Public Health Ontario | Santé publique Ontario

ENHANCED EPIDEMIOLOGICAL SUMMARY

(ARCHIVED) COVID-19 Outbreaks and Cases in Ontario, by Setting: February 16, 2020 to June 12, 2021

Published: September 2021
Archived: September 2022

This report includes the most current information available from the Ontario Ministry of Health (MOH) Case and Contact Management Solution (CCM) as of **July 5, 2021.** The data included are for outbreaks reported in Ontario from **February 16, 2020 to June 12, 2021** and cases linked to those outbreaks up until **July 5, 2021**.

Purpose

This report provides a broad epidemiologic summary of cumulative confirmed COVID-19 outbreaks and outbreak-associated cases in Ontario by setting, which were assigned based on the outbreak name, address, and notes entered into CCM by the public health unit (PHU). Additional information on how settings were defined can be found in Appendix A. While the report does include high level information on congregate care, congregate living and school settings, the focus is on outbreaks and cases outside of those areas (e.g., workplaces, bars/restaurants/nightclubs, culture and other recreational settings). Appendix A. Detailed reports on outbreaks and associated cases in congregate care, congregate living and educational settings are available on the Public Health Ontario website, as well as on COVID-19 infection in children. This report includes all COVID-19 confirmed cases linked to an outbreak.

Please visit the interactive Ontario COVID-19 Data Tool to explore recent COVID-19 data by public health unit, age group, sex, and trends over time. A Daily Epidemiological Summary, a Weekly Epidemiological Summary, as well as additional Enhanced Epidemiological Reports are available on the Public Health Ontario website.

Highlights

Outbreak characteristics

- In Ontario, from February 16, 2020 to June 12, 2021, there were 92,665 confirmed COVID-19 cases associated with 10,669 outbreaks reported. In comparison, there were 447,685 non-outbreak associated cases of COVID-19 reported in Ontario during the same period.
- Of the 10,669 outbreaks, 27.4% (n=2,924) were in congregate care settings, 12.0% (n=1,280) in congregate living settings, 22.8% (n=2,430) in education settings, and 38.1% (n=4,065) in other settings (Table 1).
    - Within congregate care settings, long-term care homes accounted for the largest number of outbreaks (1,479/10,669, 13.9%).
    - Within other settings, workplaces accounted for the majority of outbreaks (2,817/4,065, 69.3%).

Characteristics of outbreak-associated cases

- Of the 92,665 outbreak-associated cases, 43.0% (n=39,862) were in congregate care settings, 10.3% (n=9,579) in congregate living settings, 11.3% (n=10,435) in education settings, and 35.4% (n=32,789) in other settings (Table 2, Figure 2a).
    - Long-term care homes accounted for the largest proportion of all reported outbreak-associated cases (26,240/92,665, 28.3%).
    - Within other settings, workplaces accounted for the majority of outbreak-associated cases (24,524/32,789, 74.8%) (Table 2, Figure 2b). Manufacturing (n=7,602) and logistics (e.g., warehouses, transportation, shipping or postal services) (n=5,276) reported higher numbers of outbreak-associated cases across all workplace settings (Table 2, Figure 2c).
    - Overall, across all setting types, a median of 3 cases (interquartile range [IQR]: 2-7) per outbreak was reported, and the highest number of cases were reported from an outbreak within a logistics setting (n=626).
- Compared to non-outbreak cases, a higher proportion of females and individuals aged 80 and over were associated with outbreaks (Table 3).

Severity

- Hospitalizations were reported in 7.7% (n=7,133) of all outbreak-associated cases (Table 4).
- Deaths were reported in 6.1% (n=5,677) of all outbreak-associated cases (Table 4).
    - Long-term care homes accounted for the largest proportion of all outbreak-associated deaths (3,914/5,677, 68.9%).

Time trends

- During the first wave of the pandemic (February 26, 2020 to August 31, 2020), outbreaks were most commonly reported in congregate care settings. While fewer total outbreaks were

reported during the first wave, these outbreaks were generally associated with more cases, peaking at 3,344 cases during week 14 (March 29, 2020 to April 4, 2020) (Figure 1a).

- In wave two (September 1, 2020 to February 28, 2021), the total number of outbreaks reported were higher than in wave one. The number of outbreaks in congregate care continued to be high, and outbreaks reported within congregate living, education, and other settings increased (Figure 1a).

- In wave three (March 1, 2021 onwards), the number of outbreaks and outbreak-associated cases were greater than waves one and two. Prioritization of congregate care and congregate living settings for vaccination may have contributed to the decrease in the proportion of outbreaks in those settings. After April 18th, there was a notable drop-off in outbreaks and outbreak-related cases across all settings (Figure 1a).

- The majority of outbreaks in other settings were reported from workplace settings (Figure 1b and Figure 2b). Manufacturing, construction and other workplace settings reported high number of outbreaks during waves two and three (Figure 1c).

- The number of cases associated with each outbreak varied across waves (Figure 3). Large outbreaks of 50 or more cases occurring more frequently during March and April 2020, were less frequent from June 2020 through August 2020, and again became more frequent from October 2020 through February 2021. Fewer large outbreaks were reported in wave three (March 1, 2021 onwards), with the majority of outbreaks associated with five cases or less.

