

Update on COVID-19 Projections

Science Advisory and Modelling Consensus Tables

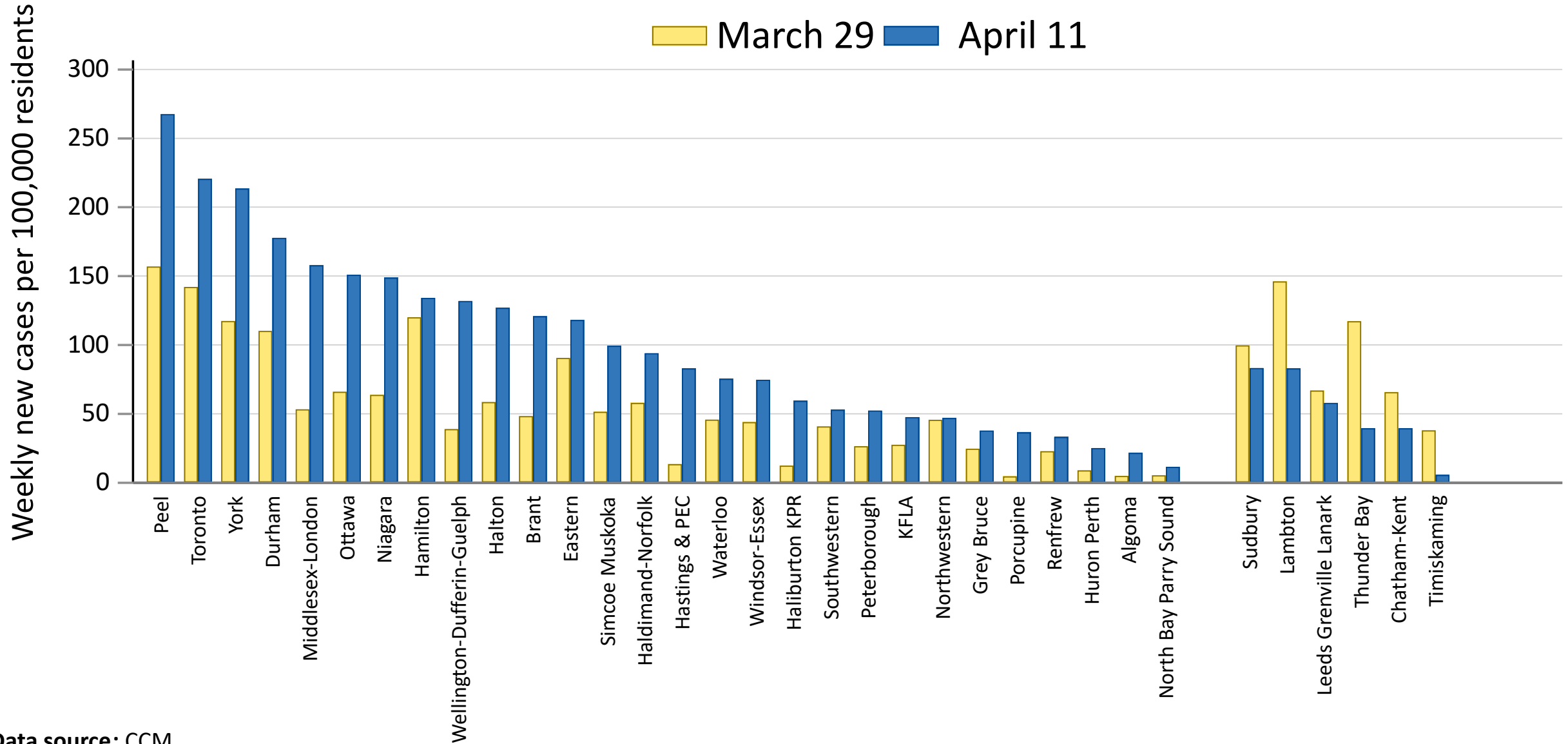
April 16, 2021



Key Findings

- COVID-19 cases, hospitalizations and ICU occupancy are **at their highest levels since March 2020** and variant cases continue to rise sharply.
- ICU occupancy is **compromising care for all patients.**
- Ontarians can help themselves and others by limiting mobility to truly necessary trips and **always wearing a mask and keeping 6 feet distant** when in contact with anyone outside their household.
- Although improving, vaccination is not reaching people at high-risk fast enough to overcome the level of serious illness in our communities and our hospitals.
- Without stronger system-level measures and immediate support for essential workers and high-risk communities, **high case rates will persist through the summer.**

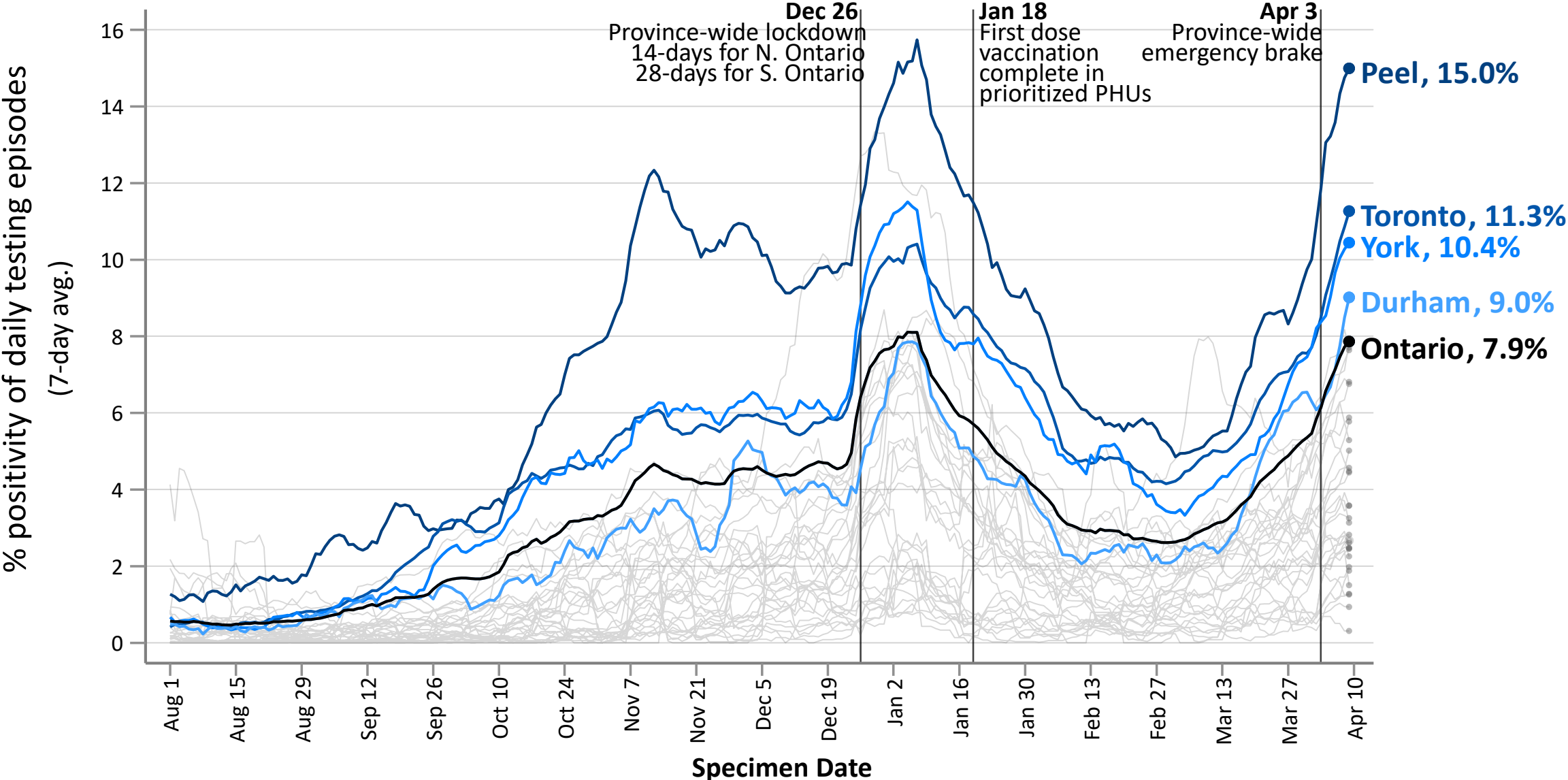
Cases are **rapidly** increasing in most Public Health Units



