

COVID-19 Vaccine Rollout to Ontario's Long-Term Care Homes

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Ontario's Long-Term Care COVID-19 Commission

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WHAT ARE THE ISSUES?

1. Slow speed of rollout and perceived lack of urgency
2. Initial resistance to modify manufacturer's requirements for vaccine transport, storage and distribution
3. Deviation from priority groups for initial vaccination and ethical framework
4. Perceived lack of engagement with the LTC sector, public health, primary care and community-based clinicians and organizations
5. Lack of transparency and regular communication
 - No publicly available data on vaccine administration in LTC homes
 - Absence of daily briefings and transparency about administration plan
6. Failure to prioritize LTC homes in all 34 public health units
7. Little work to promote vaccine acceptance and eliminate logistical barriers within the LTC sector

MODELLING THREE VACCINE ROLLOUT SCENARIOS

Three scenarios:

1. All Ontario LTC residents provided first dose by January 21, 2021*
2. All Ontario LTC residents provided first dose by January 31, 2021*
3. All Ontario LTC residents provided first dose by February 15, 2021* (current Ontario plan)

*In all three scenarios all LTC residents in 4 priority regions (Toronto, Peel, York & Windsor-Essex) assumed to be vaccinated by January 21, 2021

MODELLING THREE VACCINE ROLLOUT SCENARIOS

- As of Jan 17, 2021:
 - 13,337 cumulative SARS-CoV-2 LTC resident infections
 - 3,212 cumulative COVID-19 deaths among LTC residents, accounting for 59.1% of Ontario's total 5,433 COVID-19 deaths
- Ontario's COVID-19 vaccine rollout began on Dec 14, 2020 with the Province prioritizing its approximately 70,000 LTC home residents as a key group for distribution of initial COVID-19 vaccines

MODELLING THREE VACCINE ROLLOUT SCENARIOS

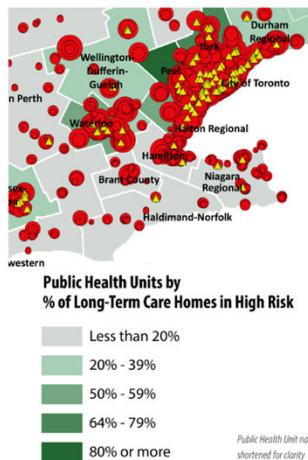
- Recent updates from Ontario's COVID-19 vaccination program targeted Jan 21, 2021 as the date to provide first doses of vaccine to LTC residents in the Toronto, Peel, York & Windsor-Essex public health units
- As of Jan 17, 2021 the 4 priority regions accounted for:
 - 160/623 (25.7%) of Ontario's LTC homes,
 - 25,703/78,764 (32.6%) of Ontario's licensed LTC beds
 - 21,854/69,799 (31.3%) of Ontario's currently occupied LTC beds
 - 97/248 (39.1%) of Ontario's active COVID-19 LTC home outbreaks

MODELLING THREE VACCINE ROLLOUT SCENARIOS

- Forecasted LTC resident COVID-19 cases and deaths in a scenario of no vaccination by March 31, 2021 using a three-step model:
 1. Predict number of outbreaks based on rates of community COVID-19 infections
 2. Predict which specific LTC homes will experience a COVID-19 outbreak
 3. Model the number of resident COVID-19 cases and deaths within each LTC home predicted to experience a COVID-19 outbreak

STEP 1

Predict how many LTC homes will have outbreaks based on rates of community COVID-19 infection



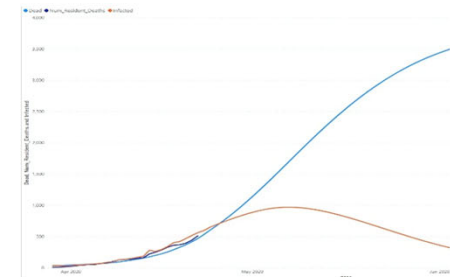
STEP 2

Predict which specific homes will experience COVID-19 outbreaks



STEP 3

Model the number of LTC resident COVID-19 cases and deaths within each home predicted to experience outbreaks