Neighbourhood characteristics

- Neighbourhood factors may have influenced the proportion of outbreak-associated cases across settings. Outbreak-associated cases residing in hot spot (Figure 4) or high diversity neighbourhoods (Figure 5) had greater proportion of outbreaks in logistics workplaces. While those residing in neighbourhoods with lower material deprivation (Figure 6) and non-hot spot communities (Figure 4) had a greater proportion of outbreaks in culture and other recreation settings.

Limitations

- The findings presented in this report include all cases and settings where local public health units declared an outbreak in a given setting. The outbreaks included in this report do not present the complete picture of settings where COVID-19 has been transmitted in Ontario, and may under-represent outbreaks in settings where contact tracing is more difficult.

- Outbreak-associated cases in this report do not include secondary cases acquired from outbreak-associated cases. As such, this report likely under-represents the true magnitude of cases associated with a COVID-19 outbreak.

- Outbreak-associated cases in this report include all cases directly linked to an outbreak as determined by the local public health unit, but may not reflect where the case acquired the infection. Cases could represent employees, residents or members of the public.

- Definitions of outbreaks, including the number of cases, vary across settings. In addition, due to variations in data entry processes across public health units, some outbreaks included in this report may not have met the criteria included in an outbreak definition (i.e., size or duration of outbreak). Further, there is no provincial outbreak definition for several setting types classified within the other settings category; as such, there may be variation in declaring outbreaks by public health unit.

- Trends in outbreaks reported across and within settings over time should be interpreted with caution, as provincial restrictions resulted in closures of several settings at differing time points (see COVID-19 Intervention Timeline in Canada by Canadian Institute for Health Information for timeline of COVID-19 interventions in Ontario for details). The results in this report therefore do not represent a comprehensive assessment of risk in different settings.

- Neighbourhood-level findings based on the Ontario Marginalization Index likely reflect the impacts of structural factors that drive inequities, such as racism, discrimination, poverty, and precarious employment. Further investigation is required to better understand the intersection between race and poverty and outbreak setting type.

Outbreak characteristics

Table 1. Cumulative summary of confirmed COVID-19 outbreaks reported between February 16, 2020 and June 12, 2021, by setting type: Ontario

Setting Type	Number of outbreaks	Median number of cases per outbreak (IQR)	Maximum number of cases per outbreak	Median duration of closed outbreaks in days (IQR)
Congregate care	**2,924**	**3 (1 - 9)**	**320**	**8 (0 - 20)**
Long-term care homes	1,479	2 (1 - 8)	320	8 (0 - 24)
Retirement homes	877	2 (1 - 6)	147	5 (0 - 16)
Hospitals	568	7 (3 - 13)	181	11 (6 - 17)
Congregate living	**1,281**	**3 (1 - 7)**	**297**	**6 (0 - 12)**
Correctional facility	55	5 (2 - 32)	297	12 (2 - 24)
Shelter	266	3 (1 - 8)	213	8 (0 - 16)
Group home/supportive housing	763	2 (1 - 6)	85	5 (0 - 11)
Short-term accommodations	31	4 (2 - 9)	34	9 (4 - 16)
Congregate other	166	4 (1 - 10)	75	6 (0 - 12)
Education	**2,429**	**3 (2 - 5)**	**125**	**6 (3 - 10)**
Child care	988	3 (2 - 5)	30	5 (2 - 9)
School – Elementary[1]	1,072	3 (2 - 5)	60	7 (3 - 11)
School – Elementary/secondary[1]	69	3 (2 - 5)	46	6 (3 - 9)
School – Secondary[1]	256	2 (2 - 5)	45	8 (4 - 12)
School – Post-secondary[1]	44	3 (2 - 5)	125	7 (5 - 11)
Other settings[3]	**4,065**	**4 (2 - 8)**	**626**	**8 (4 - 14)**
Bar/restaurant/nightclub	318	3 (2 - 5)	41	6 (3 - 10)
Medical/health services	147	3 (2 - 5)	26	7 (4 - 12)

Setting Type	Number of outbreaks	Median number of cases per outbreak (IQR)	Maximum number of cases per outbreak	Median duration of closed outbreaks in days (IQR)
Medical/dental clinics	58	3 (2 - 4)	24	6 (4 - 10)
Other	89	3 (2 - 6)	26	8 (4 - 14)
Personal service settings	28	3 (2 - 5)	16	5 (3 - 10)
Recreational fitness	89	5 (2 - 9)	58	6 (2 - 11)
Gym/fitness studios	22	4 (2 - 12)	54	5 (2 - 9)
Sporting teams/leagues	21	6 (3 - 8)	58	6 (0 - 10)
Other	46	5 (2 - 9)	48	7 (3 - 11)
Retail	450	4 (2 - 6)	47	8 (4 - 14)
Grocery stores/pharmacies	115	3 (2 - 6)	44	9 (6 - 17)
Other	335	4 (2 - 6)	47	8 (4 - 13)
Culture and other recreation	199	6 (3 - 13)	365	8 (4 - 14)
Places of worship	62	6 (3 - 12)	54	8 (4 - 12)
Private events	35	8 (3 - 14)	43	6 (4 - 9)
Other	102	5 (3 - 13)	365	9 (5 - 21)
Workplace	2,817	4 (2 - 8)	626	9 (4 - 16)
Construction	348	3 (2 - 5)	52	6 (3 - 9)
Logistics	311	6 (3 - 12)	626	12 (6 - 29)
Farm	209	4 (2 - 10)	241	9 (0 - 17)
Food processing	275	6 (3 - 12)	183	14 (7 - 24)
Manufacturing	937	5 (3 - 10)	93	10 (6 - 17)
Other	737	3 (2 - 5)	56	7 (3 - 11)
Unknown	17	3 (2 - 8)	62	8 (1 - 19)
Total	**10,699**	**3 (2 - 7)**	**626**	**7 (3 - 14)**