Data source: CCM

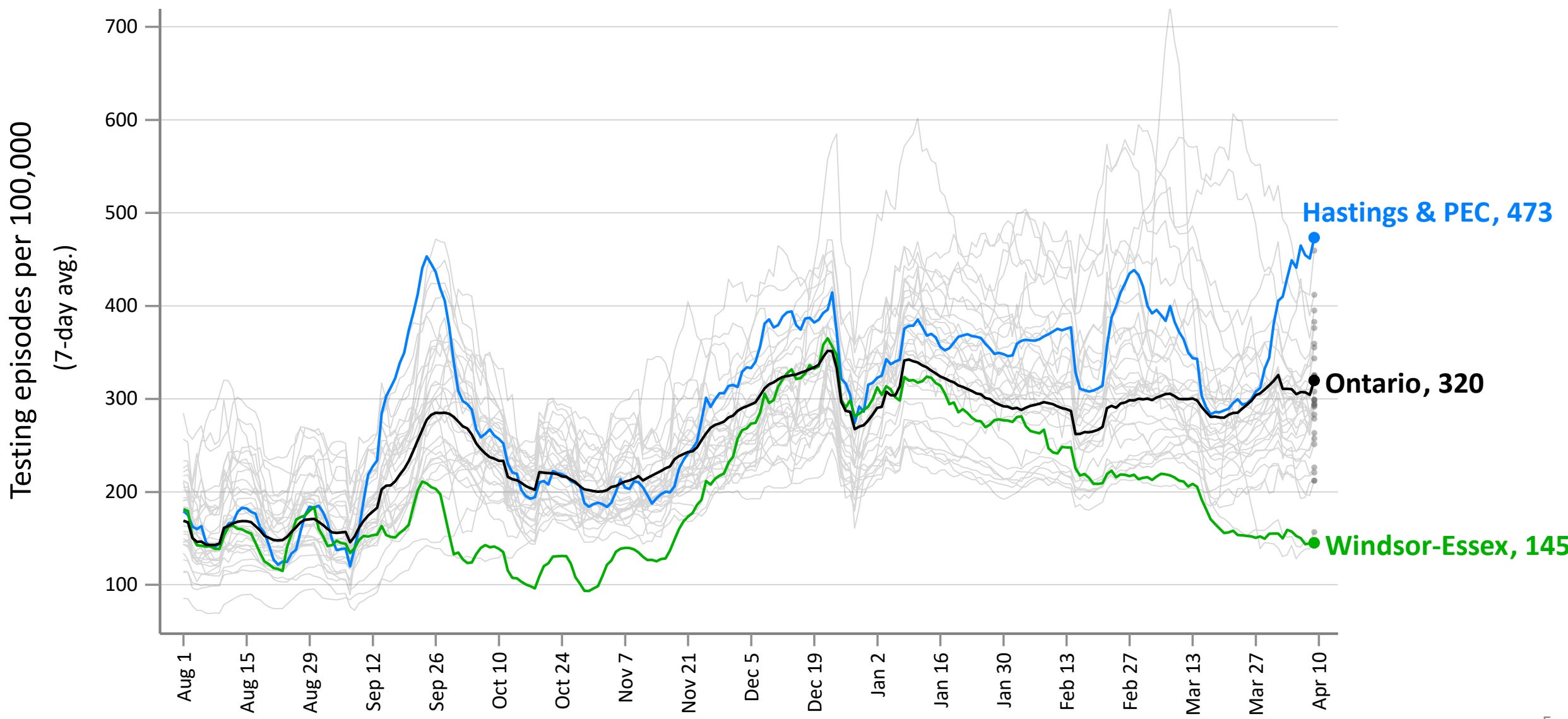
Data note: Data for the most recent day have been censored to account for reporting delays

Test positivity rates are increasing across Ontario



Data source: Ontario Laboratory Information System (OLIS), data up to April 9

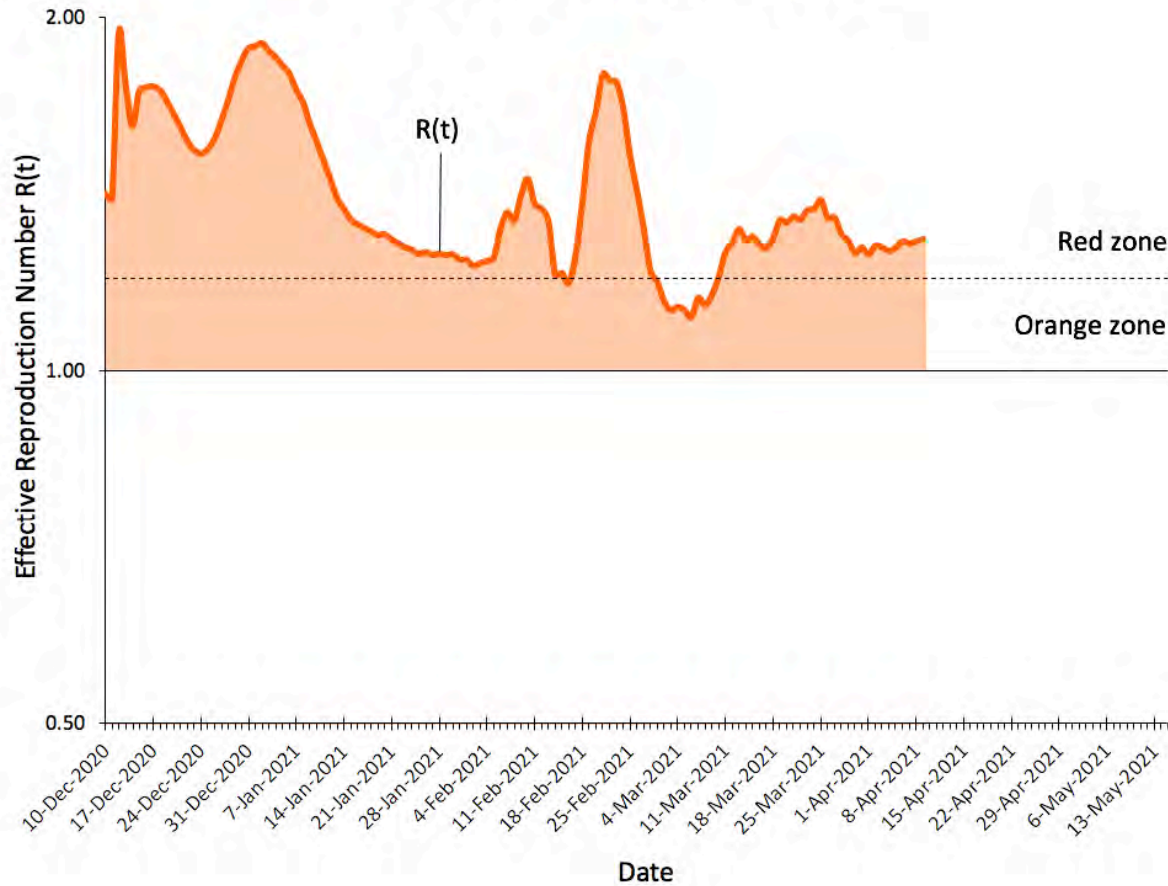
Ontario testing rates are flat – the increase in cases is because there are more cases, not more tests being done



