

Factors associated with COVID-19 outbreaks, transmission and poor outcomes in Ontario's LTC Homes

Final Report for the Ontario Long-Term Care Commission

Natalie Damiano, PT, MSc, Director, Specialized Care

Luke Turcotte, PhD, Senior Researcher, Advanced Analytics

Canadian Institute for Health Information

Land acknowledgement

As CIHI works toward better health for all Canadians, we are mindful that we live on the traditional territories of and work with First Nations, Inuit and Métis in a respectful way.



CIHI would like to thank and acknowledge the long-term care home staff who provided this valuable data during a very challenging time. While we focus on numbers in our conclusions, we acknowledge that these numbers represent people who have been impacted by COVID-19.

Recap

- In September 2020, CIHI presented to Ontario's Long-Term Care COVID-19 Commission
- The Commission engaged CIHI to prepare a report that answers the question:
 - What home-level characteristics were most associated with COVID-19 outbreaks, spread within homes, and poor resident outcomes in Ontario's long-term care homes during the *initial wave* of the pandemic (March 1 to June 30, 2020)?
- The Commission released a survey in January 2021 to gather data from long-term care homes that was not already available (see Appendix for the full survey)

Research questions

Multivariable modelling was used to determine the relationship between characteristics of long-term care homes and surrounding regions on the following outcomes in Ontario long-term care homes:

1. Likelihood of COVID-19 outbreak (defined as 1 or more resident cases)
2. Severity of COVID-19 outbreak (defined as percentage of residents infected)
3. Resident mortality rate due to COVID-19 (defined as percentage of residents dying)
4. High resident mortality due to COVID-19 (defined as 20% or more of residents dying)

Previous Ontario-specific research findings

- **Risk factors for greater likelihood of COVID-19 outbreak include:**
 - COVID-19 incidence in the region surrounding the home
 - Large facility size
- **Risk factors for greater COVID-19 spread and deaths within homes include:**
 - Old facility design standards (ward-style rooms)
 - Chain ownership
 - Greater facility crowding

Reference: Stall NM, Brown KA, Maltsev A, et al. COVID-19 and Ontario's long-term care homes. Science Briefs of the Ontario COVID19 Science Advisory Table. 2021;2(7). <https://doi.org/10.47326/ocsat.2021.02.07.1.0>

CIHI – New contribution

Building on previously published models, the additional survey data was used to characterize the association between COVID-19 outbreak incidence and severity with:

- Staffing mix
- Staff shortages
- Access to paid sick time
- IPAC and medical leadership
- Hospital affiliations
- Access to personal protective equipment
- Isolation procedures

In addition, CIHI's long-term care data (Continuing Care Reporting System) was used to characterize the association between COVID-19 outbreak incidence and severity with:

- Home-level resident clinical profiles (e.g., cognitive impairment, health instability)
- Home-level quality of care (interRAI risk-adjusted quality indicators)

Phased approach



Survey of Ontario Long-Term Care Homes

January to February 2021

**See Appendix for the all questions included in Survey of Ontario Long-Term Care Homes*

Considerations about the survey

- **The survey was designed to enable long-term care homes to provide objective and accurate information to inform recommendations for systemic changes within homes**
- **The survey covered the following types of information:**
 - Outcomes (outbreaks, cases, mortality)
 - Health workforce (full-time/part-time, absenteeism, agency staff, medical director)
 - Physical infrastructure (building age, shared rooms, number of beds, occupancy)
 - Infection prevention and control measures (staff training, PPE, ability to isolate, IPAC lead)
 - Governance and partnerships (ownership, affiliation with hospitals/public health units)
- **Questions focussed on factors that are under the control or influence of the long-term care homes' administration**

Guiding principles for survey content

- **Include information that is not available from other sources of data**
- **Ensure information gathered will serve CIHI's analysis and separate lines of inquiry by the Commission**
- **Include concepts where sufficient variation in responses at the home-level is expected**
- **Gather information about procedures/activities in the long-term care home that are not governed by a provincial directive or regulation**
- **Balance response burden with the need to collect information to test hypotheses about home-level determinants of COVID-19 incidence and mortality**

Survey design

A variety of survey question styles were used depending on the nature of the information, for example:

- Questions reflecting the state of the facility on March 1, 2020
- Questions with responses for each month during wave 1 (March to June), start of wave 2 (September), and final full month before survey submission (December)

Example questions:

G1. On March 1, 2020, what best describes the long-term care home's access to certified (CIC®) professionals in infection prevention and control. A certified CIC® professional has passed the Certification Board of Infection Control and Epidemiology's (CBIC) Examination and holds current certification or recertification.

- Staff member in this long-term care home only
- Staff member, but shared with one or more other long-term care home(s)
- Infection prevention and control consultation/advice provided by a hospital
- Infection prevention and control consultation/advice provided by a public health unit
- No certified infection prevention and control professional available to this long-term care home
- Other, please specify _____

G6. Regarding the availability of personal protective equipment (PPE) for use in providing direct care to residents, please rate if and to what extent any PPE was rationed or limited each month.

	Never	Rarely	Sometimes	Most of the Time	Always
March 2020	<input type="checkbox"/>				
April 2020	<input type="checkbox"/>				
May 2020	<input type="checkbox"/>				
June 2020	<input type="checkbox"/>				
September 2020	<input type="checkbox"/>				
December 2020	<input type="checkbox"/>				

**See Appendix for the all questions included in Survey of Ontario Long-Term Care Homes*

Responses received for the survey

- **573 out of 623 homes responded to the survey (92%)**
 - Missing surveys from 9 (4.6%) of homes with at least 1 resident case
 - Missing surveys from 5 (4.6%) of homes with at least 1 resident death
- **Each LHIN was represented, although coverage varied between LHINs (81-97%)**
- **Overall, homes that responded (573) were representative of all homes across the province**

	Overall (n = 623)	Survey Received (n = 573)	No Survey (n = 50)	P-value
Facility Size *				0.02
Small	3.5% (22)	3.5% (20)	4.0% (2)	
Medium	37.7% (235)	36.1% (207)	56.0% (28)	
Large	58.8% (366)	60.4% (346)	40.0% (20)	
Old Facility Design Standard	37.4% (235)	37.4% (214)	38.0% (19)	0.73
Private Ownership	83.6% (521)	83.1% (476)	90.0% (45)	0.20
For-profit	57.5% (358)	58.3% (334)	48.0% (24)	0.16
Accredited *	81.1% (505)	82.0% (470)	70.0% (35)	0.04

* Significant difference (p<0.05)

Data strengths and limitations

Strengths

- Representative data across LHINs
- Very high survey response rate
- Confidence in quality of survey data provided
- Building on evidence base with data not available elsewhere

Limitations

- Difficult to attribute causation or sequence of events (i.e., timing of staffing shortages relative to resident infections)
- Only certain types of information can be captured in surveys
- Pandemic is ongoing, factors continue to evolve

CIHI's modelling approach

CIHI's approach to multivariable modelling



CIHI's multivariable modelling methods

- **Question 1: Likelihood of COVID-19 outbreak**
 - Binary logistic regression model predicting 1 or more resident cases with a random intercept to control for clustering within public health units
- **Question 2: Severity of COVID-19 outbreak**
 - Quasi-likelihood poisson model predicting the count of resident cases (with resident count offset) among facilities with at least one resident case; includes a random intercept for public health unit
- **Question 3: Resident mortality rate due to COVID-19**
 - Quasi-likelihood poisson model predicting the count of resident deaths (with resident count offset) among facilities with at least one resident case; includes a random intercept for public health unit
- **Question 4: High resident mortality due to COVID-19**
 - Binary logistic regression model predicting 20% or more resident deaths among facilities with 1 or more resident cases

Comparing survey to Ontario's IPHIS

- CIHI compared home-level survey data against Ontario's Integrated Public Health Information System (IPHIS) outbreak dataset
- Resident case and death counts from IPHIS were generally consistent with the outbreak information that the homes reported
- All CIHI models use case and death counts reported by the homes in the survey

Difference in counts reported by IPHIS and long-term care home survey

Percentile	Resident Case Delta	Resident Death Delta	Staff Case Delta
100th	186	67	91
99th	59	18	60
95th	15	2	12
90th	5	1	5
75th	0	0	1
Median	0	0	0

Defining measures

- Home-level interRAI quality indicators calculated as a 4-quarter rolling average from 2018Q4 to 2019Q3 (January 1 to December 31, 2019) calculated using CIHI's Continuing Care Reporting System, and reported in [CIHI's Your Health System tool](#)
- Home-level resident profiles (e.g., percent of residents within a home with severe cognitive impairment) based on the last RAI MDS 2.0 assessment per resident completed prior to March 1, 2020
- Long-term care home structural and accreditation information (e.g., bed classifications used to derive home design standard variable) provided by the Ontario Ministry of Health

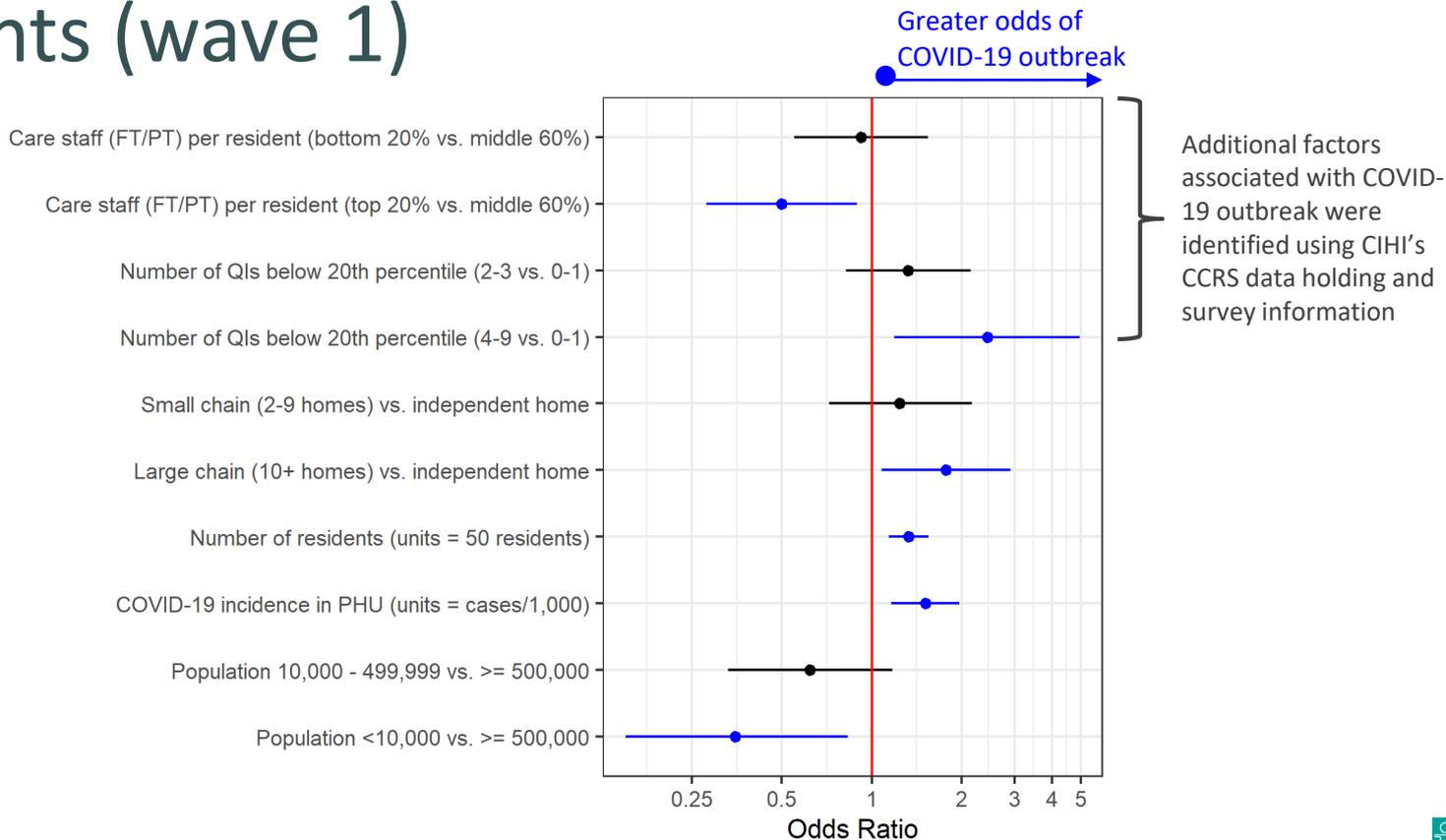
Predicting outcomes – outbreaks, cases and mortality in wave 1

