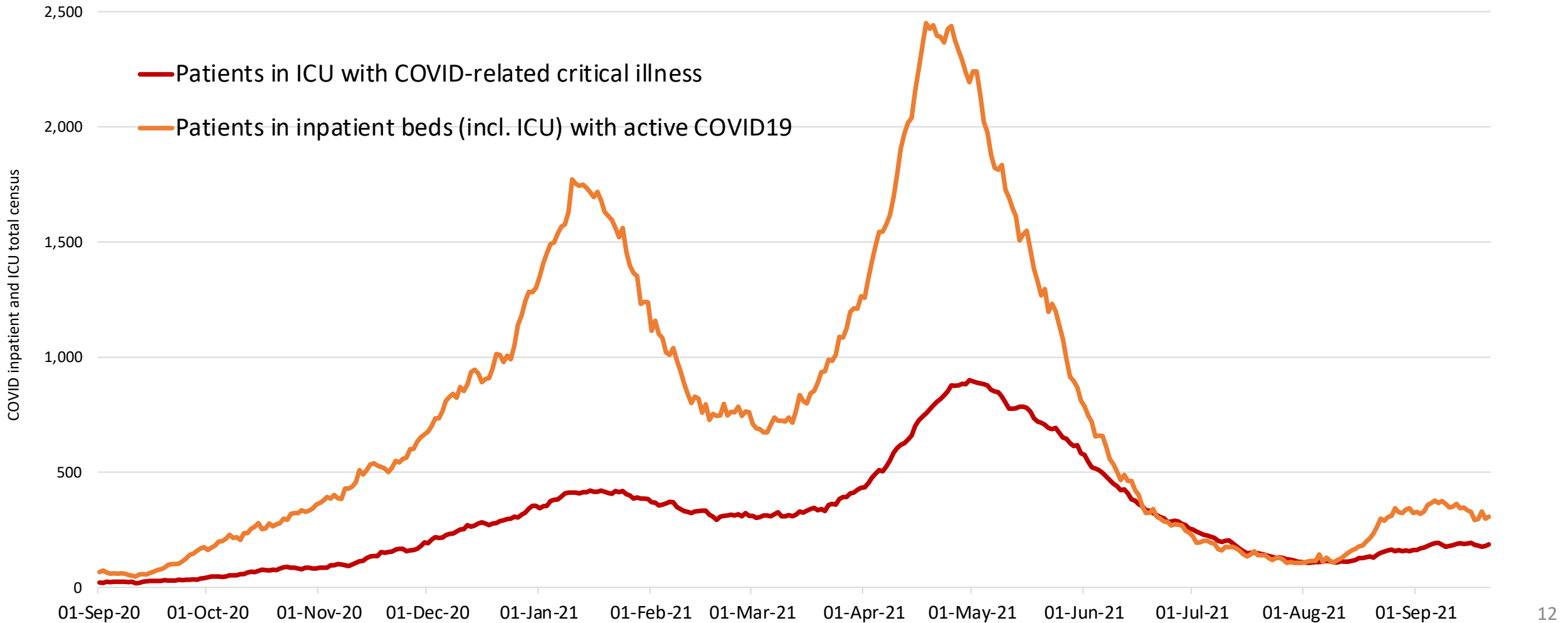


# The 4<sup>th</sup> wave continues to put pressure on hospital capacity in a number of jurisdictions

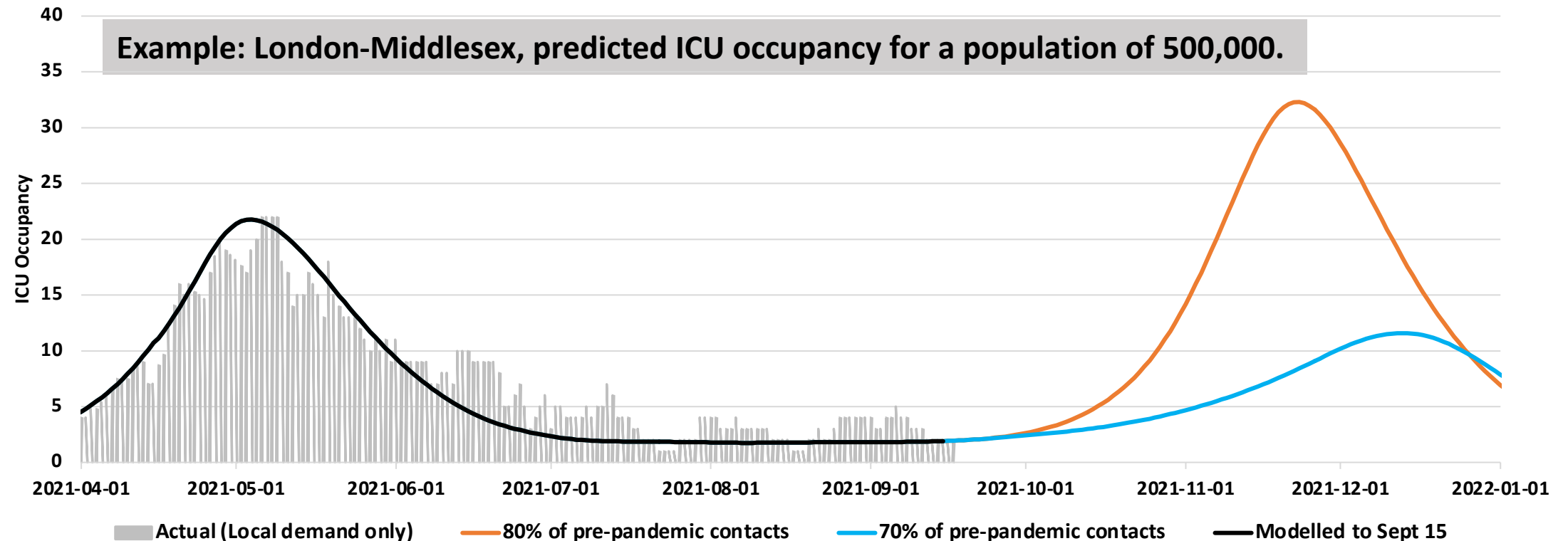
COVID-19 Patients in Hospital



# However, in Ontario hospital and ICU occupancy have been stable for several weeks



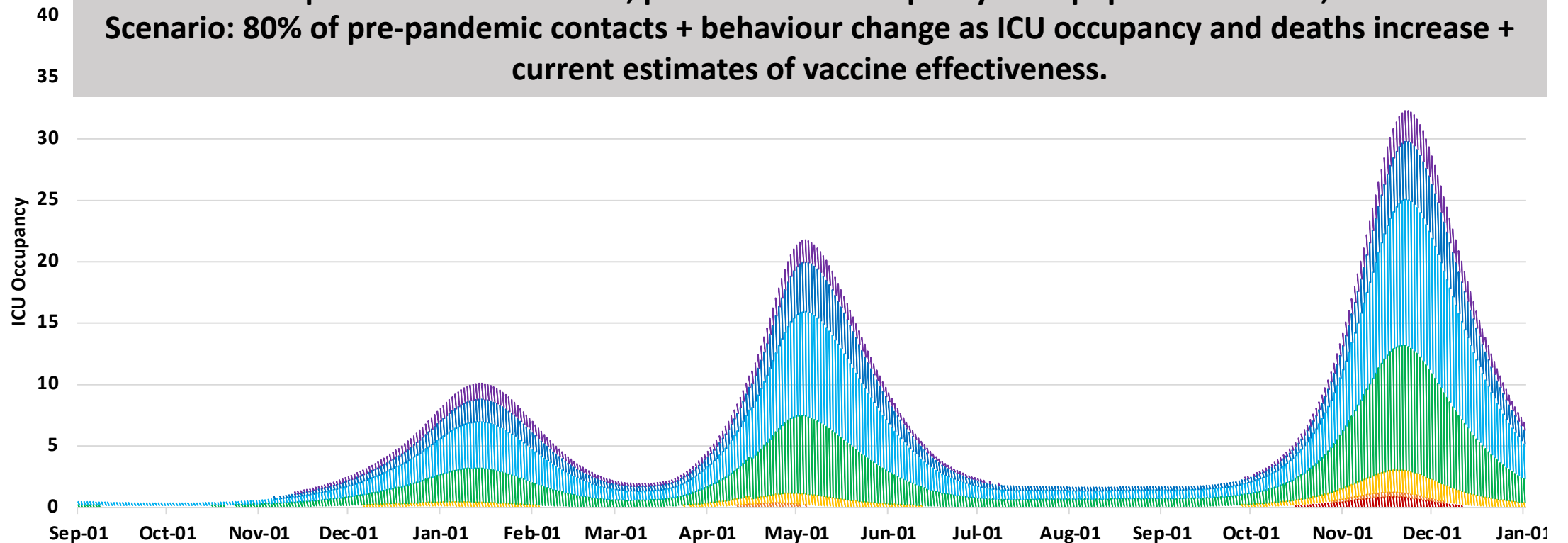
# Long-term predictions: High risk of rapid increase in ICU occupancy can be reduced with a cautious approach and early contact reductions.



- Scenarios shown assume that as ICU occupancy and deaths increase, contacts will decrease due to behaviour change and implementation of public health measures
- Summer (Step 3) contacts approx. 82.5% compared to pre-pandemic contacts
- If scaling up to Ontario population, ICU occupancy predictions for Ontario would be expected to be higher and the peak to occur earlier, especially in large urban areas.