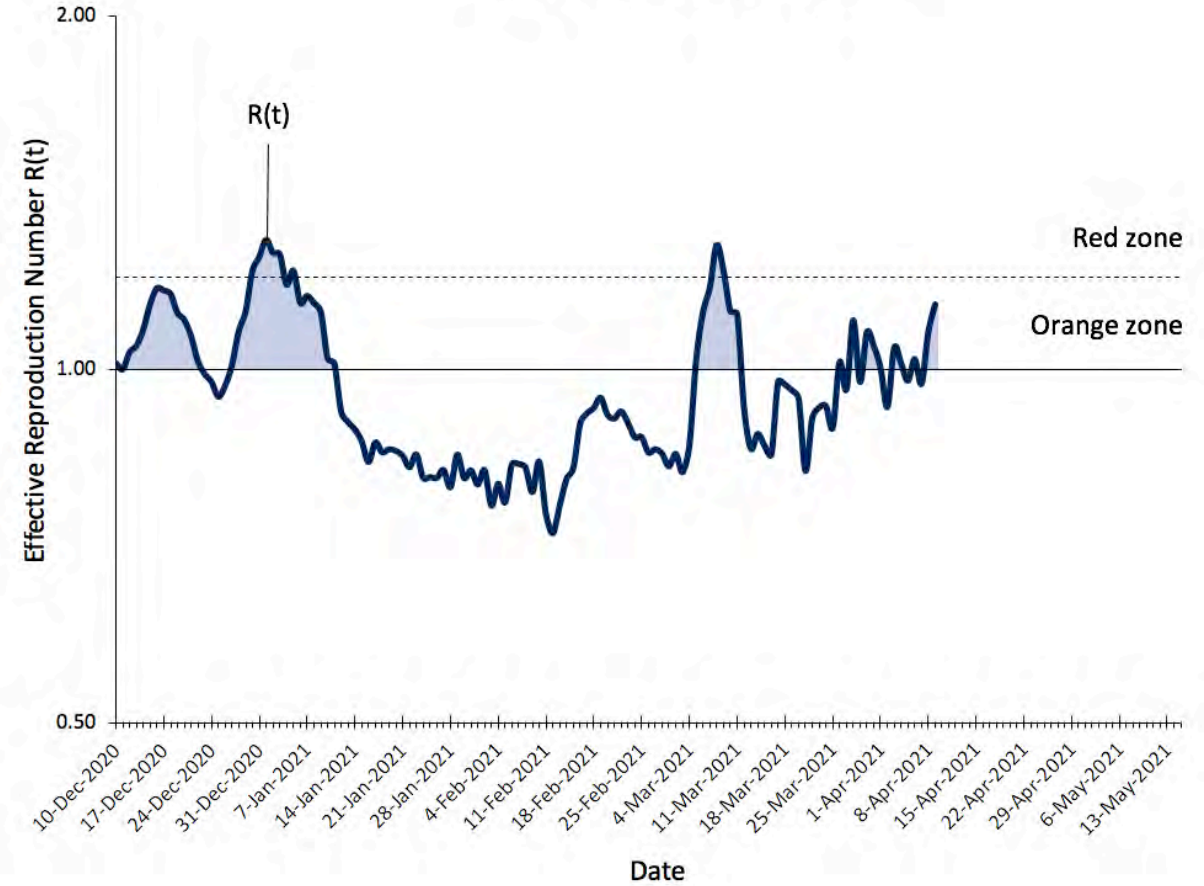
Data source: Ontario Laboratory Information System (OLIS), data up to April 9 Specimen Date

The number of variant cases continues to rise and variants now dominate, but even the original strain is rising.

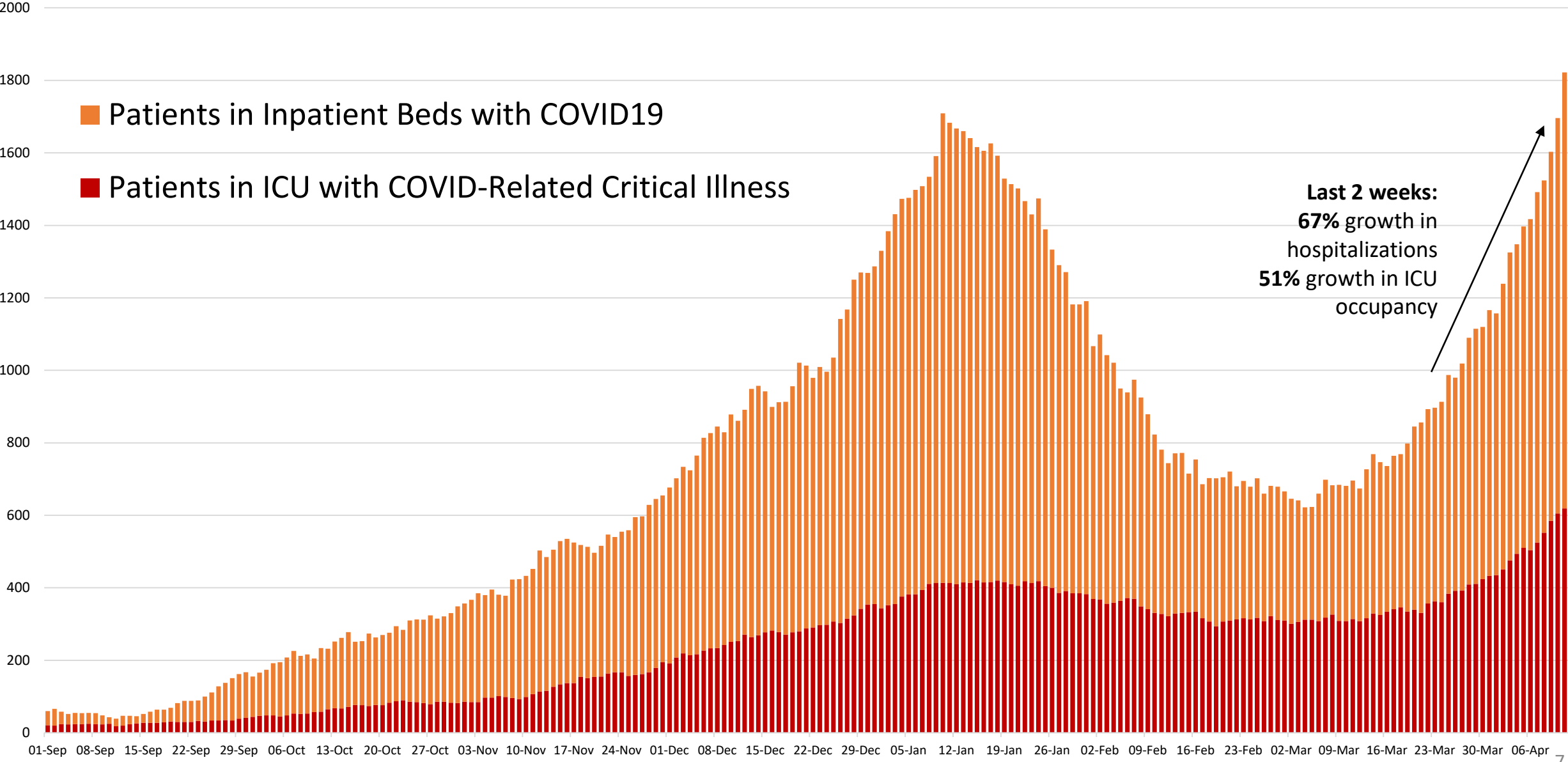
New Variants of Concern (VOCs)