Wave 1 statistics

- **179 or 31% of homes reported a COVID-19 outbreak among 1 or more residents before July 1, 2020**
- **Of these homes:**
 - A median of 4.6% of residents per home were infected with COVID-19
 - 66 or 37% of homes had 20% or more of residents infected with COVID-19
 - 102 or 57% reported at least one resident death
 - 26 or 15% experienced a very severe outbreak where 20% or more residents in the home died
- **Of the 573 homes that responded, 26 homes or 5% of all homes account for:**
 - Almost half or 46% of all resident cases of COVID-19
 - Just over half or 54% of all resident deaths due to COVID-19

Likelihood of COVID-19 outbreak among residents

Likelihood of COVID-19 outbreak among residents (wave 1)



Likelihood of COVID-19 outbreak among residents (wave 1)

- **Higher odds of COVID-19 outbreak:**

- Large chains (10+ homes)
- Greater number of residents
- Located in public health units with more COVID-19
- Poor performance by homes on four or more of CIHI publicly reported quality indicators

- **Lower odds of COVID-19 outbreak:**

- Located in sparsely populated areas (less than 10,000 population)
- More nursing and personal support workers per resident

- **No association was observed for:**

- Access to paid sick time, including pay in-lieu, by staff
- Access to a certified infection control professional
- Infection prevention and control staff training
- Intensity of resident needs at the home level

Ratio of care staff to residents

- Homes with a greater number of care staff per resident as of March 1, 2020 had lower adjusted odds of a COVID-19 outbreak among residents
- **Additional analyses required to determine if this effect is confounded by other home characteristics; however, it is independent from both chain ownership and profit-status**

Percentile of ratio of care staff to residents	No Outbreak	Outbreak
Top 20 th percentile	23.9% (94)	11.7% (21)
Middle 60 th percentile	56.9% (224)	66.5% (119)
Bottom 20 th percentile	19.3% (76)	21.8% (39)

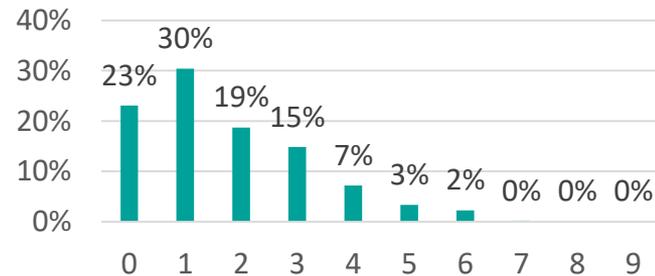
- Care staff included in measure:
 - Registered nurses
 - Nurse practitioners
 - Registered practical nurses
 - Personal support workers
- Defined as a count of all full-time and part-time staff
- Scaled by the number of residents in home on March 1, 2020

Quality of care (interRAI risk-adjusted quality indicators)

- Risk-adjusted quality indicators (QIs) measure quality of care in numerous domains of health and wellbeing
- QIs are reported publicly through [CIHI's Your Health System tool](#)
- 13% (74) of homes ranked in the bottom 20th percentile on at least 4 of 9 QIs and were more likely to experience a resident outbreak

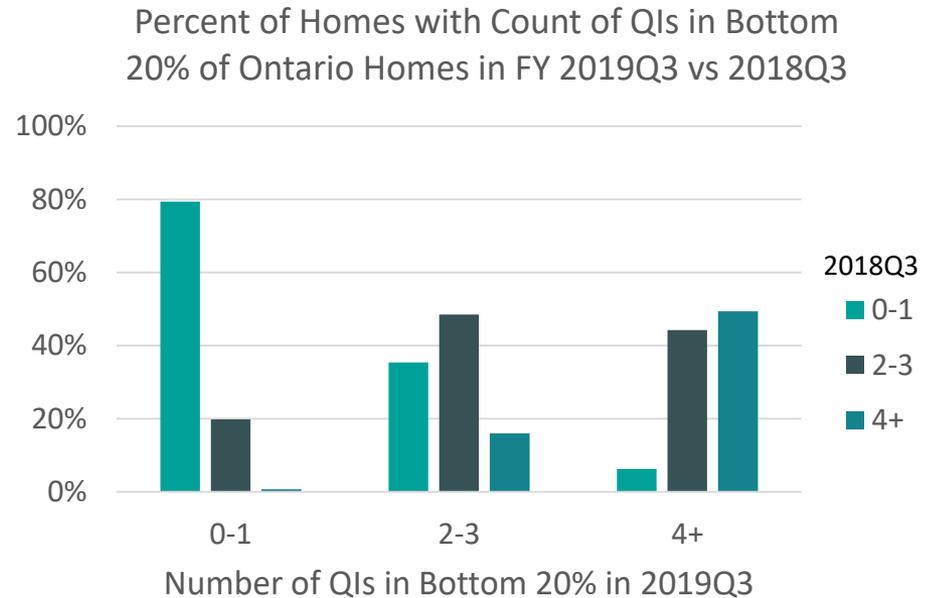
Pain Worsened	Mood Worsened	Mid-loss Activities of Daily Living Worsened
Mid-loss Activities of Daily Living Improved	Physical Restraints	Inappropriate Antipsychotics
Stage 2+ Pressure Ulcer Worsened	Fell in Last 30 days	Experiencing Pain

Percent of Homes with Count of QIs in Bottom 20% of Ontario Homes



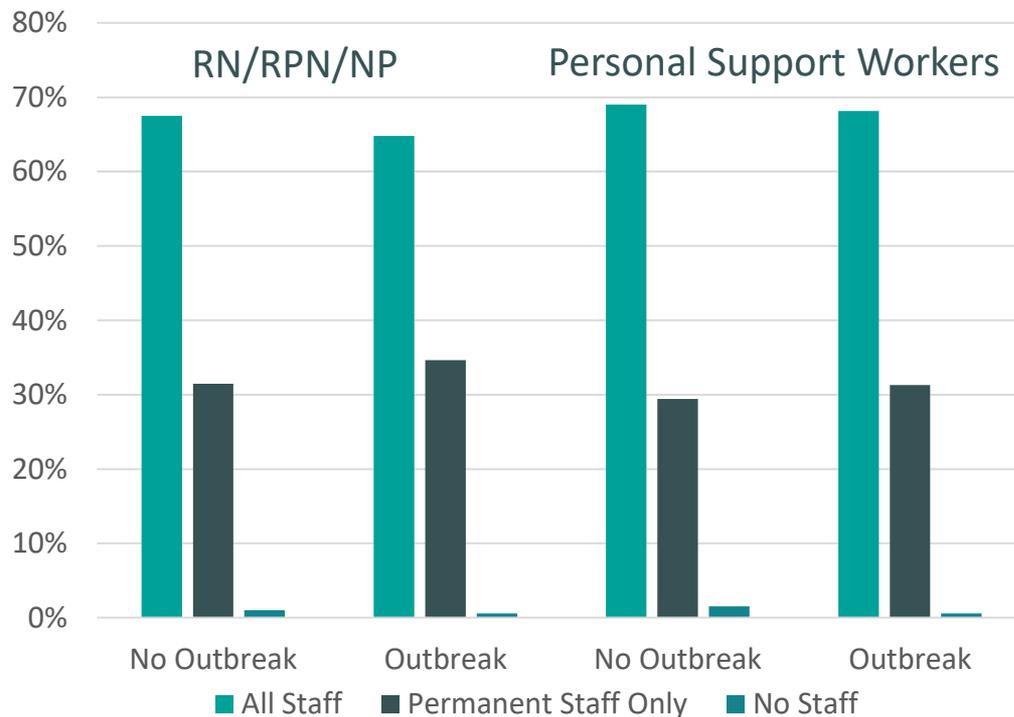
Quality of care (interRAI risk-adjusted quality indicators) is consistent over time

- **Nearly 50% (39) of homes that performed poorly on 4 or more quality indicators in 2019Q3 (4-quarter rolling average) performed similarly in the prior year**
 - An additional 44% (35) homes performed poorly on 2-3 quality indicators in the prior year
- **There was moderate agreement (weighted kappa = 0.49) in the count of QIs in the bottom 20% in FY 2019Q3 compared to 2018Q3**