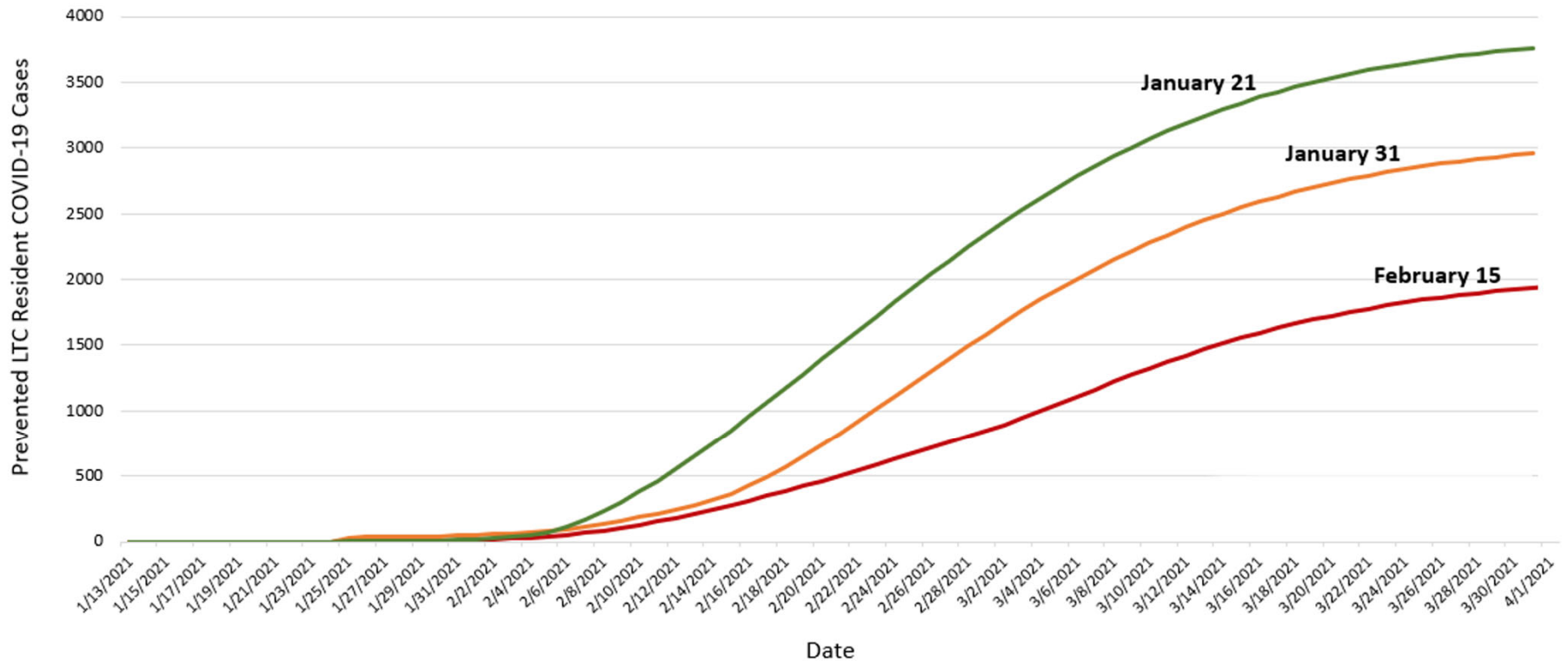
MODELLING THREE VACCINE ROLLOUT SCENARIOS

Assumptions:

1. All residents vaccinated with Moderna vaccine which has the following efficacy based on published clinical trial data:
 - Efficacy 0-13 days after vaccination = 0%
 - Efficacy 14-41 days after vaccination = 94%
 - Efficacy ≥ 42 days after vaccination = 94.1%
2. Clinical trial vaccine efficacy will be the same in Ontario LTC resident population
3. LTC resident vaccine uptake will be 100%
4. Vaccine administration speed is linear between rollout scenarios with a random order of homes being vaccinated
5. LTC residents previously infected with SARS-CoV-2 on or after September 1, 2020 are conferred 100% immunity