Notes: See Appendix A for full descriptions of outbreak categories. Numbers in bold show the estimates for the four major setting types: congregate care, congregate living, education, and other settings. Ongoing re-classification of settings for reported outbreaks can result in outbreak counts that may differ from counts previously reported in other reports. IQR refers to Interquartile range, with the first quartile (Q_1) and third quartile (Q_3) being listed in parenthesis.
[1]Cumulative counts include COVID-19 school outbreaks reported starting week 36 (August 30 to September 5, 2020).
Data Source: CCM

Characteristics of outbreak-associated cases

Table 2. Cumulative summary of confirmed COVID-19 cases associated with outbreaks reported between February 16, 2020 and June 12, 2021, by setting type: Ontario

Setting Type	Number of outbreak-associated cases	Percentage of males[1] (%)	Median age[2] (IQR)
Congregate care	**39,862**	**27.4**	**69 (46 - 86)**
Long-term care homes	26,240	25.6	70 (47 - 87)
Retirement homes	7,330	25.3	77 (48 - 89)
Hospitals	6,292	37.4	60 (38 - 80)
Congregate living	**9,657**	**59.3**	**39 (28 - 52)**
Correctional facility	1,711	90.1	34 (28 - 43)
Shelter	2,768	62.0	40 (30 - 52)
Group home/supportive housing	3,557	47.8	44 (31 - 57)
Short-term accommodations	187	42.2	45 (29 - 54)
Congregate other	1,434	48.4	28.5 (18 - 51)
Education	**10,357**	**42.9**	**12 (5 - 28)**
Child care	4,058	33.8	4 (2 - 33)
School – Elementary[3]	4,453	45.8	11 (7 - 14)
School – Elementary/secondary[3]	348	59.5	17 (12 - 35)
School – Secondary[3]	1,095	52.8	16 (15 - 19)
School – Post-secondary[3]	403	62.8	25 (19 - 34)
Other settings	**32,789**	**66.5**	**40 (28 - 52)**

Setting Type	Number of outbreak-associated cases	Percentage of males[1] (%)	Median age[2] (IQR)
Bar/restaurant/nightclub	1,377	44.7	27 (22 - 44)
Medical/health services	653	34.5	44 (29 - 56)
Medical/dental clinics	256	38.7	42 (29 - 53)
Other	397	31.7	46 (29 - 62)
Personal service settings	107	18.7	38 (29 - 50)
Recreational fitness	705	58.0	32 (21 - 54)
Gym/fitness studios	191	38.2	31 (27 - 38)
Sporting teams/leagues	208	76.0	48 (18 - 59)
Other	306	58.2	31 (19 - 59)
Retail	2,379	58.4	36 (24 - 51)
Grocery stores/pharmacies	615	51.2	36 (22 - 52)
Other	1,764	60.9	36 (24 - 51)
Culture and other recreation	2,857	51.3	33 (21 - 50)
Places of worship	526	52.1	41 (26 - 56)
Private events	390	50.5	27 (20 - 46)
Other	1,941	51.3	33 (20 - 49)
Workplace	24,524	71.5	41 (29 - 53)
Construction	1,534	93.1	38 (29 - 50)
Logistics	5,276	60.2	36 (26 - 48)
Farm	3,054	80.5	36 (28 - 45)
Food processing	3,557	65.1	43 (31 - 54)
Manufacturing	7,602	77.8	47 (34 - 56)
Other	3,501	64.0	41 (30 - 53)
Unknown	187	73.3	33 (25 - 46)
Total	**92,665**	**46.3**	46 (29 - 65)

Notes: See Appendix A for full descriptions of outbreak categories. Numbers in bold show the estimates for the four major setting types: congregate care, congregate living, education, and other settings.
IQR refers to Interquartile range, with the first quartile (Q_1) and third quartile (Q_3) being listed in parenthesis.
[1]Not all cases have a gender reported. The denominator for calculating male case percentages includes all cases.
[2]Includes all cases linked to an outbreak regardless of attendance/residence within the outbreak setting. Therefore, the range of ages of cases associated with an outbreak may not align with expected ages within that setting.
[3]Cumulative counts include COVID-19 school outbreaks reported starting week 36 (August 30 to September 5, 2020).
Data Source: CCM

Table 3. Demographic characteristics of non-outbreak and outbreak-associated cases reported between February 16, 2020 and June 12, 2021