Access to paid sick time by staff

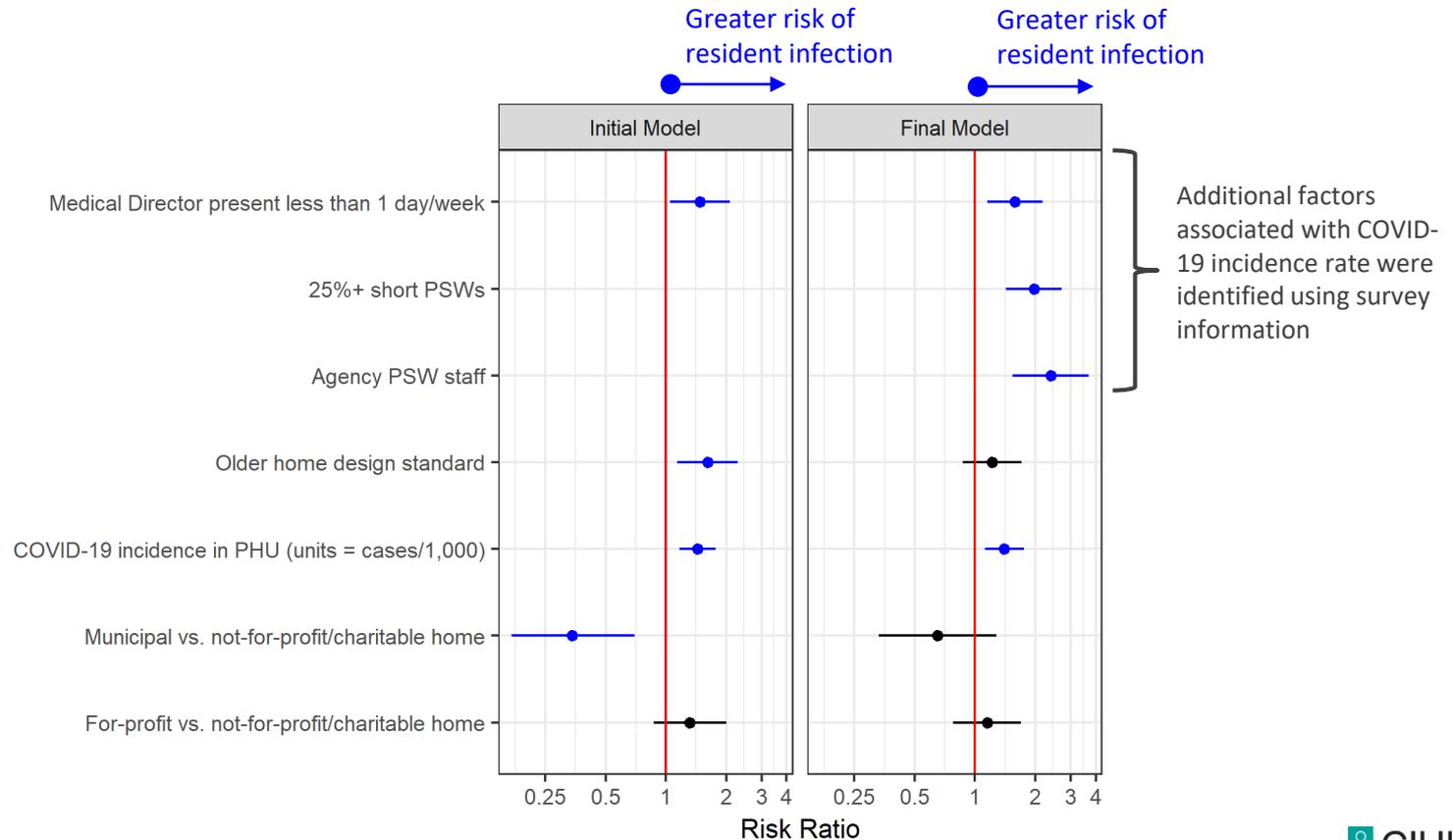
- In both unadjusted and adjusted models, there was no difference between the frequency of RN/RPN/NP and PSW staff with access to paid sick time and the odds of COVID-19 outbreak among residents
- For the purpose of this survey questions, access to pay in lieu of paid sick time was considered as access to paid sick time



RN = Registered nurses; RPN = Registered practical nurses; NP = Nurse practitioners

Severity of COVID-19 outbreak

Severity of COVID-19 outbreak among residents (wave 1)



—●— Statistically significant

Severity of COVID-19 outbreak among residents (wave 1)

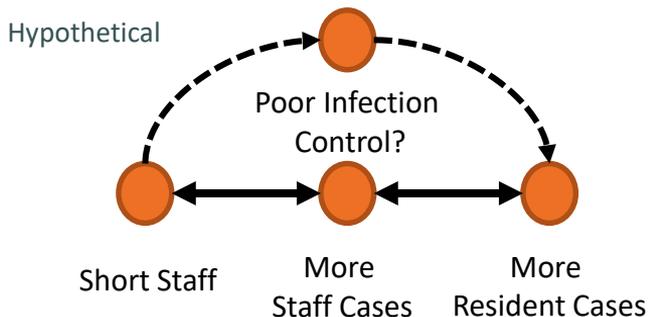
- **Higher risk of COVID-19 infection:**
 - Medical Director present less than one day per week
 - Critical PSW shortage
 - Regular use of agency PSWs
 - Homes in public health units with higher rates of COVID-19
- **Lower risk of COVID-19 infection:**
 - N/A

- **No association was observed for:**
 - Availability of an IPAC professional
 - PPE training and rationing
 - Quality of medical and supportive care (quality indicators)
 - Chain ownership
- **In the final model, no association was observed for:**
 - Facility design standards
 - Municipal home status

Staff shortages

Risk of infection was greater in homes that were 25% short PSWs at least once between March – June

- Resident and staff infections are strongly correlated
- Critical staff shortages may be the result of high spread among residents and staff
- However, the causal direction of this association is unclear and may not reflect poor infection control



When entered into the model presented by Stall et al. (2020), home design standard is no longer associated with infection rates after adjusting for frequency of PSW shortages

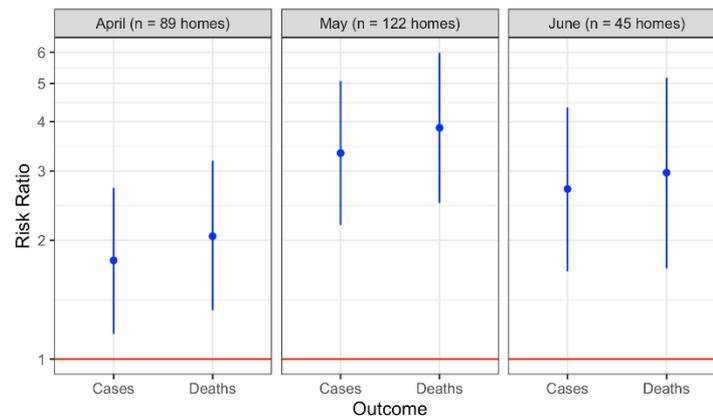
Variable	Adjusted Risk Ratio (95% CI)	Adjusted Risk Ratio (95% CI)
Old design standard	1.63 (1.14 – 2.32)	1.32 (0.92 – 1.98)
Days short 25% of PSWs		1.02 (1.01 – 1.03)

Adjusting for profit status, chain ownership, facility size, public health unit incidence, community size

Reference: Stall NM, Jones A, Brown KA, Rochon PA, Costa AP. For-profit long-term care homes and the risk of COVID-19 outbreaks and resident deaths. *CMAJ*. 2020 Aug 17;192(33):E946-E955. doi: 10.1503/cmaj.201197. Epub 2020 Jul 22. PMID: 32699006; PMCID: PMC7828970.

Use of agency personal support workers

- **Risk of infection was also greater in homes that used agency PSW staff on 7 or more days in any month from March – June**
 - By not imposing restrictions on the period in which agency PSW staff were used, we are able model all wave 1 outbreaks concurrently
 - However, this measure does not reflect if agency PSW staff were used prior to, during, or after an outbreak. Therefore, it is unknown if use of agency PSW staff is a predictor or a consequence of severe outbreak



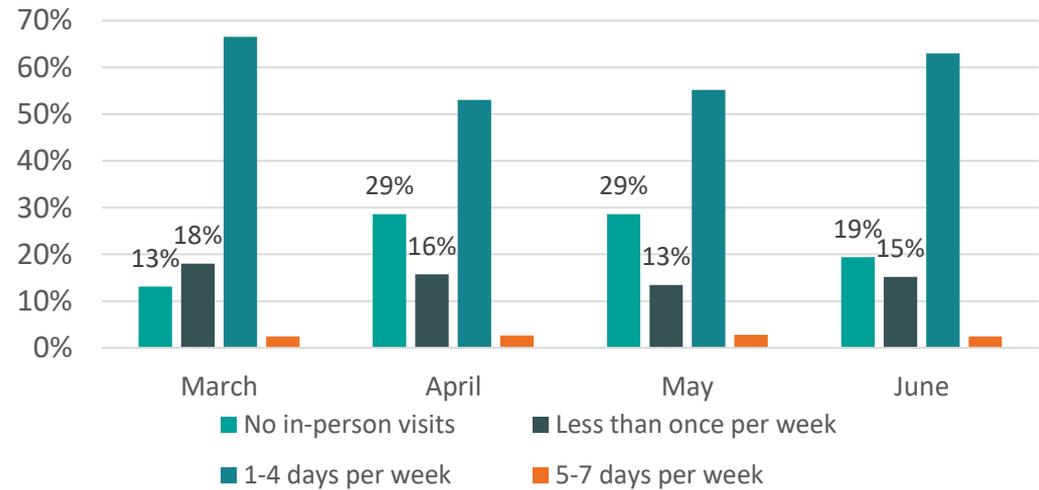
To better understand the temporal order of outbreaks and use of agency PSW staff, we performed a series of stratified analyses that restricted the sample to homes that were in outbreak for at least 7 or more days of a given month. In these models, the independent variable was new use of agency PSW staff, determined based on the absence of agency PSW staff in March. These stratified models adjust for all covariates in Models 2 (cases) and 3 (deaths).

The risk of COVID-19 infection and death among residents was greater among homes using agency PSW staff in the same month as an outbreak, lending support for a temporal association between use of agency PSW staff and greater risk of COVID-19 incidence and mortality.