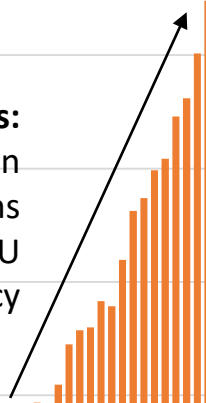
Early Variant (non-VOCs)



A record number of Ontarians are in hospital due to COVID-19



Last 2 weeks:
67% growth in hospitalizations
51% growth in ICU occupancy



Data Sources: MOH COVID Inpatient Census and Critical Care Information System

A 6 week stay-at-home order with a vaccination rate of at least 100K doses per day is the only way to flatten the curve.

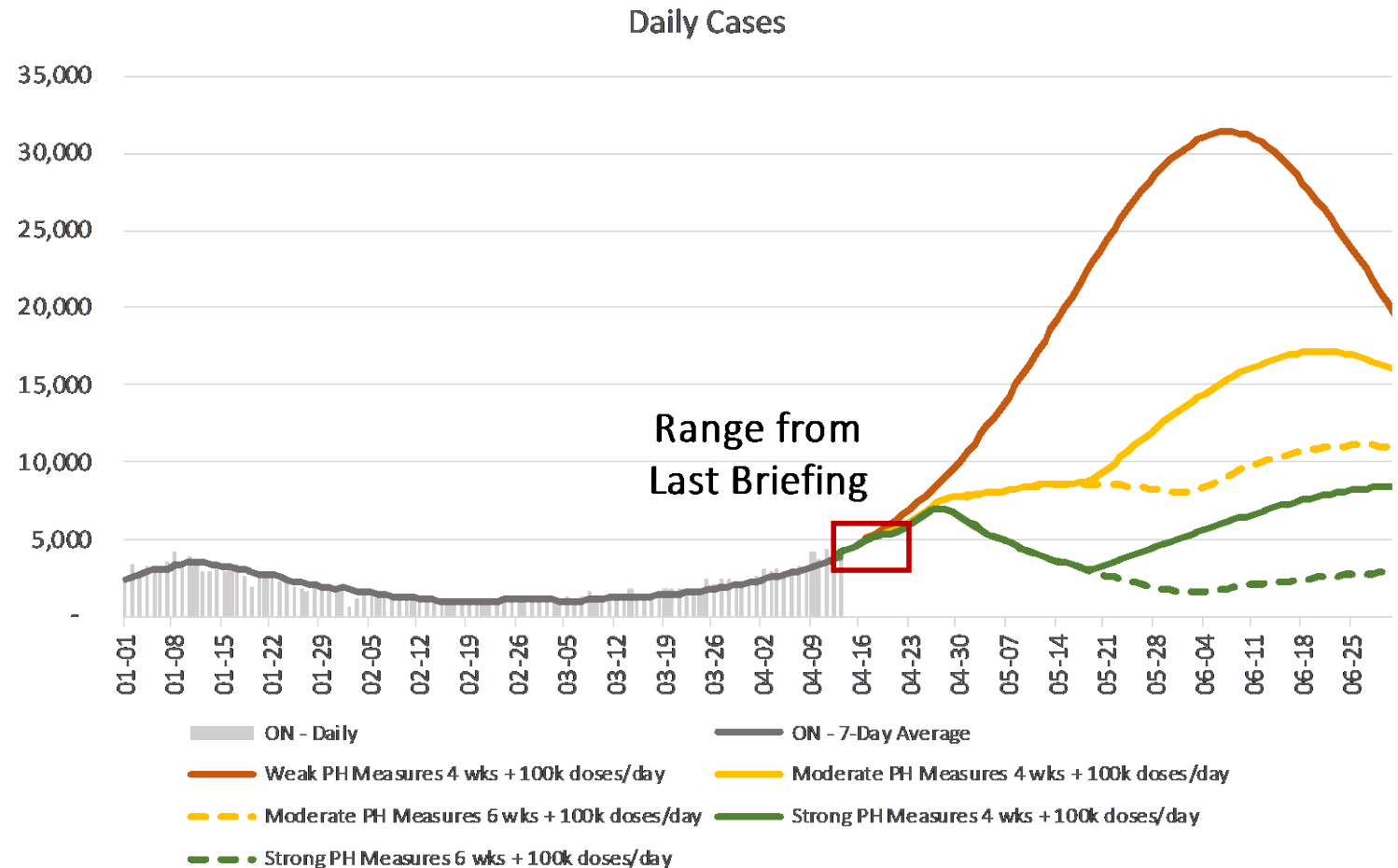
Figure summarizes predictions across 4 models with many scenarios.