	Number of Non-outbreak cases (%)	Number of Outbreak cases (%)
Total number of cases	**447,685**	**92,665**
Gender: Female	218,420 (48.8)	49,013 (52.9)
Gender: Male	226,360 (50.6)	42,910 (46.3)
Age: 19 and under	76,657 (17.1)	9,880 (10.7)
Age: 20-39	175,040 (39.1)	27,381 (29.5)
Age: 40-59	127,554 (28.5)	26,895 (29.0)
Age: 60-79	58,937 (13.2)	12,923 (13.9)
Age: 80 and over	9,418 (2.1)	15,565 (16.8)

Note: Not all cases have an age or gender reported. Cases with unknown or missing ages were excluded from age-specific analyses.
The denominator for calculating percentages includes all cases.
Data Source: CCM

Severity

Table 4. Cumulative summary of hospitalizations and deaths among confirmed COVID-19 cases associated with outbreaks reported between February 16, 2020 and June 12, 2021, by setting type: Ontario

Setting Type	Number of hospitalized cases (% of outbreak-associated cases)	Number of deaths (% of outbreak-associated cases)	% of all outbreak-associated hospitalizations	% of all outbreak-associated deaths
Congregate care	**5,648 (14.2)**	**5,448 (13.7)**	**79.2**	**96.0**
Long-term care homes	2,027 (7.7)	3,914 (14.9)	28.4	68.9
Retirement homes	1,077 (14.7)	674 (9.2)	15.1	11.9
Hospitals	2,544 (40.4)	860 (13.7)	35.7	15.1
Congregate living	**570 (5.9)**	**93 (1.0)**	**8.0**	**1.6**
Correctional facility	26 (1.5)	1 (0.1)	0.4	<0.1
Shelter	218 (7.9)	13 (0.5)	3.1	0.2
Group home/supportive housing	251 (7.1)	56 (1.6)	3.5	1.0
Short-term accommodations	6 (3.2)	0 (0.0)	0.1	0.0
Congregate other	69 (4.8)	23 (1.6)	1.0	0.4
Education	**77 (0.7)**	**2 (0.0)**	**1.1**	**<0.1**
Child care	41 (1.0)	2 (0.0)	0.6	<0.1
School – Elementary[2]	27 (0.6)	0 (0.0)	0.4	0.0
School – Elementary/secondary[2]	3 (0.9)	0 (0.0)	<0.1	0.0
School – Secondary[2]	6 (0.5)	0 (0.0)	0.1	0.0
School – Post-secondary[2]	0 (0.0)	0 (0.0)	0.0	0.0
Other settings	**838 (2.6)**	**134 (0.4)**	**11.7**	**2.4**