Medical Director present less than 1 day per week

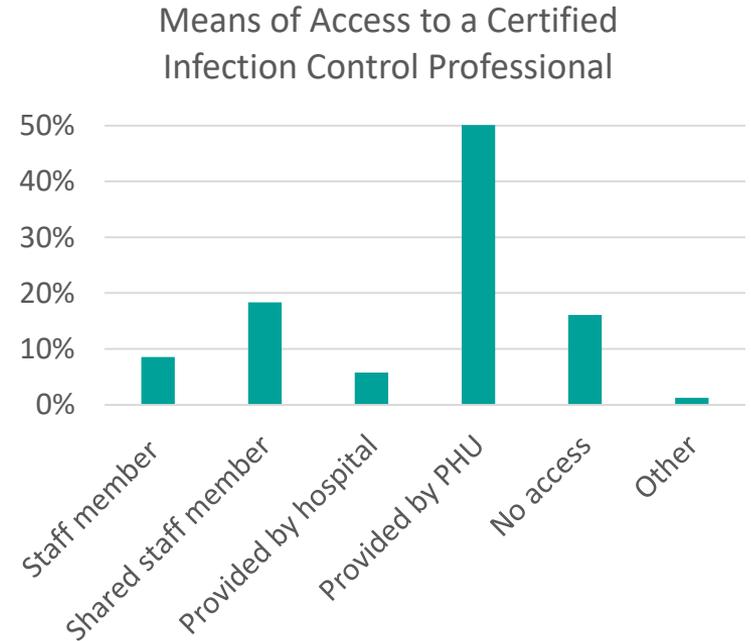
- The COVID-19 incidence rate was significantly higher in homes where the Medical Director attended the home in-person less than once per week in any month from March to June
- Among the overall sample (n = 573), 13-29% of Medical Directors did not attend in-person and an additional 13-18% attended less than once per week

Frequency of Medical Director Attendance



Access to a certified infection control professional

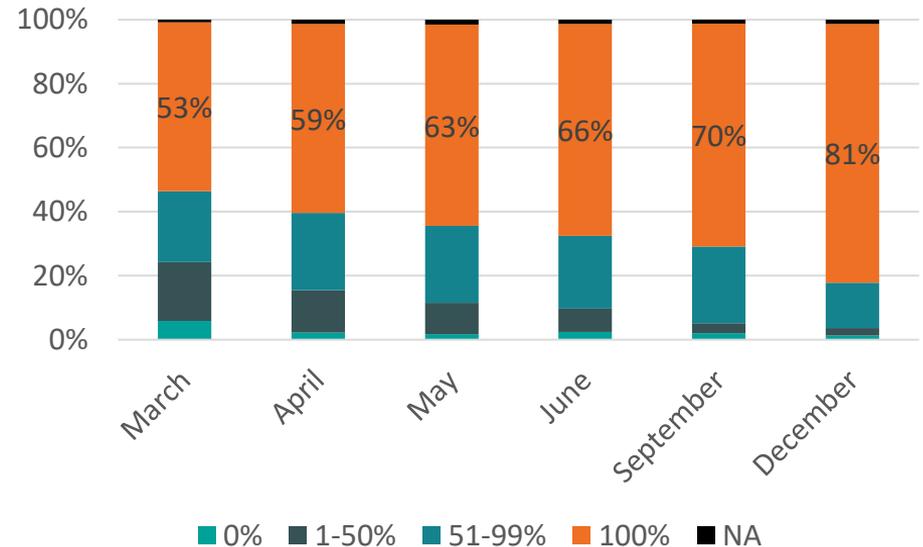
- **Across all homes, 16.1% (92) reported that they lacked access to a Certified Infection Control professional on March 1, 2020**
- **Relative to homes with a staff member that is certified, homes with no access or access through a hospital/public health unit (PHU) had equal COVID-19 incidence rates in both unadjusted and adjusted models**



Staff infection prevention and control training

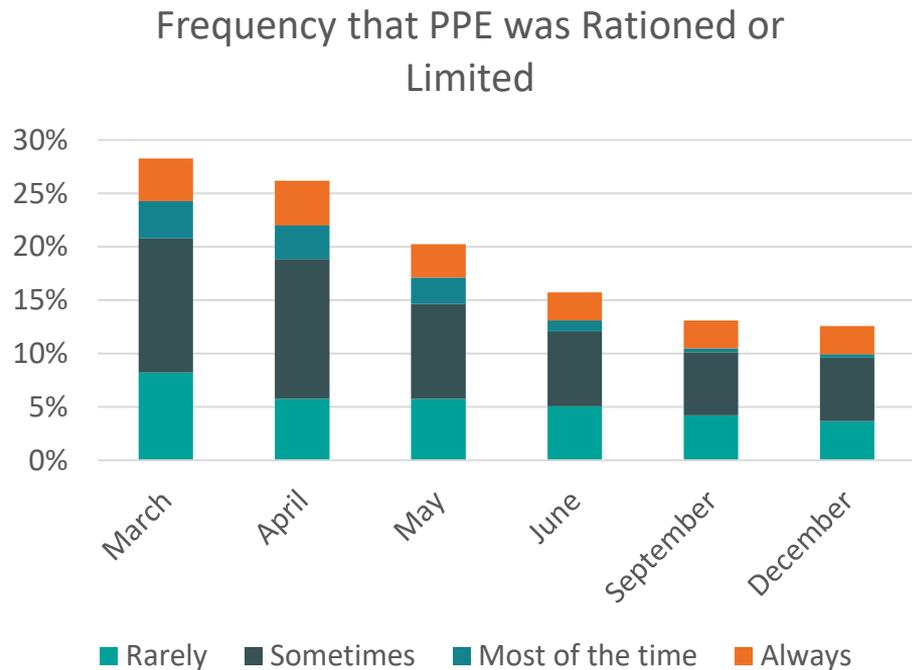
- The percentage of staff members trained in use of personal protective equipment (PPE) and handwashing increased significantly from March to December
- Among homes experiencing an outbreak among residents, the percentage of nursing staff (PSWs and nurses) that were trained in the use of PPE and in handwashing was not associated with greater risk of COVID-19 infection

Percentage of PSWs Trained in PPE and Handwashing



Personal protective equipment rationing

- The percentage of homes reporting PPE rationing or limiting decreased from March to December
- Among homes that experienced an outbreak among residents, the frequency with which PPE was rationed or limited was not associated with greater risk of COVID-19 infection



Measures with no significant association

- **Additional variables that were tested, but no association was observed**
- **Importantly, although no association for these was observed in adjusted models, many of these constructs are difficult to measure using survey data and may still be important factors associated with COVID-19 incidence rates among residents**

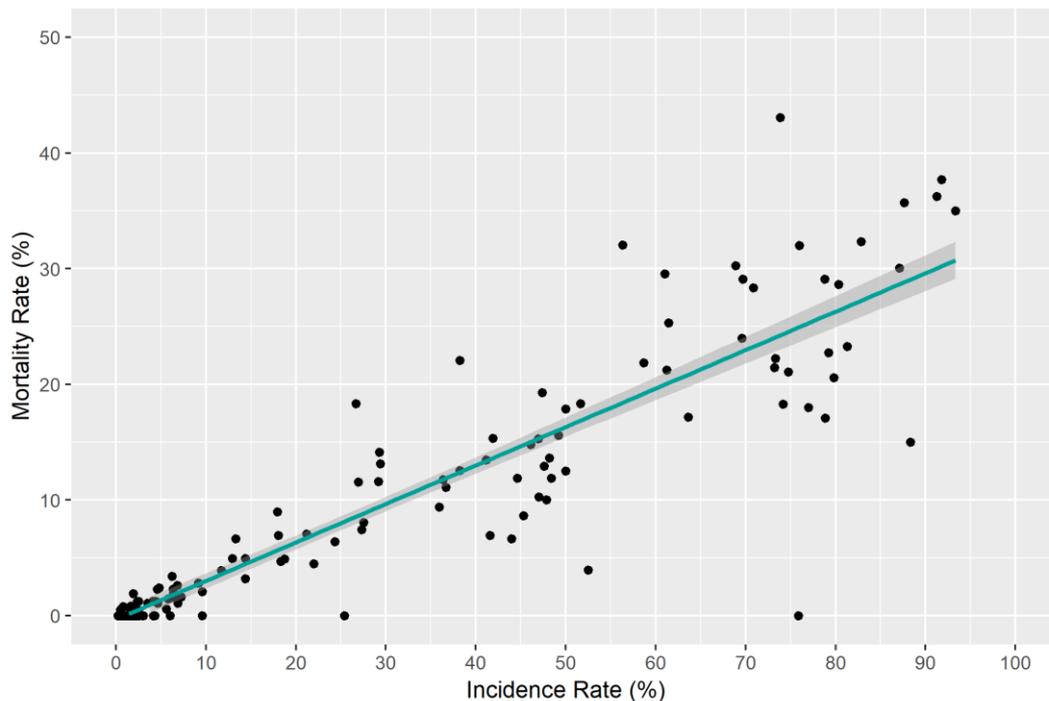
No association observed for:

- Organizations included in infectious disease outbreak plan
- Type of hospital affiliation
- Availability of an IPAC professional
- PPE training and rationing
- Isolation of new admissions
- Handling of suspected cases
- How PSWs worked across resident cohorts
- Quality of medical and supportive care (quality indicators)
- Intensity of resident needs
- Chain ownership

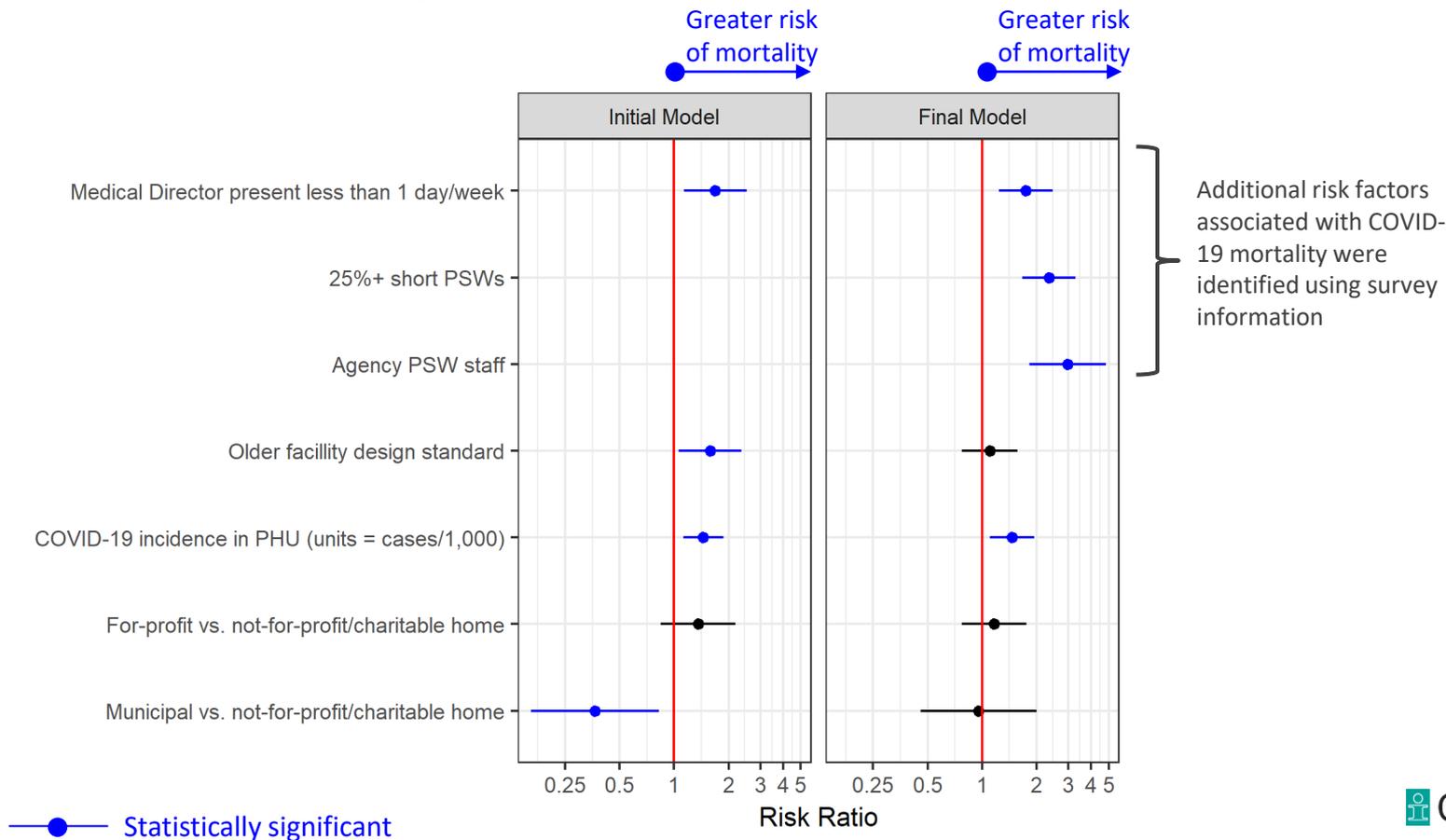
Resident mortality rate due to COVID-19

Resident outbreak severity and mortality rate

- **Outbreak severity (incidence rate) was directly related to the mortality rate in the data**
- **Risk factors for outbreak severity were also found to affect the mortality rate**