Stay-at-home order assumptions:

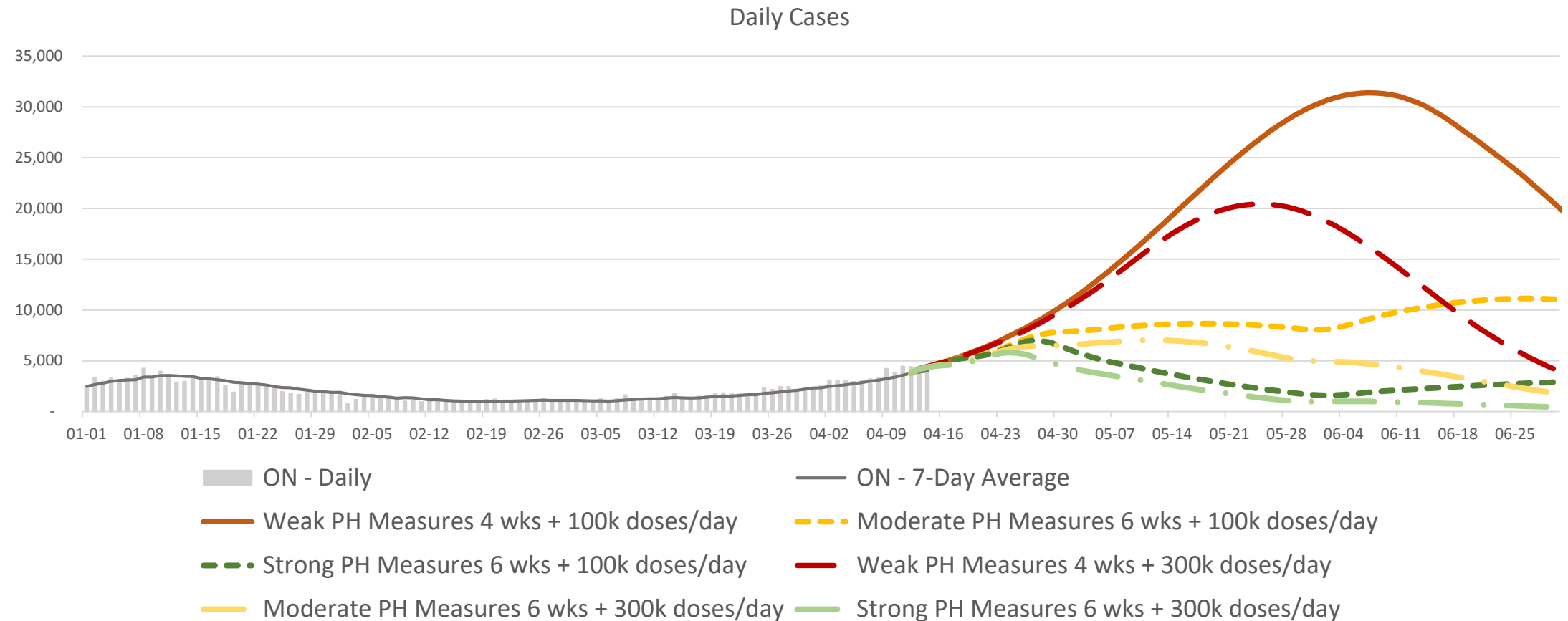
- 4 or 6 weeks starting Apr 8
- Weak to strong effect on transmission

Vaccine assumptions:

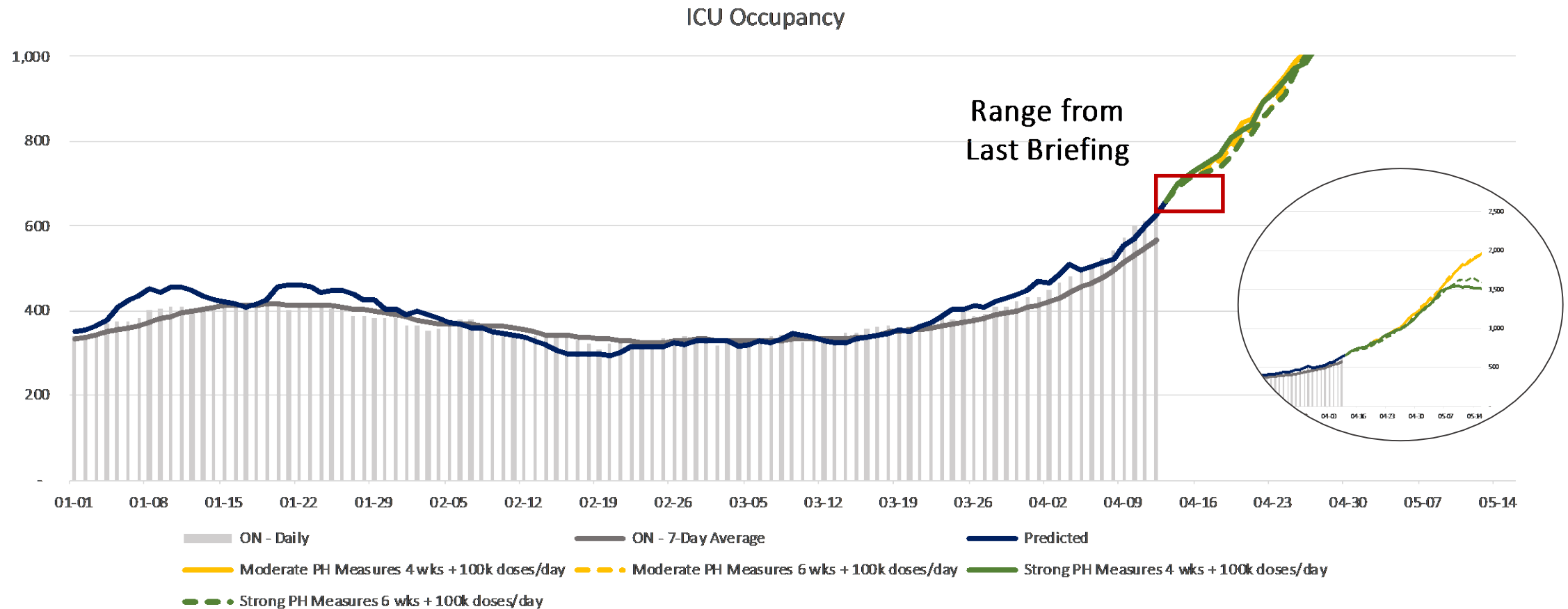
- 60% effective in preventing infection
- 100,000 doses/day
- Administered at random