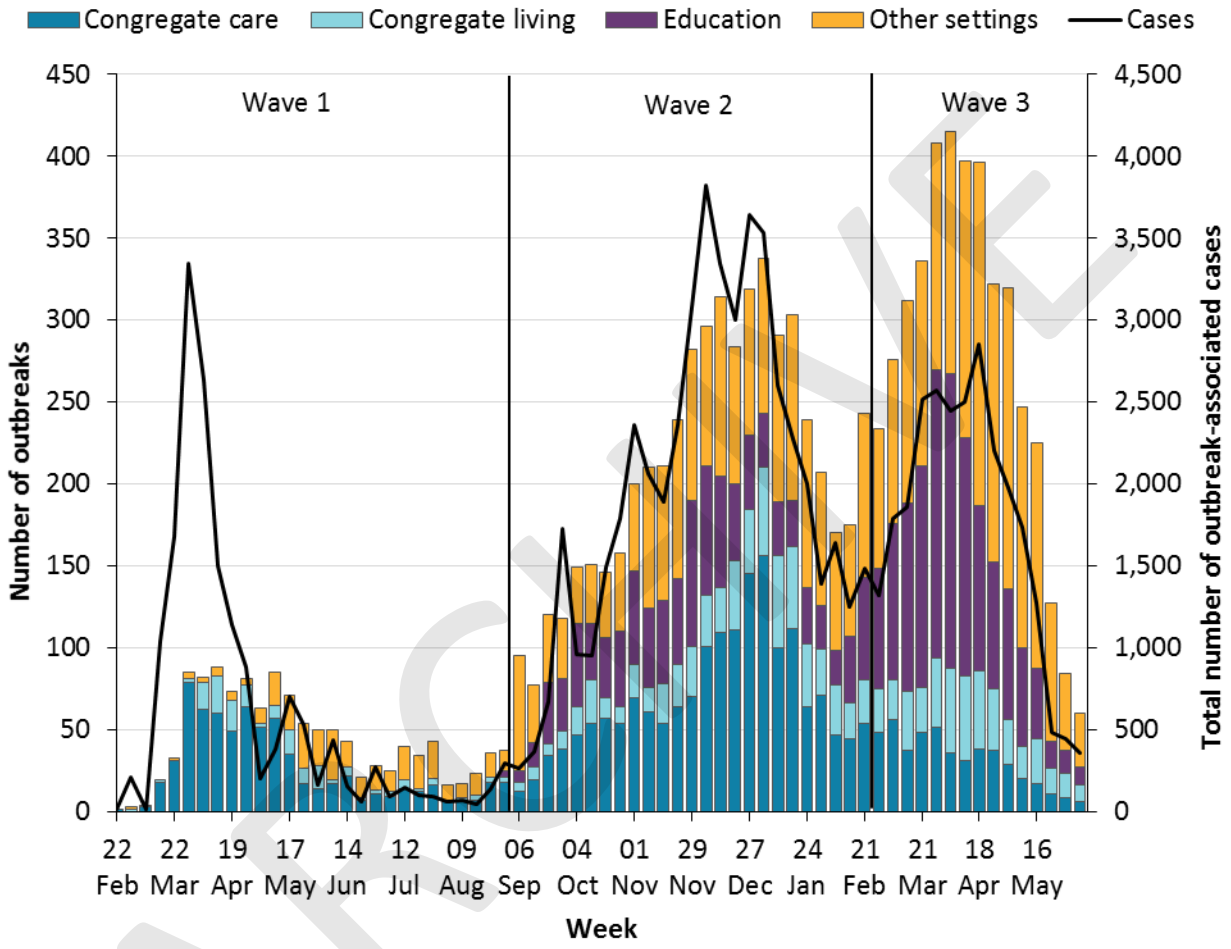
Setting Type	Number of hospitalized cases (% of outbreak-associated cases)	Number of deaths (% of outbreak-associated cases)	% of all outbreak-associated hospitalizations	% of all outbreak-associated deaths
Bar/restaurant/nightclub	22 (1.6)	0 (0.0)	0.3	0.0
Medical/health services	44 (6.7)	23 (3.5)	0.6	0.4
Medical/dental clinics	6 (2.3)	3 (1.2)	0.1	0.1
Other	38 (9.6)	20 (5.0)	0.5	0.4
Personal service settings	3 (2.8)	0 (0.0)	<0.1	0.0
Recreational fitness	6 (0.9)	0 (0.0)	0.1	0.0
Gym/fitness studios	0 (0.0)	0 (0.0)	0.0	0.0
Sporting teams/leagues	4 (1.9)	0 (0.0)	0.1	0.0
Other	2 (0.7)	0 (0.0)	<0.1	0.0
Retail	54 (2.3)	4 (0.2)	0.8	0.1
Grocery stores/pharmacies	15 (2.4)	1 (0.2)	0.2	<0.1
Other	39 (2.2)	3 (0.2)	0.5	0.1
Culture and other recreation	134 (4.7)	31 (1.1)	1.9	0.5
Places of worship	25 (4.8)	2 (0.4)	0.4	<0.1
Private events	7 (1.8)	3 (0.8)	0.1	0.1
Other	102 (5.3)	26 (1.3)	1.4	0.5
Workplace	567 (2.3)	76 (0.3)	7.9	1.3
Construction	21 (1.4)	4 (0.3)	0.3	0.1
Logistics	77 (1.5)	11 (0.2)	1.1	0.2
Farm	49 (1.6)	5 (0.2)	0.7	0.1
Food processing	99 (2.8)	13 (0.4)	1.4	0.2
Manufacturing	217 (2.9)	35 (0.5)	3.0	0.6

Setting Type	Number of hospitalized cases (% of outbreak-associated cases)	Number of deaths (% of outbreak-associated cases)	% of all outbreak-associated hospitalizations	% of all outbreak-associated deaths
Other	104 (3.0)	8 (0.2)	1.5	0.1
Unknown	8 (4.3)	0 (0.0)	0.1	0.0
Total	**7,133 (7.7)**	**5,677 (6.1)**	**100.0**	**100.0**

Notes: The percent of outbreak-associated cases show estimates specific to a setting type. For example, 8.0% of COVID-19 cases associated with an outbreak in long-term care homes were hospitalized. The percent of all outbreak-associated hospitalizations show estimates across all settings. For example, 28.4% of all outbreaks between February 16 and December 26, 2020 occurred in long-term care homes.
See Appendix A for full descriptions of outbreak categories. Numbers in bold show the estimates for the four major setting types: congregate care, congregate living, education, and other settings.
[1]Hospitalized cases associated with outbreaks classified within a hospital can include patients, staff or hospital visitors. The number of hospitalized cases in hospital outbreak settings is lower than the total number of cases reported in hospital outbreak settings (Table 2), as the total number of cases includes healthcare workers in the facility who may not have been hospitalized.
[2]Includes COVID-19 school outbreaks reported starting week 36 (August 30 to September 5, 2020).
Data Source: CCM