Resident mortality rate due to COVID-19 (wave 1)



Resident mortality rate due to COVID-19 (wave 1)

- **Higher risk of mortality due to COVID-19:**

- Medical Director present less than one day per week
- Shortages of PSWs
- Regular use of agency PSWs

- **Lower risk of mortality due to COVID-19:**

- N/A

- **No association was observed for:**

- Intensity of resident needs at the home level
- Advanced care planning at the home level (e.g., percent of residents with preference to not be hospitalized)
- Quality of medical and supportive care (quality indicators)

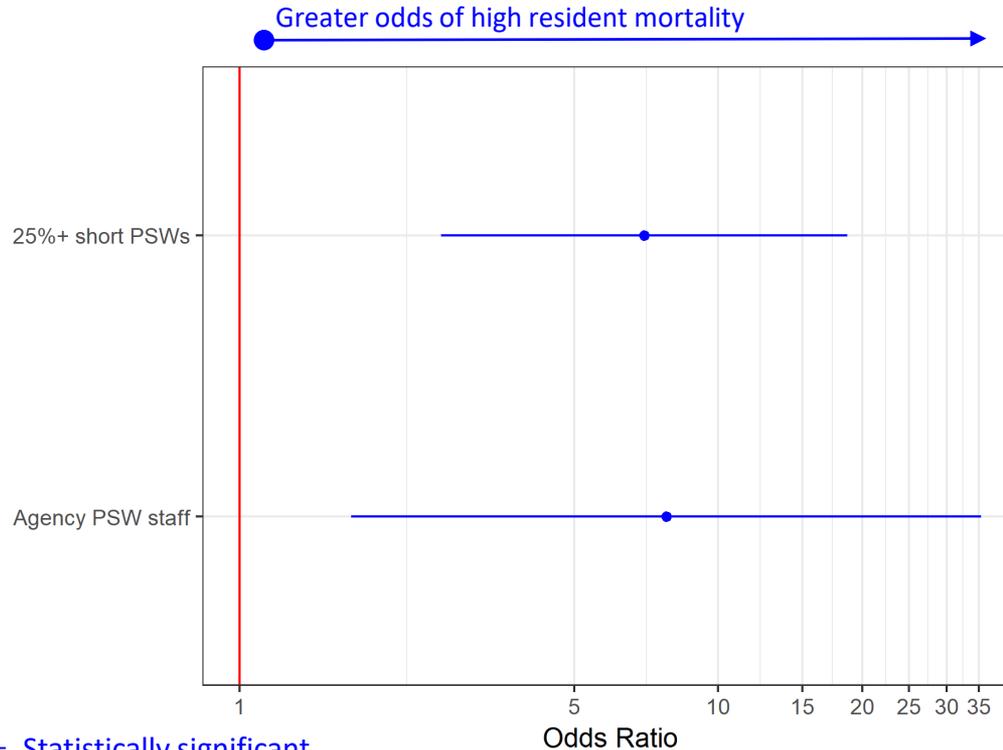
- **In the final model, no association was observed for:**

- Facility design standards
- Municipal home status

High resident mortality due to COVID-19

High resident mortality due to COVID-19 (wave 1)

20% or more of residents



High resident mortality due to COVID-19 (wave 1)

- **Higher odds of COVID-19 death among 20% of residents or more:**
 - Shortages of PSWs
 - Regular use of agency PSWs
- **Lower odds of COVID-19 death among 20% of residents or more:**
 - N/A

- **No association was observed for:**
 - Intensity of resident needs
 - Quality of medical and supportive care (quality indicators)

Note on Wave 2:

6 of these 26 homes with high-resident mortality in wave 1 also had outbreaks occurring between September 1st, 2020 and March 15th, 2021 (ranging between 1 and 6 cases)

Summary and conclusions

Summary of findings by research question (wave 1)

Likelihood of outbreak

Higher

- Large chains (10+ homes)
- Greater number of residents
- Located in public health units with more COVID-19
- Poor performance by homes on CIHI publicly reported quality indicators

Lower

- Located in sparsely populated areas (fewer than 10,000 people vs. 500,000 people or more)
- More nursing staff to residents

Severity of outbreak and Resident mortality rate

Higher

- PSW shortage
- PSWs provided by an agency
- Located in public health units with more COVID-19
- Medical Director present less than one day per week

High resident mortality (20% or more)

Higher

- PSW shortage
- PSWs provided by an agency

Factors associated with risk (wave 1)

Factors	Question 1: Outbreak	Questions 2-3: Outbreak severity and mortality	Question 4: High resident mortality
Large chains (10+ homes)	↑		
Greater number of residents	↑		
Located in public health units with more COVID-19	↑	↑	
Poor performance by homes on CIHI publicly reported quality indicators	↑		
Medical Director present less than one day per week		↑	
PSW shortage		↑	↑
Regular use of agency PSWs		↑	↑
Located in sparsely populated areas (fewer than 10,000 people vs. 500,000 people or more)	↓ Protective		
More nursing staff to residents	↓ Protective		

Key takeaways



- **The health workforce is vital for pandemic response, including the ability to scale-up safely**
- **Leadership, including the consistent presence of a Medical Director is needed to prevent poor outcomes**
- **Staffing is a critical component of infection prevention and control practice**
- **Using the publicly reported quality indicators, homes at higher risk at the onset of a crisis could be targeted for immediate support**
- **Comparable and actionable data is essential for informed decision making (priority data gaps and opportunities in LTC follow)**

Priority data gaps and opportunities in LTC

- **Resident-level clinical information: Prioritize transition from CCRS to new assessment standard (interRAI-LTCF) and reporting system (IRRS)**
 - IRRS can accept information in near-real time, significantly improving timely data access in crisis; new assessment standard is shorter, reducing reporting burden
 - Several provinces and territories have completed or have started transitioning to IRRS (e.g., NB, SK, AB)
- **Facility infrastructure (beds/residents), services, ownership, FTE counts of all care providers**
 - New Nursing and Residential Care Facility Survey (NRCFS) from Statistics Canada (to field Jan 2021) will fill gap considerably
 - Regular (annual) collection needed to maintain up-to-date information on staffing and other variables subject to change
 - NRCFS built with “temporary” modules to allow for emerging priorities (e.g. COVID-19)

Priority data gaps and opportunities in LTC

- **Resident and family experience**

- Current data gap for province-wide standard and collection
- Some collection across country, using a variety of standards
- Opportunity for pan-Canadian standardized reporting of a minimum data set

- **Health workforce**

- Significant gap in PSW supply information
- Gap in means to quickly collect critical shortage, use of agency staff. Opportunity through payroll systems
- FTE/staffing ratios will be available from NRCFS; will need annual collection to remain current

- **Other**

- Better integration of data across the system (e.g. hospital, home care, assisted living) and across domains
- Timely linkable death data, including cause; improved public health outbreak reporting

Preliminary analysis – outbreaks, cases and mortality in partial wave 2

Partial wave 2 analysis

- Following CIHI's presentation to the Ontario Long-term Care Commission on March 3, 2021, additional analysis was undertaken by CIHI provide a preliminary snapshot of factors associated risk of resident COVID-19 infection and mortality in data available for wave 2
- The following models have been added since CIHI's presentation to the Ontario Long-term Care Commission on March 3rd, 2021 to provide some initial detail on how, and if, factors associated with negative outcomes differed in wave 1 and wave 2

Considerations for partial wave 2 analysis: the survey

- To balance reporting burden, the survey focused detailed data collection for the months of March-June 2020
- Additional information for September and December 2020 was collected to report changes that took place after Wave 1 and immediately prior to survey administration
- The December 2020 survey responses were utilized to provide a snapshot of factors associated with severity of outbreak and resident mortality later during the pandemic

D3. In each of the following months, how many days had more than 25 percent unfilled shifts (unfilled by either employees or agency staff) for the personal support workers role?

- a. March 2020: ____
- b. April 2020: ____
- c. May 2020: ____
- d. June 2020: ____
- e. September 2020: ____
- f. December 2020: ____

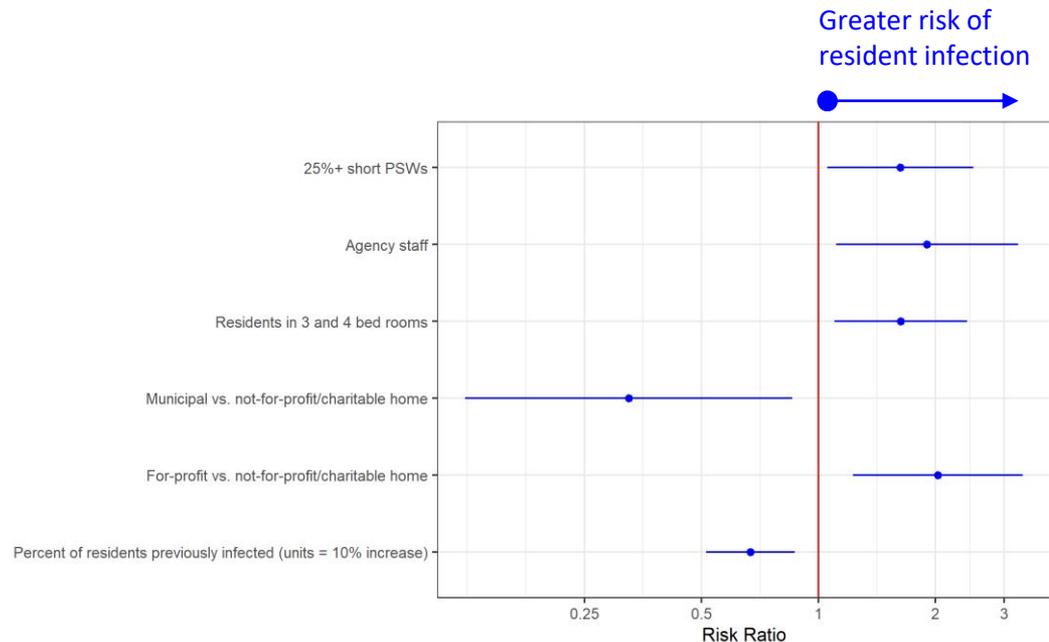
D4. In each of the following months, how many days were agency staff used for any of the following roles? Report the cumulative total of all days with one or more shifts with agency staff for each type of position over the month.