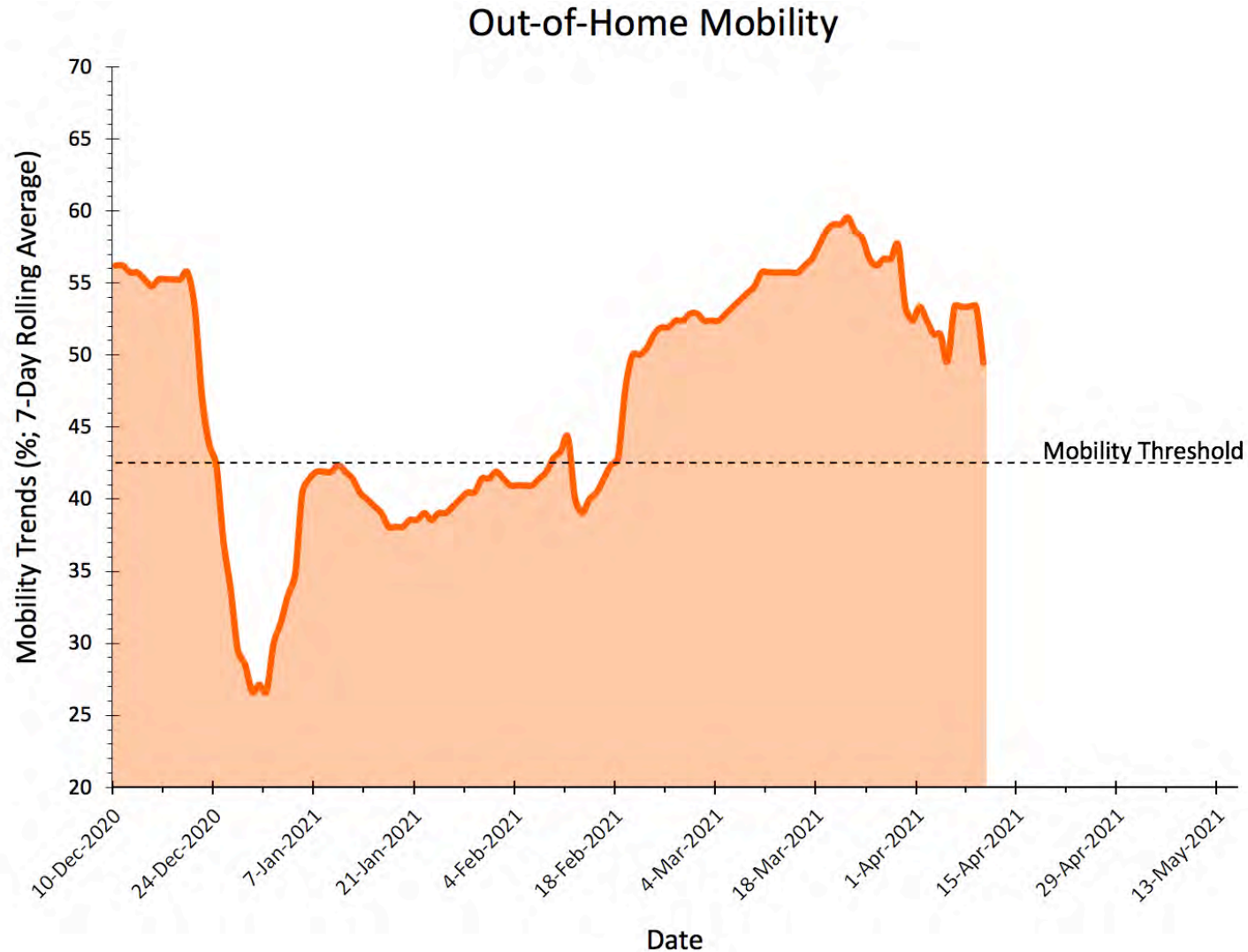
Under every scenario, more vaccines mean a faster resolution in the long-run



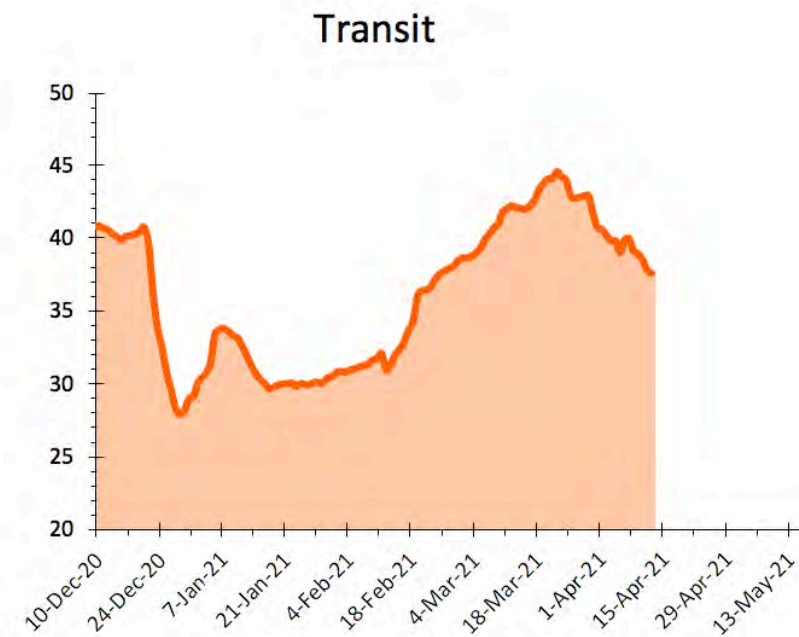
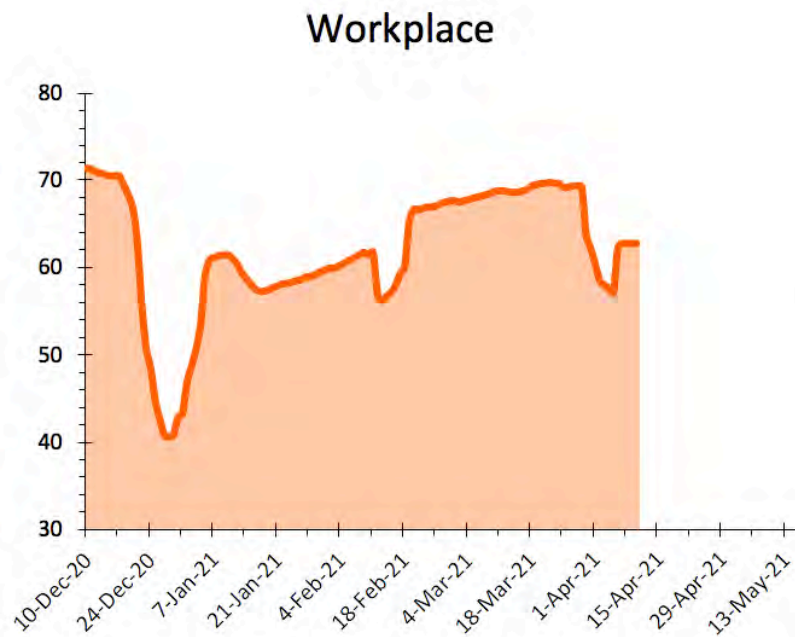
As predicted, ICU occupancy is rising dramatically. System-level public health measures will help blunt some of the impact.