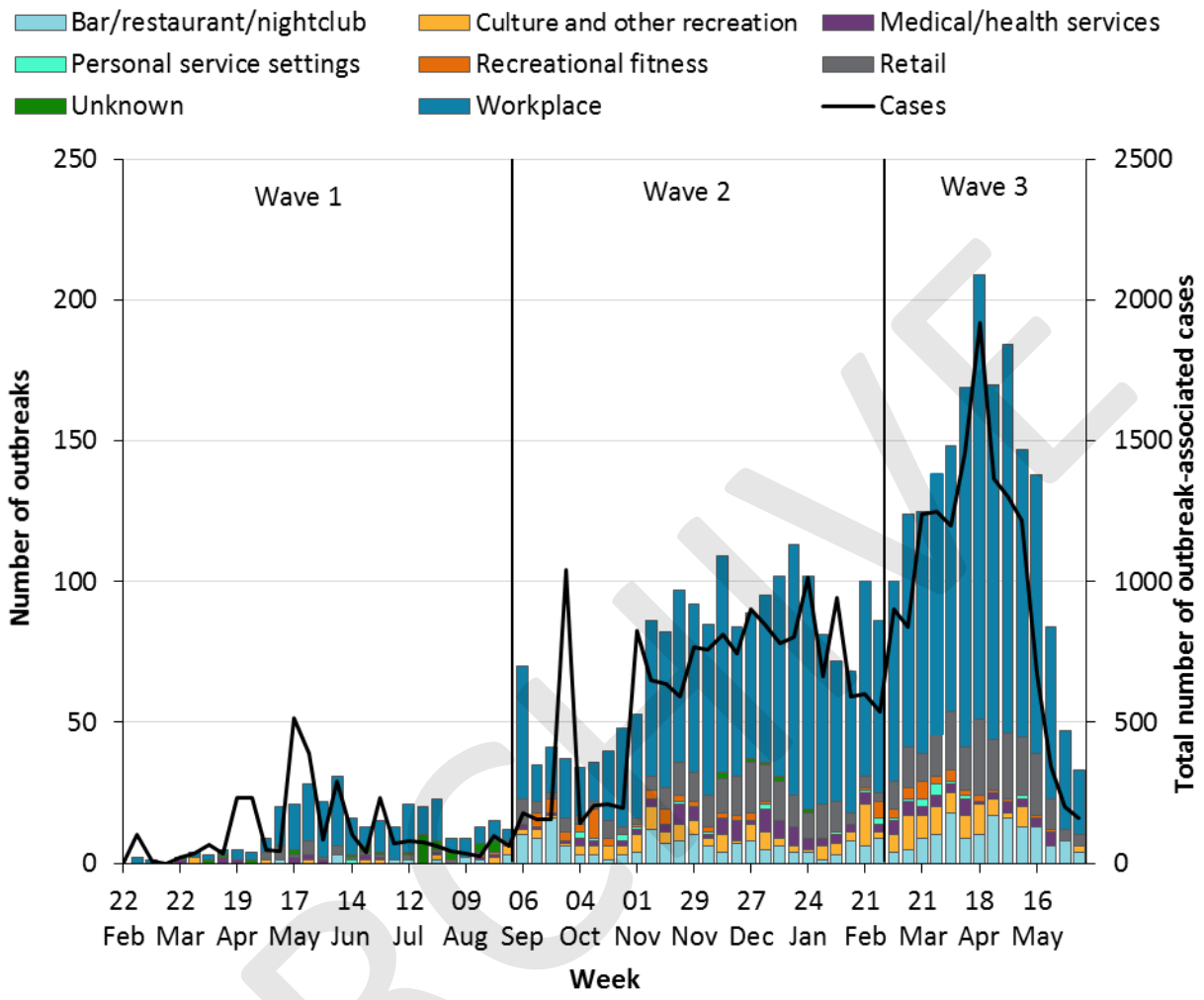
Time trends

Figure 1a. Total number of public health unit declared COVID-19 outbreaks, and number of confirmed outbreak-associated cases, by setting type, week 9 (February 16, 2020) to week 23 (June 12, 2021): Ontario



Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, and which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.
Data Source: CCM