	Mar 2020	Apr 2020	May 2020	Jun 2020	Sep 2020	Dec 2020
a. Registered nurses	___	___	___	___	___	___
b. Nurse practitioners	___	___	___	___	___	___
c. Registered practical nurses	___	___	___	___	___	___
d. Personal support workers	___	___	___	___	___	___
e. Housekeeping/Custodial staff	___	___	___	___	___	___

Considerations for partial wave 2 analysis: modeling approach

- **Given the data available, CIHI applied a common approach to develop models for outbreaks that started between November 15th and December 31st 2020**
 - Created preliminary models for severity of outbreak and resident mortality rate
 - Used December 2020 survey responses to maximize temporal association between explanatory factors and the outcome of interest
 - Count of resident cases and deaths up to January 29th, 2021 were reported by the homes on the survey
 - Applied similar quasi-likelihood poisson models for the count of resident cases/deaths (with December resident count offset) among facilities with at least one resident case

Severity of COVID-19 outbreak among residents (partial wave 2)



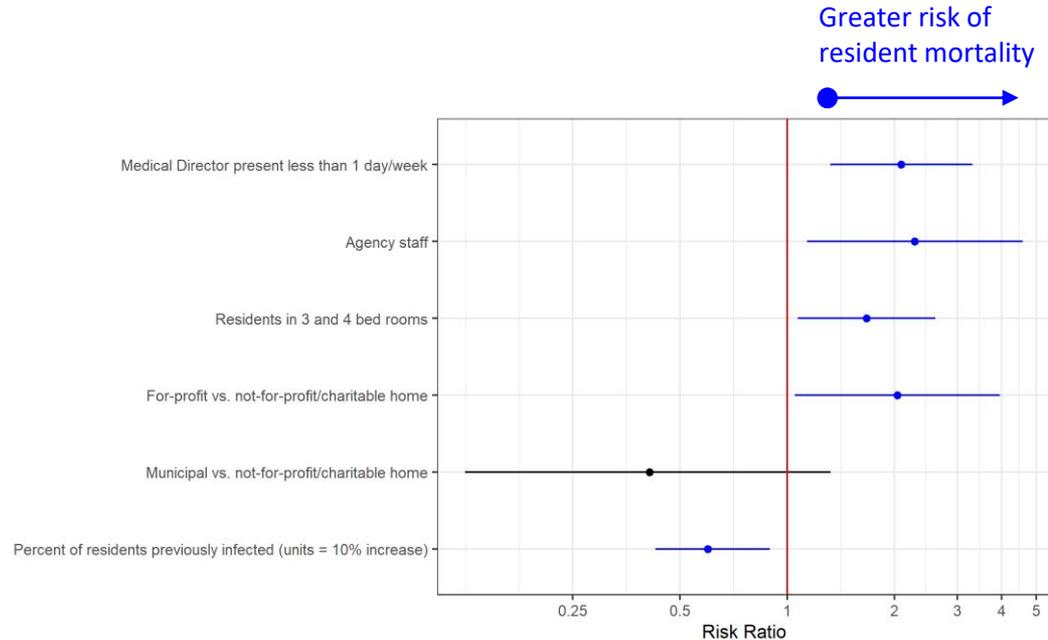
- Among facilities in outbreak in December, factors associated with greater risk of resident infection included:

- Critical PSW shortage in December
- Use of agency staff (nurses or PSWs) on at least one day in December
- Any residents residing in 3 and 4 bed rooms in December
- For-profit status (relative to not-for-profit/charitable home)

- Among facilities in outbreak in December, factors associated with lower risk of resident infection included:

- Municipal home status (relative to not-for-profit/charitable homes)
- Percentage of residents in the home that were exposed to COVID-19 in a prior outbreak

Resident mortality rate due to COVID-19 (partial wave 2)



- Among facilities in outbreak in December, factors associated with greater risk of resident mortality included:

- Medical director present in person less than 1 day/week in December
- Use of agency staff (nurses or PSWs) on at least one day in December
- Any residents residing in 3 and 4 bed rooms in December
- For-profit status (relative to not-for-profit/charitable home)

- Among facilities in outbreak in December, factors associated with lower risk of resident mortality included:

- Percentage of residents in the home that were exposed to COVID-19 in a prior outbreak

Summary of findings by research question (partial wave 2)

Severity of outbreak

Higher risk

- Critical PSW shortages
- Nurses and PSWs provided by agencies
- Homes with residents in 3 and 4 bed rooms in December
- For-profit status (relative to not-for-profit/charitable homes)

Lower risk

- Municipal home (relative to not-for-profit/charitable homes)
- Percentage of residents in the home that were exposed to COVID-19 in a prior outbreak

Resident mortality rate

Higher risk

- Medical Director present less than one day per week
- Nurses and PSWs provided by agencies
- Homes with residents in 3 and 4 bed rooms in December
- For-profit status (relative to not-for-profit/charitable homes)

Lower risk

- Percentage of residents in the home that were exposed to COVID-19 in a prior outbreak

Unlike in wave 1, no association was observed for:

- COVID-19 incidence in the surrounding Public Health Unit
- Home design standard

Unlike in wave 1:

- Home ownership status was significantly associated with both severity of outbreak and risk of mortality
- Homes with residents in 3 and 4 bed rooms in December was a significant factor as older design homes reduced occupancy in these rooms over time

Comparing outbreaks in wave 1 and partial wave 2

Factors	Wave 1: Outbreak severity and mortality rate	Partial wave 2: Outbreak severity	Partial wave 2: Mortality rate
Located in public health units with more COVID-19	↑		
Medical Director present less than one day per week	↑		↑
Critical PSW shortages	↑	↑	
Use of agency staff	↑	↑	↑
Residents in 3 and 4 bed rooms		↑	↑
For-profit status (relative to not-for-profit/charitable homes)		↑	↑
Municipal home (relative to not-for-profit/charitable homes)		↓ Protective	
Percentage of residents in the home that were exposed to COVID-19 in a prior outbreak		↓ Protective	↓ Protective

Key takeaways from partial wave 2 models



- **Factors related to staffing shortages and medical leadership in Wave 1 models continue to be important risk factors in December 2020 outbreaks**
- **The effect of some factors, including home ownership status and the incidence of COVID-19 in the surrounding Public Health Unit, has changed over the course of the pandemic**
- **Observed changes in the effect of select risk factors over time aligns with other models (e.g., Ministry of Health / Long-Term Care Wave 1 vs. Wave 2 analysis presented to OLTCC on February 19th, 2021)**

Appendix: Supplementary information

Model 1 – Likelihood of COVID-19 outbreak among residents (wave 1)

Variable	Level	Adjusted Odds Ratio (95% CI)
Chain ownership	Independent home	Ref
	Small chain (2-9 homes)	1.24 (0.72 – 2.16)
	Large chain (10+ homes)	1.77 (1.08 – 2.91)
Number of residents (units = 50 residents)		1.33 (1.14 – 1.55)
COVID-19 incidence in public health units (units = cases/1,000)		1.51 (1.16 – 1.96)
Population size	>=500,000	Ref
	10,000 – 499,999	0.62 (0.33 – 1.17)
	<10,000	0.35 (0.15 – 0.83)
Ratio of care staff : residents	Middle 60% of homes	Ref
	Bottom 20% of homes	0.92 (0.55 – 1.54)
	Top 20% of homes	0.50 (0.28 – 0.89)
Number of quality indicators below 20 th percentile	0 - 1	Ref
	2 - 3	1.32 (0.82 – 2.14)
	4 - 9	2.44 (1.19 – 4.97)

Model 2 – Severity of COVID-19 outbreak among residents (wave 1)

Variable	Level	Initial model (Adjusted Risk Ratio; 95% CI)	Full model (Adjusted Risk Ratio; 95% CI)
Old facility design standard		1.62 (1.14 – 2.29)	1.22 (0.87 – 1.71)
COVID-19 incidence in public health units (units = cases/1,000 population)		1.44 (1.17 – 1.77)	1.40 (1.12 – 1.75)
Profit status	Not-for-profit/charitable	Ref	Ref
	Municipal	0.34 (0.17 – 0.70)	0.65 (0.33 – 1.28)
	For-profit	1.32 (0.87 – 2.01)	1.15 (0.78 – 1.69)
Medical Director present less than 1 day per week in any month from March - June		1.48 (1.05 – 2.09)	1.58 (1.15 – 2.17)
25+% short PSWs at least once March - June			1.97 (1.43 – 2.71)
Use of agency PSW staff at least 7 days in any month from March - June			2.39 (1.54 – 3.69)

Model 3 – Resident mortality rate due to COVID-19 (wave 1)

Variable	Level	Initial model (Adjusted Risk Ratio; 95% CI)	Full model (Adjusted Risk Ratio; 95% CI)
Old facility design standard		1.58 (1.06 – 2.35)	1.10 (0.77 – 1.57)
COVID-19 incidence in public health units (units = cases/1,000 population)		1.45 (1.12 – 1.87)	1.47 (1.11 – 1.94)
Profit status	Not-for-profit/charitable	Ref	Ref
	Municipal	0.37 (0.16 – 0.82)	0.96 (0.46 – 2.00)
	For-profit	1.36 (0.84 – 2.19)	1.16 (0.77 – 1.75)
Medical Director present less than 1 day per week in any month from March - June		1.69 (1.13 – 2.52)	1.75 (1.24 – 2.47)
25+% short PSWs at least once March - June			2.34 (1.67 – 3.28)
Use of agency PSW staff at least 7 days in any month from March - June			2.97 (1.83 – 4.82)

Model 4 – High resident mortality due to COVID-19 (wave 1)

Variable	Adjusted Risk Ratio (95% CI)
25+% short PSWs at least once March - June	7.00 (2.63 – 18.60)
Use of agency PSW staff at least 7 days in any month from March - June	7.79 (1.71 – 35.42)