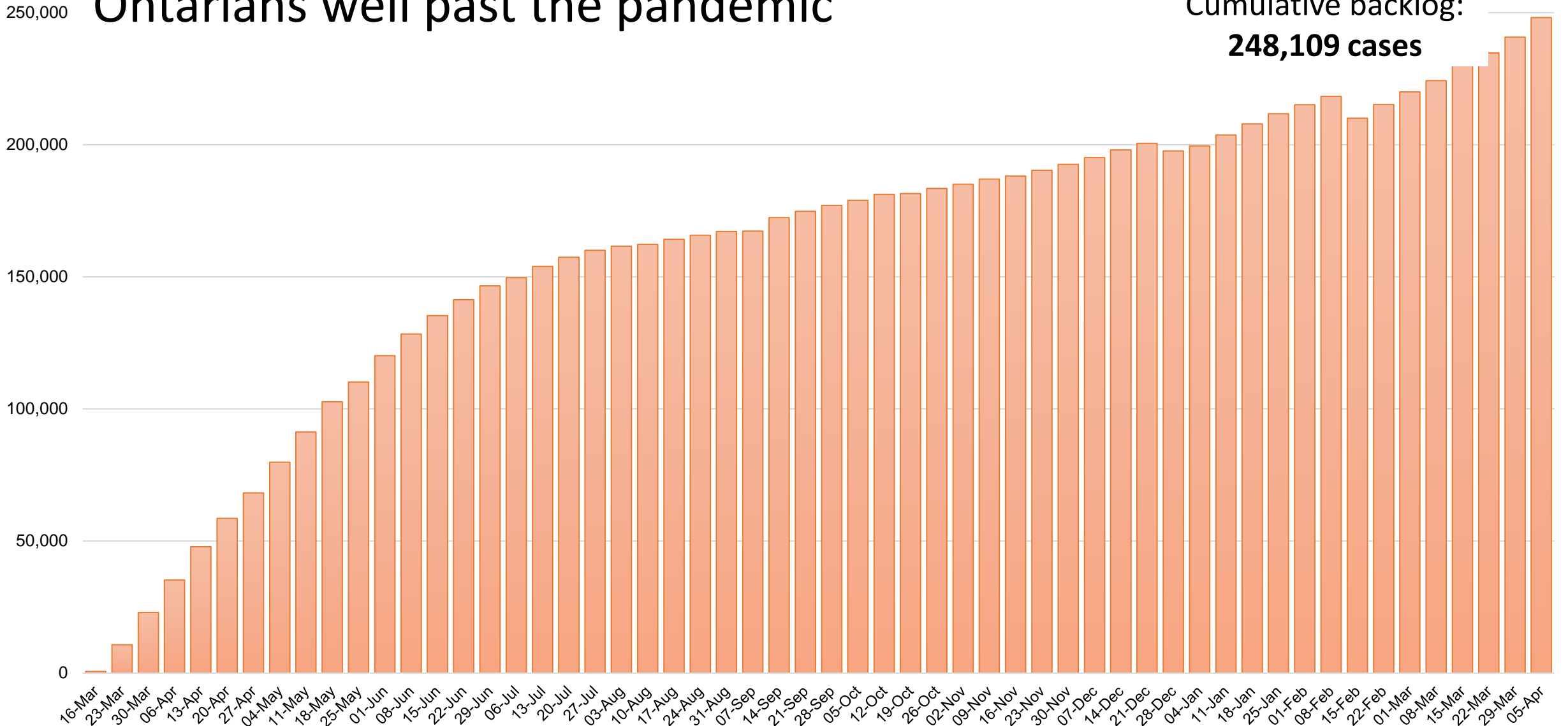
Mobility has declined slightly but not enough to bring current growth under control.



Mobility has declined slightly across settings. Further reducing mobility and always wearing a mask and distancing is how Ontarians help reduce cases.



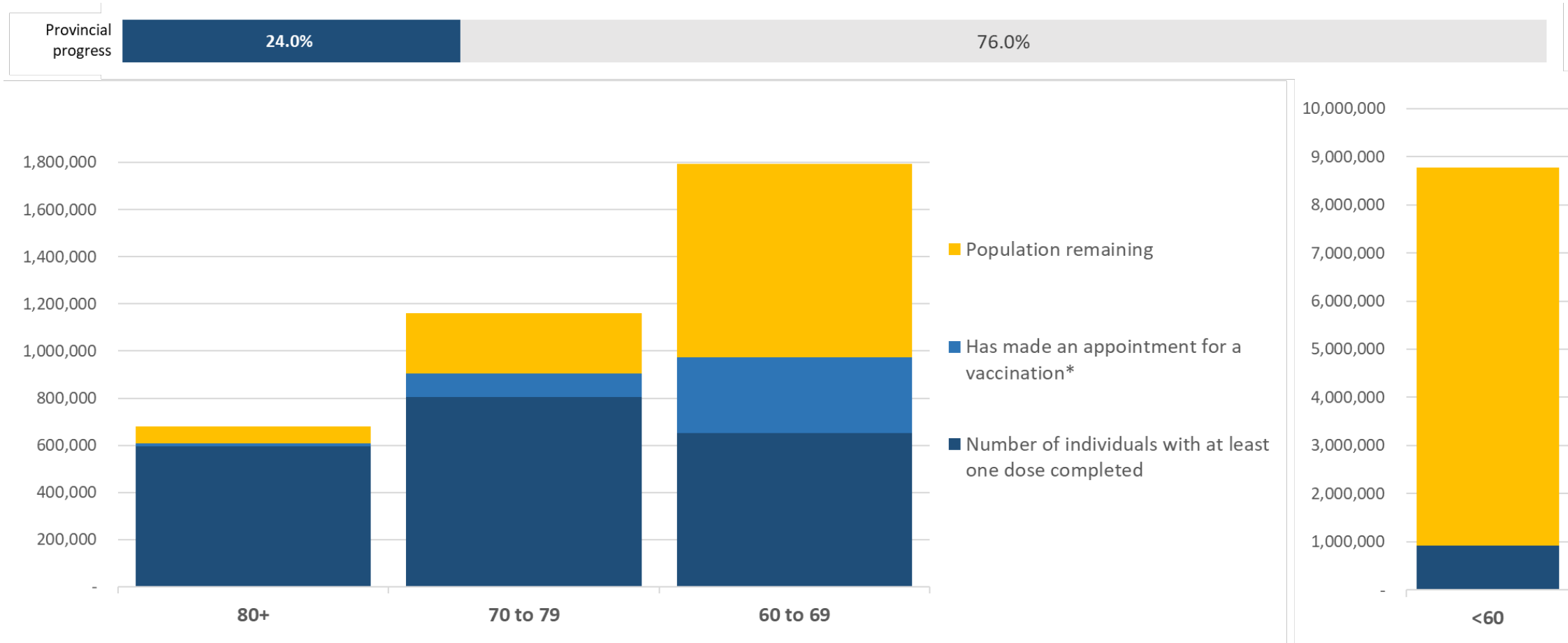
The access to care deficit is building which will be felt by Ontarians well past the pandemic



Data Source: Wait Times Information System. Backlog estimated based on comparison of 2020/21 with 2019/20 surgical volumes

First dose vaccine coverage expanding but remains incomplete

More than 3m doses administered



Data Sources

MOF Population Projections

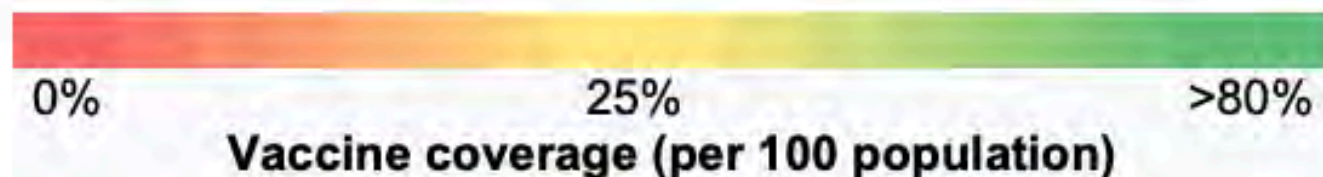
COVAX analytical file, extracted, 8:00 pm Apr 12 2021, CPAD, MOH

COVAX Skedulo, extracted 6:00pm Apr 12 2021

Vaccination by risk is improving but remains a key to controlling spread

Figure excludes long-term care vaccination – at least 1 dose as of April 12, 2021