MODELLING THREE VACCINE ROLLOUT SCENARIOS

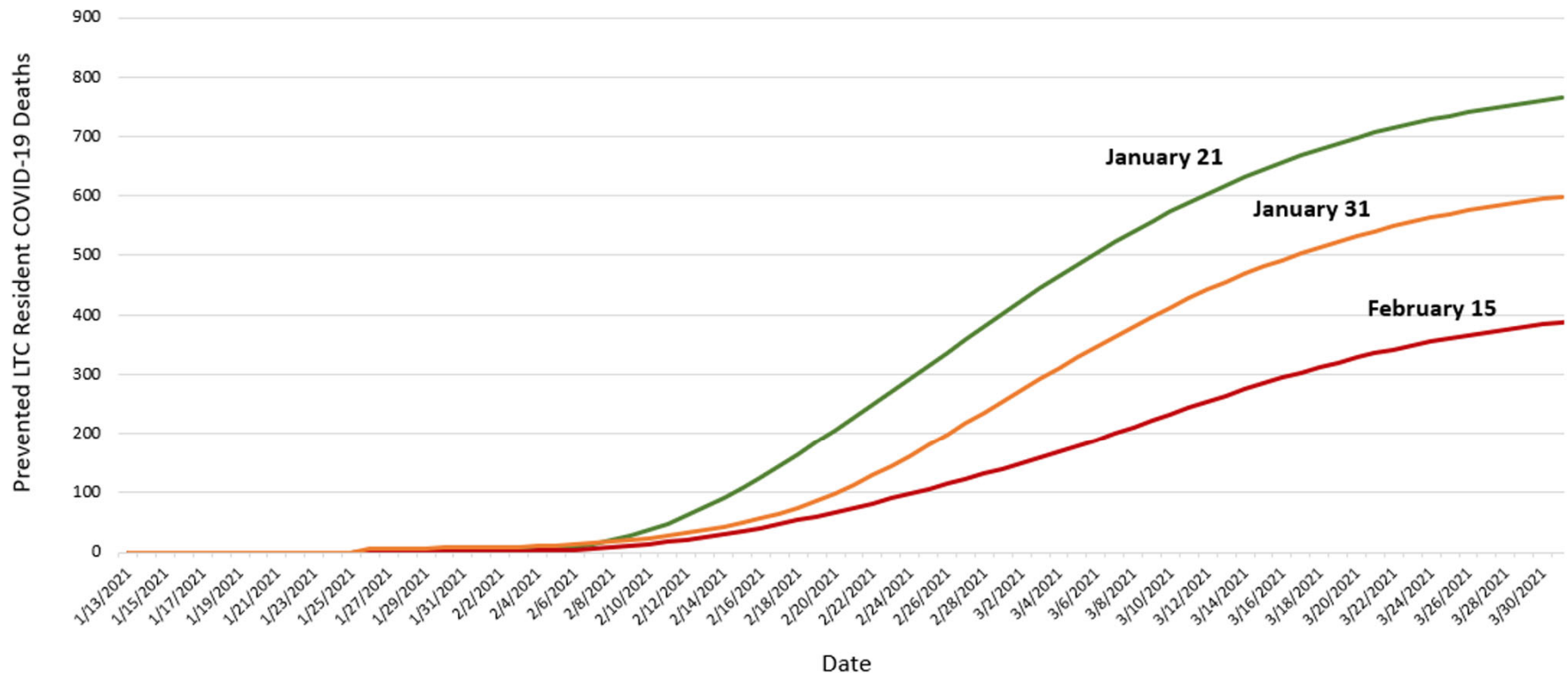
Prevented LTC Resident COVID-19 Cases in Ontario



*Compared to no vaccination

MODELLING THREE VACCINE ROLLOUT SCENARIOS

Prevented LTC Resident COVID-19 Deaths in Ontario



*Compared to no vaccination

MODELLING THREE VACCINE ROLLOUT SCENARIOS

Projected outcomes by March 31, 2021:

1. All Ontario LTC residents provided first dose by January 21, 2021*
 - Prevented cases: 3,750 (UI: 700 to 6,800)
 - Prevented deaths: 750 (UI: 140 to 1,400)
2. All Ontario LTC residents provided first dose by January 31, 2021*
 - Prevented cases: 3,000 (UI: 600 to 5,300)
 - Prevented deaths: 600 (UI: 120 to 1,000)
3. All Ontario LTC residents provided first dose by February 15, 2021*
(current Ontario plan)
 - Prevented cases: 2,000 (UI: 600 to 3,250)
 - Prevented deaths: 380 (UI: 120 to 650)

UI: uncertainty interval

*In all three scenarios all LTC residents in 4 priority regions (Toronto, Peel, York & Windsor-Essex) assumed to be vaccinated by January 21, 2021

MODELLING THREE VACCINE ROLLOUT SCENARIOS

Key messages:

1. Models designed to predict LTC home outbreaks can also be used also predict the impact of vaccination on COVID-19 cases and deaths under different vaccine rollout scenarios
2. If Ontario vaccinates all LTC home residents by January 31, 2021 we could save 220 lives compared to the current schedule (February 15, 2021)
3. If Ontario vaccinates all LTC home residents by January 21, 2021, we will save even more lives

WHAT COULD HAVE BEEN DONE?

1. Had content/vaccine implementation expertise on the task force
2. Provided education to providers and LTC homes
3. Worked with training programs, worker associations, unions, employers to get trustworthy information to workers
4. Planned for Moderna to be rolled out for LTC to do their own vaccination
 - Consents, supplies, requests for help
5. Permitted the movement of Pfizer vaccine (as per British Columbia, United Kingdom, United States, and Israel)
6. Planned for/organized the transport of workers to Pfizer hubs

WHAT COULD WE DO NOW?

To optimize the number of people protected:

1. Suspend all second doses of vaccine for healthcare workers at all hospital hubs
2. Not give a second dose of vaccine to LTC residents and/or staff who have previously been infected (honour system for staff)
3. Delay second dose of vaccine to LTC residents and/or staff who have been infected after their first dose
4. Look at immunogenicity and protection of residents in the week prior to scheduled second dose of vaccine
 - Delay second dose tentatively by 3-4 days to assess vaccine supply, immunogenicity and clinical attack rate
5. Plan for Pfizer vaccine at day 26-28, not day 21

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