C-statistic = 0.82

Model 2 – Severity of COVID-19 outbreak among residents (December 2020)

Variable	Level	Adjusted Risk Ratio (95% CI)
25+% short PSWs at least once in December		1.62 (1.05 – 2.50)
Use of agency care staff (RN, RPN, NP or PSW) at least once in December		1.90 (1.11 – 3.26)
Homes with residents in 3 and 4 bed rooms in December		1.63 (1.10 – 2.41)
Profit status	Not-for-profit/charitable	Ref
	Municipal	0.33 (0.12 – 0.86)
	For-profit	2.03 (1.23 – 3.35)
Percent of residents previously infected (units = 10% increase)		0.67 (0.51 – 0.87)

Model 3 – Resident mortality rate due to COVID-19 (December 2020)

Variable	Level	Adjusted Risk Ratio (95% CI)
Medical Director present less than 1 day/week in December		2.09 (1.32 – 3.31)
Use of agency care staff (RN, RPN, NP or PSW) at least once in December		2.28 (1.14 – 4.58)
Homes with residents in 3 and 4 bed rooms in December		1.67 (1.07 – 2.61)
Profit status	Not-for-profit/charitable	Ref
	Municipal	0.41 (0.12 – 1.32)
	For-profit	2.04 (1.05 – 3.96)
Percent of residents previously infected (units = 10% increase)		0.60 (0.43 – 0.89)

Survey responses – Room occupancy

Design standard	Mean percentage of residents in multi-occupancy rooms	March	April	May	June	September	December
All homes	2 residents in room	36.6%	36.2%	36.8%	36.9%	38.4%	40.0%
	3 residents in room	2.8%	3.1%	3.5%	3.9%	4.4%	4.1%
	4 residents in room	11.6%	10.9%	9.7%	8.7%	6.4%	4.4%
Newer design standard homes	2 residents in room	33.1%	32.8%	33.6%	32.8%	33.2%	33.4%
	3 residents in room	1.0%	1.2%	1.1%	1.2%	1.5%	1.3%
	4 residents in room	2.6%	2.3%	2.0%	1.8%	1.0%	0.8%
Older design standard homes	2 residents in room	42.1%	41.6%	41.6%	42.2%	46.5%	50.7%
	3 residents in room	5.4%	6.0%	7.1%	8.2%	9.0%	8.5%
	4 residents in room	26.6%	25.1%	22.1%	20.1%	15.2%	10.3%

Survey responses – Access to paid sick time

D6. Between March 1 and July, 2020 did nursing staff (Registered Nurses, Registered Practical Nurses, and Nurse Practitioners) have access to paid sick time? Include employee benefits paid by the employer, including cases where a third party-insurance provider manages the plan as part of the employees' compensation package. Exclude benefits paid from other sources such as the Federal Government's Canada Emergency Response Benefit (CERB) or Employment Insurance (EI) programs.

- Yes, full-time staff with permanent positions only
- Yes, both full-time and part-time staff with permanent positions
- No
- Other, specify: _____

D8. Between March 1 and July 1, 2020 did Personal Support Workers have access to paid sick time? Include employee benefits paid by a third party-insurance providers as part of the employees' compensation package. Exclude benefits paid from other sources such as the Federal Government's Canada Emergency Response Benefit (CERB) or Employment Insurance (EI) programs.

- Yes, full-time staff with permanent positions only
- Yes, both full-time and part-time staff with permanent positions
- No
- Other, specify: _____

	Full-time staff only	Both full-time and part time staff	No access	Other
RN/RPN/NP	32.5%	64.9%	0.9%	1.7%
Personal support workers	30.0%	67.4%	1.2%	1.4%

RN = Registered nurses; RPN = Registered practical nurses; NP = Nurse practitioners

Survey responses – Frequency of physician visits

In-person visits	March	April	May	June	September	December
No in-person visits	10.5%	22.2%	21.1%	13.3%	6.1%	5.4%
Less than once per week	12.7%	11.7%	11.2%	11.7%	11.0%	11.7%
1-4 days/week	72.4%	61.6%	62.7%	69.8%	77.8%	74.5%
5-7 days/week	4.4%	4.5%	5.1%	5.2%	5.1%	8.4%

Virtual visits	March	April	May	June	September	December
No virtual visits	63.2%	51.3%	49.6%	51.7%	53.6%	53.8%
Less than once per week	13.4%	15.4%	15.9%	18.5%	19.2%	18.3%
1-4 days/week	21.6%	30.4%	31.6%	28.1%	25.7%	25.5%
5-7 days/week	1.8%	3.0%	3.0%	1.8%	1.6%	2.4%

Facility-level resident profiles

Characteristic	Mean Percentage of Residents per Home (SD)	Median Percentage of Residents per Home (IQR)
Extensive assistance or greater required to complete Activities of Daily Living (ADL-Hierarchy Scale 4+)	56.0% (11.8%)	57.1% (48.8% - 64.4%)
Severe Cognitive Impairment (Cognitive Performance Scale 4+)	30.0% (12.4%)	28.8% (21.7% - 38.2%)
Moderate or worse health instability (Changes in Health, End-Stage Disease, Signs, and Symptoms Scale (CHESS) 3+)	5.2% (4.9%)	3.7% (1.9% - 7.0%)
High risk of COVID-19 morbidity (COVID-19 Major Morbidity Count Algorithm 3+)	11.9% (6.4%)	11.1% (7.5% - 15.1%)
Preference not to be hospitalized	28.7% (28.3%)	19.8% (5.0% - 46.2%)

Frequency of staff shortages before/after April 22 single site mandate

Measure	Sample	April mean	May mean	Mean Difference [2]
Days 25% short PSWs	All homes	1.52 days (SD = 5.08)	1.30 days (SD = 5.09)	0.23 days (95% CI = 0.02 – 0.45)
	Outbreak[1]	3.52 days (SD = 7.33)	3.04 days (SD = 7.52)	0.48 days (95% CI = -0.41 – 1.39)
Days with unfilled RN shifts	All homes	3.69 days (SD = 6.79)	3.68 days (SD = 7.30)	0.01 days (95% CI = -0.30 – 0.33)
	Outbreak[1]	6.16 days (SD = 8.95)	5.76 days (SD = 9.54)	0.40 days (95% CI = -0.66 – 1.47)
Days with unfilled RPN shifts	All homes	3.85 days (SD = 6.64)	3.84 days (SD = 7.07)	0.01 days (95% CI = -0.30 – 0.32)
	Outbreak[1]	6.13 days (SD = 8.73)	5.56 days (SD = 9.17)	0.57 days 95% CI (-0.49 – 1.64)

[1] Among homes in outbreak for at least 7 days in both April and May (n = 124)

[2] Calculated as April count subtract May count (i.e., positive values indicate greater shortages in April than May)



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The Ontario Long-Term Care Commission Survey

Table of Contents

Section A. Respondent Information.....	2
Section B: COVID-19 Outbreaks to Date	3
Section C: LTC Home Occupancy.....	4
Section D: Health Workforce	5
Section E: Governance and Affiliations.....	11
Section F: Preparedness and Infection Prevention and Control (IPAC).....	12
Section G: Visitors	16

Section A. Respondent Information

- A1. Name of Long-term Care home:
- A2. Address:
- A3. Name of person(s) completing the questionnaire:
- A4. Phone number(s):
- A5. Email address(es):
- A6. CIHI Continuing Care Reporting System (CCRS) 5 digit long-term care home number
- A7. Date of completion:

Section B: COVID-19 Outbreaks to Date

B1. For the purposes of this survey, an outbreak is defined as at least one resident or staff case, confirmed by a positive test result. For each COVID-19 outbreak in your long-term care home since March 1, 2020, indicate the date that you identified the outbreak, the date the outbreak ended, the total number of confirmed resident and staff cases (positive test results) and the total number of resident and staff deaths attributable to the confirmed COVID-19 cases. Report distinct outbreaks on separate rows.

Date outbreak was identified	Date outbreak was resolved	Total number of confirmed residents cases	Total number of resident deaths	Total number of confirmed staff cases	Total number of staff deaths

No outbreaks

Section C: LTC Home Occupancy

C1. How many residents were living in the long-term care home on each of the following dates?

- a. March 1st, 2020:
- b. April 1st, 2020:
- c. May 1st, 2020:
- d. June 1st, 2020:
- e. September 1st, 2020
- f. December 1st, 2020:

C2. At any time in each month, regardless of the number of beds in the room, how many residents shared a room with?

	Mar 2020	Apr 2020	May 2020	Jun 2020	Sep 2020	Dec 2020
Only one (1) other resident?	—	—	—	—	—	—
Two (2) other residents?	—	—	—	—	—	—
Three (3) other residents?	—	—	—	—	—	—

C3. In each of the following months, how many residents were admitted from the community or another long-term care home?

- a. March 2020:
- b. April 2020:
- c. May 2020:
- d. June 2020:
- e. September 2020:
- f. December 2020:

C4. In each of the following months, how many residents were admitted or returned from an acute care hospital?

- a. March 2020:
- b. April 2020:
- c. May 2020:
- d. June 2020:
- e. September 2020:
- f. December 2020:

Section D: Health Workforce

D1. How many positions did the long-term care home have of each of the following roles on March 1, 2020? Include only positions that were filled on this date (not vacancies) and positions considered employees of the home. Although the definition of “casual employees” may vary between organizations, for the purpose of this question it refers to staff that do not have a predetermined schedule and are hired to work occasionally or intermittently.

	Full-Time (0.8-1 Full- Time Equivalent)	Part- time (between 0.5 and 0.79 Full- Time Equivalent)	Part- time (between 0.25 and 0.49 Full- Time Equivalent)	Part- time (less than 0.25 Full- Time Equivalent)	Casual
a. Registered nurses	—	—	—	—	—
b. Nurse practitioners	—	—	—	—	—
c. Registered practical nurses	—	—	—	—	—
d. Personal support workers	—	—	—	—	—
e. Housekeeping/Custodial staff	—	—	—	—	—
f. Recreation therapists/assistants	—	—	—	—	—
g. Spiritual care staff	—	—	—	—	—
h. Rehabilitation therapists/ assistants (e.g., OT, PT, Kinesiology)	—	—	—	—	—
i. Dietary staff (including Registered Dietitians, Nutrition managers and dietary aides)	—	—	—	—	—

D2. In each of the following months, how many days had unfilled shifts for each role? Please report the cumulative number of days for each month where there was an unfilled shift. Example: If, during the month of March, there was one day with three unfilled personal support worker shifts, one day with one unfilled personal support worker shift, and one day with five unfilled personal support worker shifts, enter “3” in the personal support worker/Mar 2020 cell.