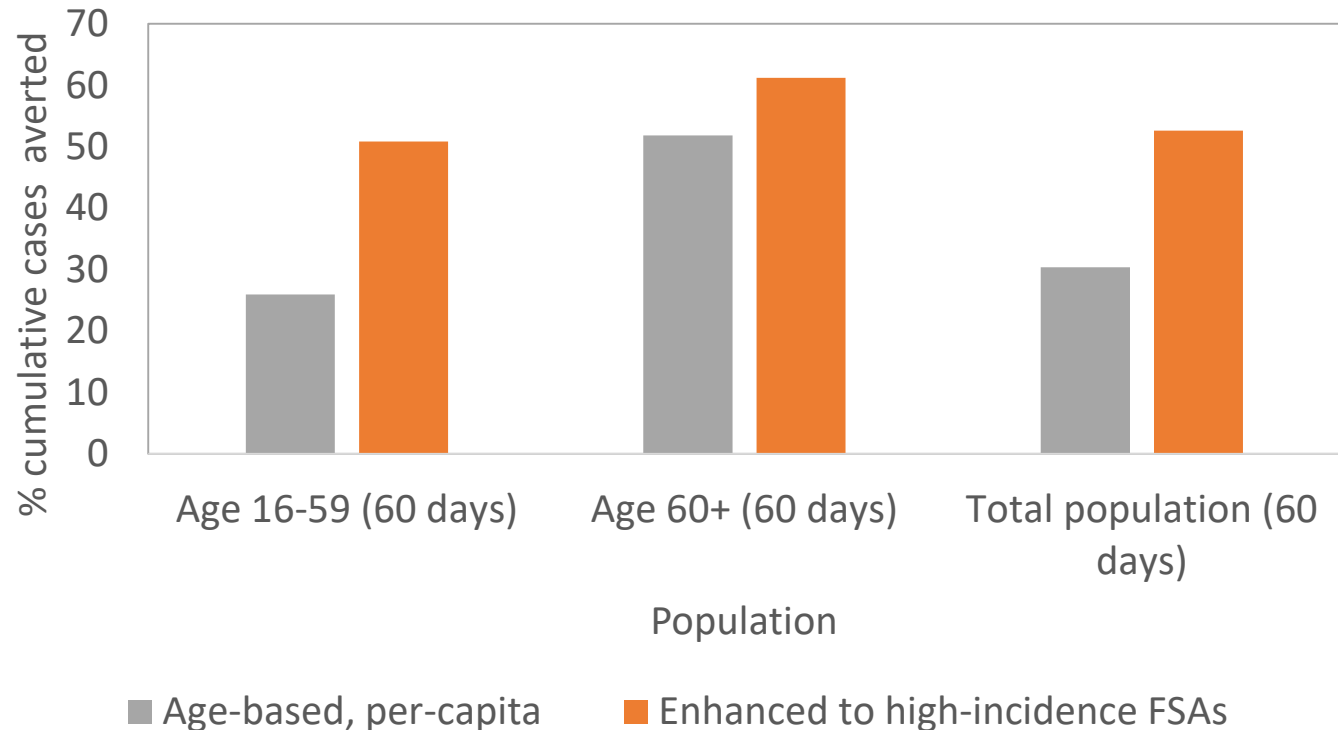
Age group	Neighbourhood Risk [‡]										Overall	
	1 = high incidence of COVID-19 infections					→	10 = low incidence of COVID-19 infections					
	1	2	3	4	5	6	7	8	9	10		
80+	65%	68%	70%	75%	77%	77%	79%	81%	82%	82%	76%	
75-79	63%	68%	70%	73%	75%	74%	75%	77%	74%	71%	72%	
70-74	57%	64%	62%	66%	65%	64%	63%	62%	51%	39%	58%	
65-69	42%	48%	44%	39%	41%	38%	36%	34%	22%	19%	35%	
60-64	40%	42%	38%	36%	35%	34%	30%	27%	23%	27%	33%	
55-59	20%	25%	21%	20%	21%	22%	20%	20%	17%	17%	20%	
50-54	14%	18%	13%	13%	13%	13%	13%	13%	13%	14%	14%	
45-49	9%	14%	9%	11%	11%	11%	11%	11%	13%	14%	11%	
40-44	7%	9%	9%	10%	10%	11%	10%	11%	12%	13%	10%	
16-39	5%	7%	6%	8%	8%	8%	8%	8%	10%	10%	8%	
Overall	15%	20%	18%	19%	20%	20%	19%	19%	20%	20%	23%	



What happens if we vaccinate 3 million adults over the next 30 days?

100,000 vaccinations per day, top 20% highest incidence neighbourhoods

Potential impact at 60 days: % of cumulative cases averted, compared to no vaccination moving forward



Number vaccines per case averted



Key Findings

- COVID-19 cases, hospitalizations and ICU occupancy are **at their highest levels since March 2020** and variant cases continue to rise sharply.
- ICU occupancy is **compromising care for all patients.**
- Ontarians can help themselves and others by limiting mobility to truly necessary trips and **always wearing a mask and keeping 6 feet distant** when in contact with anyone outside their household.
- Although improving, vaccination is not reaching people at high-risk fast enough to overcome the level of serious illness in our communities and our hospitals.
- Without stronger system-level measures and immediate support for essential workers and high-risk communities, **high case rates will persist through the summer.**

Contributors

- **COVID Heterogeneity Research Group:** Rafal Kustra, Huiting Ma, Siyi Wang, Gary Moloney, Kristy Yiu, Beate Sander, Jeff Kwong, Stefan Baral, Sharmistha Mishra
- **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
- **ICES:** Jeff Kwong, Hannah Chung, Kinwah Fung, Michael Paterson, Susan Bronskill, Laura Rosella, Astrid Guttmann, Charles Victor, and Michael Schull, Marian Vermeulen
- **McMasterU:** Michael Li, Irena Papst, Ben Bolker, Jonathan Dushoff, David Earn
- **YorkU:** Jianhong Wu, Francesca Scarabel, Bushra Majeed
- **MOHLTC:** Michael Hillmer, Kamil Malikov, Qing Huang, Jagadish Rangrej, Nam Bains, Jennifer Bridge
- **OH:** Erik Hellsten, Stephen Petersen, Anna Lambrinos, Chris Lau, Access to Care Team
- **PHO:** Kevin Brown
- **Science Advisory Table:** Peter Juni

Content provided by Modelling Consensus and Scientific Advisory Table members and secretariat

Beate Sander,* Peter Juni, Brian Schwartz,* Kumar Murty,* Upton Allen, Vanessa Allen, Nicholas Bodmer, Isaac Bogoch, Kevin Brown, Sarah Buchan, Yoojin Choi, Troy Day, Laura Desveaux, David Earn, Gerald Evans, David Fisman, 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, Antonina Maltsev, Doug Manuel, Roisin McElroy, Allison McGeer, David McKeown, John McLaughlin, Sharmistha Mishra, Justin Morgenstern, Andrew Morris, Samira Mubareka, Laveena Munshi, Christopher Mushquash, Ayodele Odutayo, Shahla Oskooei, Menaka Pai, 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, Nathan Stall, 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.