# Patients in ICU are expected to be younger compared to earlier waves.

Example: London-Middlesex, predicted ICU occupancy for a population of 500,000.  
Scenario: 80% of pre-pandemic contacts + behaviour change as ICU occupancy and deaths increase + current estimates of vaccine effectiveness.



- Summer (Step 3) contact level approx. 82.5%
- If scaling up to Ontario population, ICU occupancy predictions for Ontario would be expected to be higher and the peak to occur earlier, especially in large urban areas.

# Post COVID-19 Condition – or Long COVID – will substantially impact the health of thousands of Ontarians

- About 1 in 10 individuals with COVID-19 infection will continue to have symptoms lasting more than 12 weeks (estimated 57,000 to 78,000 individuals in Ontario based on data up to August 2021)
  - Most common symptoms: fatigue, shortness of breath, pain, anxiety and depression, trouble thinking/concentrating (“brain fog”)
  - Can impact individuals of any age or baseline health, and can occur even if minimal to no symptoms during initial infection
- Vaccines are strongly protective:
  - Reduce the chance of getting infected by about 85%
  - Reduce the chance of developing Long COVID-19 in breakthrough infections by about 50%

# Post COVID-19 Condition may substantially impact the health system

Post COVID-19 Condition may result in significant burden on individuals, healthcare system and society:

- Increased incidence of new chronic disease (e.g., diabetes or cardiovascular disease)
- Higher healthcare utilization (physician visits, hospitalization)
- Severe impairment of home-life and day to day activities for some individuals
- Longest follow-up study (12 months after infection):
  - 12% of all infected individuals had not returned to work
  - Among the 88% who returned, 24% had not returned to their pre-COVID-19 level of work



# Key Findings

- New cases, hospitalisations and ICU occupancy are not increasing. There is a wide range for case projections, reflecting the fragile situation and high degree of instability as colder weather approaches with more time indoors.
- Continued control over case growth requires high vaccination rates in the eligible population, continued public health measures, and a flattening of growth in mobility.
- The risk of contracting COVID-19, being hospitalized for COVID-19, and entering the ICU is several times higher for unvaccinated individuals.
- Vaccination coverage is increasing slowly.
- Post COVID-19 Condition – or Long COVID – will substantially impact the health of thousands of Ontarians

# Contributors

- **COVID-19 Modeling Collaborative:** Kali Barrett, Stephen Mac, David Naimark, Aysegul Erman, Yasin Khan, Raphael Ximenes, Sharmistha Mishra, Beate Sander
- **Fields Institute:** Taha Jaffar, Kumar Murty
- **McMasterU:** Irena Papst, Michael Li, Ben Bolker, Jonathan Dushoff, David Earn
- **Modeling Consensus Table:** Isha Berry
- **PHO:** Kevin Brown, Sarah Buchan, Alyssa Parpia
- **Science Advisory Table:** Peter Juni, Kali Barrett, Karen Born, Nicolas Bodmer, Shujun Yan
- **Western University/London Health Sciences Centre :** Lauren Cipriano, Wael Haddara
- **YorkU:** Jianhong Wu, Yanyu Xiao, Zack McCarthy

# Content and review by Modelling Consensus and Scientific Advisory Table members and secretariat

Beate Sander,\* Peter Juni, Brian Schwartz,\* Kumar Murty,\* Upton Allen, Vanessa Allen, Kali Barrett, Nicolas Bodmer, Isaac Bogoch, Karen Born, Kevin Brown, Sarah Buchan, Yoojin Choi, Troy Day, Laura Desveaux, David Earn, Gerald Evans, Jennifer Gibson, Anna Greenberg, Anne Hayes,\* Michael Hillmer, Jessica Hopkins, Jeff Kwong, Fiona Kouyoumdjian, Audrey Laporte, John Lavis, Gerald Lebovic, Brian Lewis, Linda Mah, Kamil Malikov, Doug Manuel, Roisin McElroy, Allison McGeer, David McKeown, John McLaughlin, Sharmistha Mishra, Andrew Morris, Samira Mubareka, Laveena Munshi, Christopher Mushquash, Ayodele Odutayo, Shahla Oskooei, Menaka Pai, Alyssa Parpia, Samir Patel, Anna Perkhun, Bill Praamsma, Justin Presseau, Fahad Razak, Rob Reid,\* Paula Rochon, Laura Rosella, Michael Schull, Arjumand Siddiqi, Chris Simpson, Arthur Slutsky, Janet Smylie, Robert Steiner, Ashleigh Tuite, Jennifer Walker, Tania Watts, Ashini Weerasinghe, Scott Weese, Xiaolin Wei, Jianhong Wu, Diana Yan, Emre Yurga

\* Chairs of Scientific Advisory, Evidence Synthesis, and Modelling Consensus Tables

For table membership and profiles, please visit the [About](#) and [Partners](#) pages on the Science Advisory Table website.