	Mar 2020	Apr 2020	May 2020	Jun 2020	Sep 2020	Dec 2020
a. Registered nurses	___	___	___	___	___	___
b. Nurse practitioners	___	___	___	___	___	___
c. Registered practical nurses	___	___	___	___	___	___
d. Personal support workers	___	___	___	___	___	___
e. Housekeeping/Custodial staff	___	___	___	___	___	___
f. Dietary staff (including Registered Dietitians, Nutrition managers and dietary aides)	___	___	___	___	___	___

D3. In each of the following months, how many days had more than 25 percent unfilled shifts (unfilled by either employees or agency staff) for the personal support workers role?

- a. March 2020: ___
- b. April 2020: ___
- c. May 2020: ___
- d. June 2020: ___
- e. September 2020: ___
- f. December 2020: ___

D4. In each of the following months, how many days were agency staff used for any of the following roles? Report the cumulative total of all days with one or more shifts with agency staff for each type of position over the month.

	Mar 2020	Apr 2020	May 2020	Jun 2020	Sep 2020	Dec 2020
a. Registered nurses	___	___	___	___	___	___
b. Nurse practitioners	___	___	___	___	___	___
c. Registered practical nurses	___	___	___	___	___	___
d. Personal support workers	___	___	___	___	___	___
e. Housekeeping/Custodial staff	___	___	___	___	___	___

D5. In each of the following months, indicate how many days the Long-term care home did not have at least one Registered Nurse (excluding administrative staff) on site for the full 24 hour period.

- a. March 2020: ____
- b. April 2020: ____
- c. May 2020: ____
- d. June 2020: ____
- e. September 2020: ____
- f. December 2020: ____

D6. Between March 1 and July, 2020 did nursing staff (Registered Nurses, Registered Practical Nurses, and Nurse Practitioners) have access to paid sick time? Include employee benefits paid by the employer, including cases where a third party-insurance provider manages the plan as part of the employees' compensation package. Exclude benefits paid from other sources such as the Federal Government's Canada Emergency Response Benefit (CERB) or Employment Insurance (EI) programs.

- Yes, full-time staff with permanent positions only
- Yes, both full-time and part-time staff with permanent positions
- No
- Other, specify: _____

D7. Following July 1, 2020, did access to paid sick time for nursing staff (Registered Nurses, Registered Practical Nurses, and Nurse Practitioners) change?

- Yes. Please describe the change (was paid sick time more/less available for full-time staff/part-time staff): _____
- No

D8. Between March 1 and July 1, 2020 did Personal Support Workers have access to paid sick time? Include employee benefits paid by a third party-insurance providers as part of the employees' compensation package. Exclude benefits paid from other sources such as the Federal Government's Canada Emergency Response Benefit (CERB) or Employment Insurance (EI) programs.

- Yes, full-time staff with permanent positions only
- Yes, both full-time and part-time staff with permanent positions
- No
- Other, specify: _____

D9. Following July 1, 2020, did access to paid sick time for Personal Support Workers change?

- Yes. Please describe the change (was paid sick time more/less available for full-time staff/part-time staff): _____
- No

Under the *Emergency Management and Civil Protection Act*, beginning on April 22nd, 2020 long-term care home staff were prohibited from working in more than one home. This order did not apply to temporary agency and other contract staff.

D10. At any time between March 1 and April 22, 2020, were staff members at your long-term care home prohibited from working in more than one home?

- Yes
- No

D11. At any time between April 22 and July 1, 2020, did your home prohibit temporary agency and other contract staff from working in more than one home?

- Yes
- No

D12. As of March 1st, 2020, how many physicians served as attending physicians for residents in the long-term care home?

D13. In each of the following months, how often was the medical director present in-person in the long-term care home? Exclude on-site visits of less than approximately 30 minutes. Check one box per row (month).

	No in-person visits	Less than once per week	1-4 days/week	5-7 days/week
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D14. In each of the following months, how often did at least one (1) physician make in-person visits to conduct clinical evaluations of one or more residents? Exclude on-site visits of less than approximately 30 minutes and visits where no residents were evaluated. Check one box per row (month).

	No in-person visits	Less than once per week	1-4 days/week	5-7 days/week
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D15. In each of the following months, how often did at least one (1) physician use virtual care to conduct clinical evaluations of one or more residents in the long-term care home? When providing virtual care, the physician must have visual contact or a conversation with the resident. Check one box per row (month).

	No virtual visits	Less than once per week	1-4 days/week	5-7 days/week
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D16. Between March 1, 2020 and July 1, 2020, by what means, if any, did your long-term care residents receive consultations from the following medical specialists when needed? Check one box per row (medical specialty).

	No consults	Virtual consults only	On-site consults only	Both virtual and on-site consults
Geriatric psychiatry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geriatric medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- D17. In each of the following months, on average, how many hours per week was the Director of Nursing and Personal Care (sometimes referred to as the Director of Care) physically present in the home?
- a. March 2020:
 - b. April 2020:
 - c. May 2020:
 - d. June 2020:
 - e. September 2020:
 - f. December 2020:
- D18. In each of the following months, on average, how many hours per week was the Administrator of the long-term care home physically present in the home?
- a. March 2020:
 - b. April 2020:
 - c. May 2020:
 - d. June 2020:
 - e. September 2020:
 - f. December 2020:

Section E: Governance and Affiliations

F1. Is your long-term care home under the same governance structure as an acute care or complex continuing care hospital?

- Yes, name of hospital _____
 No

F2. Prior to March 1, 2020 did the long-term care home have a formal partnership agreement/Memorandum of Understanding with an acute care or complex continuing care hospital?

- Yes, name of hospital _____
 No

F3. If you answered no in the previous question, F2, does the long-term care home currently have a formal partnership agreement/Memorandum of Understanding with an acute care or complex continuing care hospital?

- Yes, name of hospital _____, date established _____
 No

Section F: Preparedness and Infection Prevention and Control (IPAC)

G1. On March 1, 2020, what best describes the long-term care home's access to certified (CIC®) professionals in infection prevention and control. A certified CIC® professional has passed the Certification Board of Infection Control and Epidemiology's (CBIC) Examination and holds current certification or recertification.

- Staff member in this long-term care home only
- Staff member, but shared with one or more other long-term care home(s)
- Infection prevention and control consultation/advice provided by a hospital
- Infection prevention and control consultation/advice provided by a public health unit
- No certified infection prevention and control professional available to this long-term care home
- Other, please specify _____

G2. If a certified (CIC®) professional in infection prevention and control is on staff at your long-term care home, when did they begin this role?

- Prior to March 1, 2020
- March 1, 2020 or later – specify date (provide approximate date if exact date is not known)

- No CIC professional in infection prevention is on staff

G3. Please select which roles had active, participating member(s) on your home's interdisciplinary infection prevention and control team as of March 1st, 2020. Check all that apply:

- Nurses (including registered nurses, nurse practitioners and registered practical nurses)
- Public Health Unit representative
- Medical doctor
- Personal support workers
- Housekeeping/Custodial staff
- Dietary staff (including Registered Dietitians, Nutrition Managers and dietary aides)
- Other (please specify): _____
- The home does not have an interdisciplinary infection prevention and control team

G4. Is the above the same composition of your home's interdisciplinary infection prevention and control team as of December 1st, 2020?

Yes

No

G5. By the first day of each of the following months, indicate what proportion of the following types of staff have received training in donning and doffing personal protective equipment (PPE) and hand hygiene. Use the key provided below. A response is required in each field.

- a. None
- b. Less than 50%
- c. 50% or greater
- d. All
- e. Not applicable

	Mar 2020	Apr 2020	May 2020	Jun 2020	Sep 2020	Dec 2020
Medical staff (including Medical Director)	—	—	—	—	—	—
Registered Nurses, Nurse Practitioners, Registered Practical Nurses	—	—	—	—	—	—
Personal Support Workers/Healthcare aides	—	—	—	—	—	—
Housekeeping/custodial staff	—	—	—	—	—	—
Dietary staff	—	—	—	—	—	—
Recreation therapy, other on-site staff	—	—	—	—	—	—

G6. Regarding the availability of personal protective equipment (PPE) for use in providing direct care to residents, please rate if and to what extent any PPE was rationed or limited each month.

	Never	Rarely	Sometimes	Most of the Time	Always
March 2020	<input type="checkbox"/>				
April 2020	<input type="checkbox"/>				
May 2020	<input type="checkbox"/>				
June 2020	<input type="checkbox"/>				
September 2020	<input type="checkbox"/>				
December 2020	<input type="checkbox"/>				

G7. When did the Long-term care home finalize a written plan for responding to infectious disease outbreaks?

- Prior to March 1, 2020
- After March 1, 2020. Please specify date (provide approximate date if exact date is not known)

As of January 1, 2021, a written plan for responding to infectious disease outbreaks has not been finalized.

G8. Which other organizations are included as partners in the long-term care home's written plan for responding to infectious disease outbreaks? Check all that apply.

- Acute care hospital(s) (exclude Acute care hospital under same governance as this Long-term care home)
- Complex Continuing Care hospital(s) (exclude CCC hospital under same governance as this Long-term care home)
- Public health unit
- Other long-term care long-term care home(s)
- Other, specify _____
- No partners
- No written plan

G9. In each of the following months, please indicate how newly admitted residents were isolated. If this method changed during the month, select the response that was true for at least half of the new of admissions during the month.

	Isolated on site	Isolated off site	New admissions were not isolated	No new admissions
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G10. In each of the following months, please indicate how suspected/confirmed positive COVID-19 cases were isolated. If the method changed during the month, indicate the response that was true for at least half of the suspected/confirmed positive COVID-19 cases in this month.

	Isolated on site	Isolated off site	Suspected/confirmed positive cases were not isolated	No suspected or confirmed positive cases
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G11. Did the home treat suspected cases of COVID-19 the same as confirmed cases in terms of isolation practices?

Yes

No. Please describe the differences: _____

G12. In each of the following months, please indicate how Personal Support Workers/Healthcare Aides providing direct care worked with resident cohorts (groups of residents defined by their risk of infection or by whether they have tested positive for COVID-19). Indicate the response that was true for the majority of the days in the month.

	Worked only with a single cohort of residents during the entire month	Worked only with a single cohort during a shift, but switched between cohorts during the month	Worked with more than one cohort during a shift	Residents were not grouped in defined cohorts
March 2020				
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G13. For each of the following months, please indicate which COVID-19 screening methods were used. Check all that apply.

	COVID-19 screening questionnaire (travel history, exposure, symptoms)	Proof of negative COVID-19 test in last two weeks	No screening	Other
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
April 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
May 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
June 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
September 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
December 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section G: Visitors

H1. Excluding for compassionate reasons near the end of life, when did your home first restrict visitors in order to reduce the risk of spread of COVID-19 into the home? _____

H2. When did your home allow visits to resume? _____