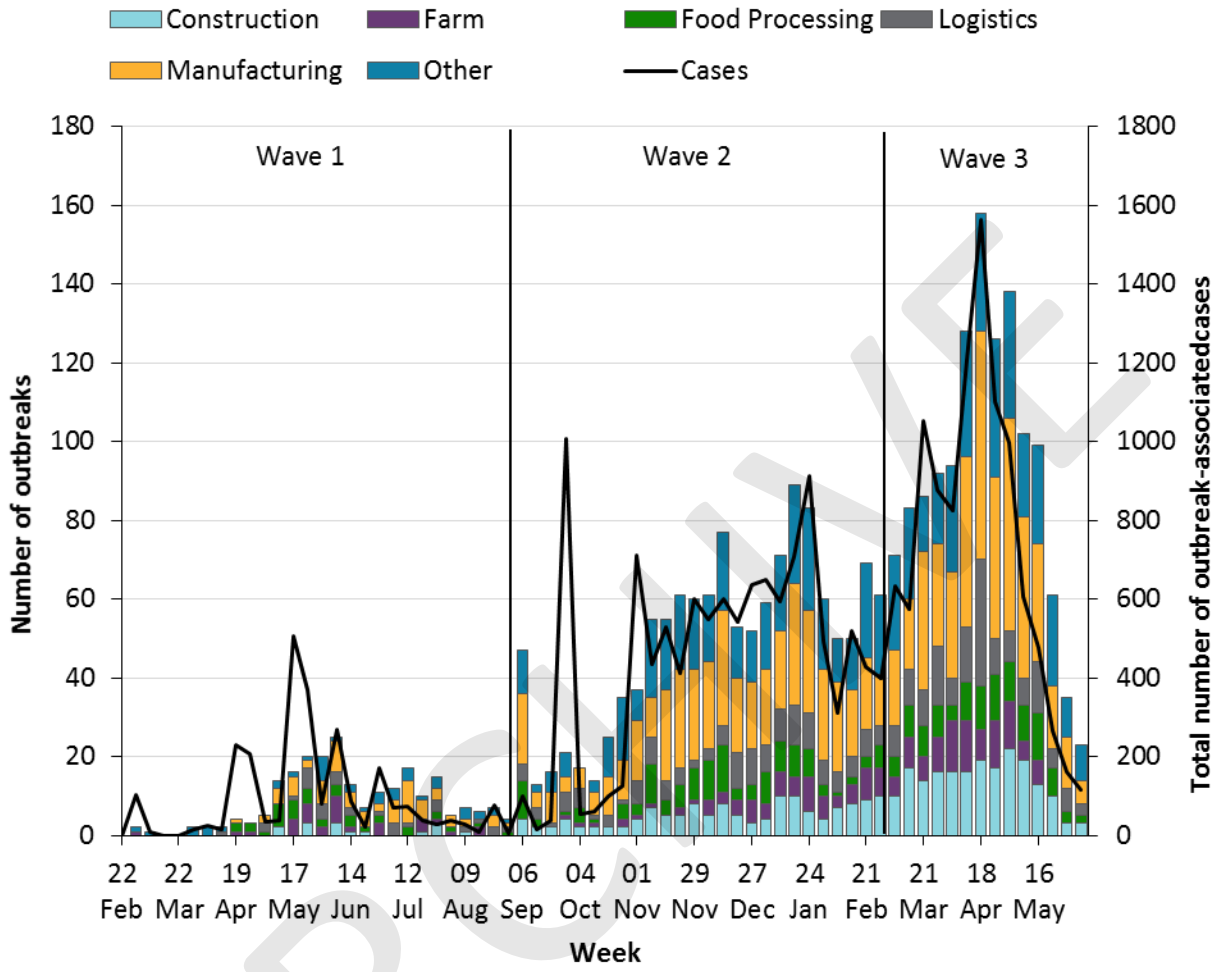
Figure 1b. Total number of public health unit declared COVID-19 outbreaks in other settings, and number of confirmed outbreak-associated cases, by setting type, week 9 (February 16, 2020) to week 23 (June 12, 2021): Ontario



Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.

Data Source: CCM

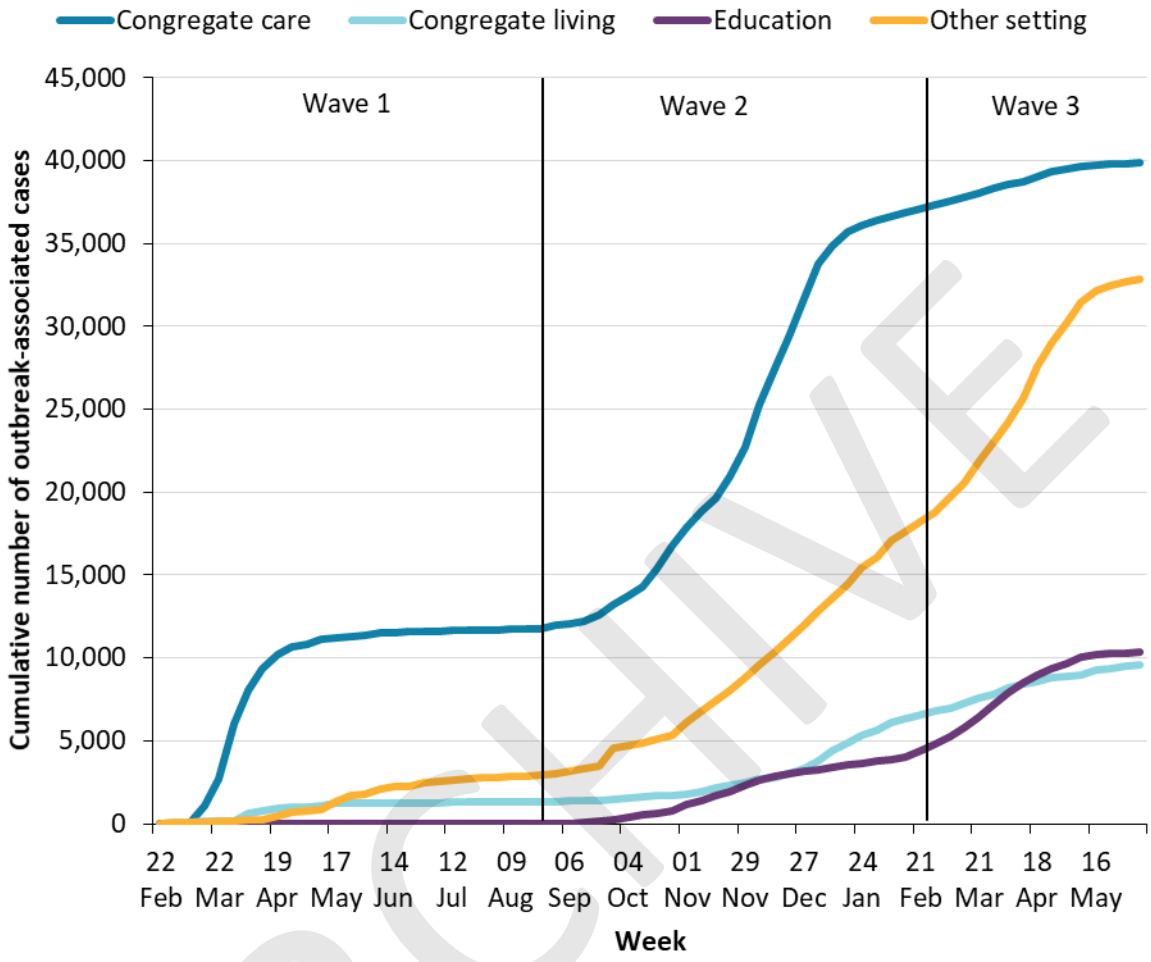
Figure 1c. Total number of public health unit declared COVID-19 workplace outbreaks, and number of confirmed outbreak-associated cases, by setting type, week 9 (February 16, 2020) to week 23 (June 12, 2021): Ontario



Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.

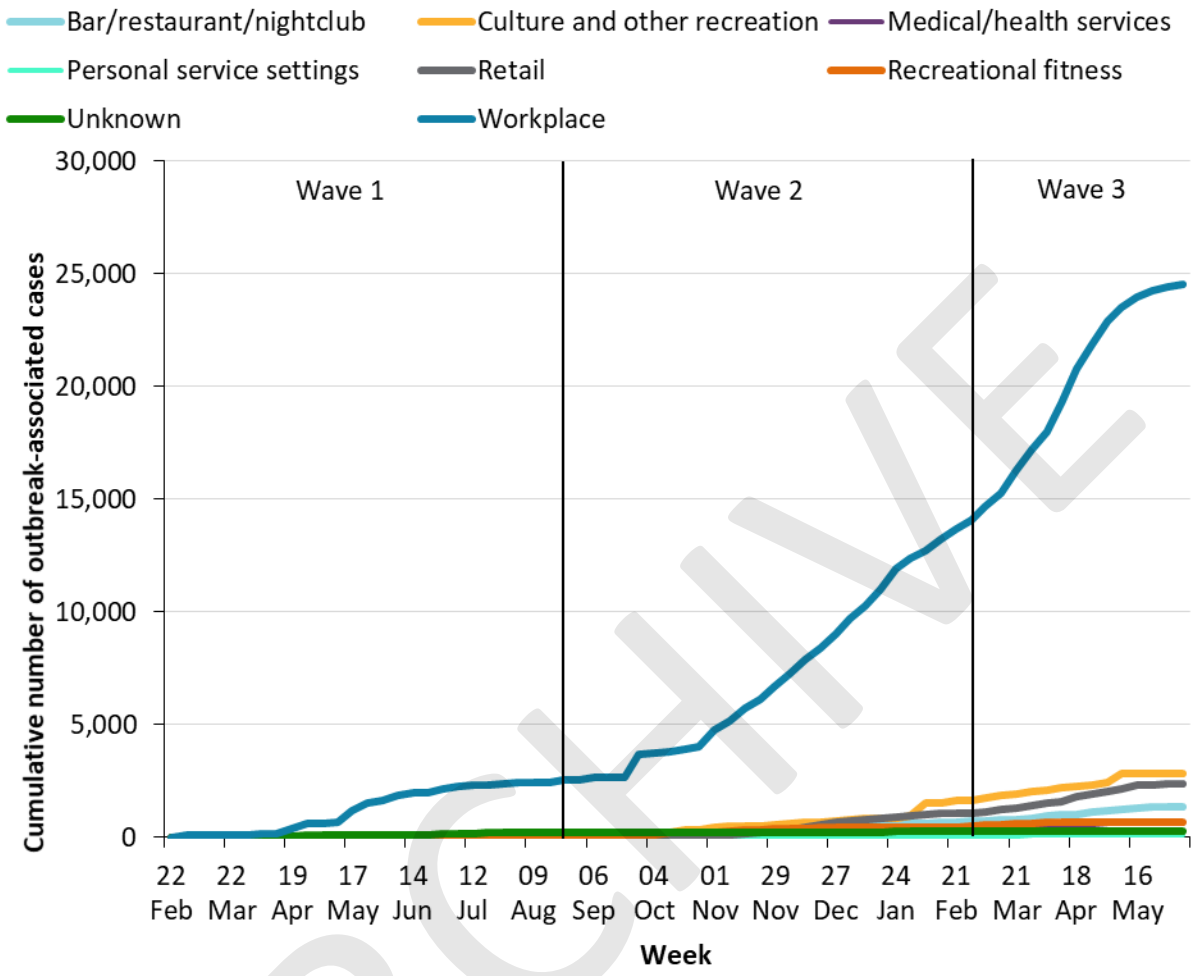
Data Source: CCM

Figure 2a. Cumulative number of outbreak cases, by setting type, week 9 (February 16, 2020) to week 13 (June 12, 2021): Ontario



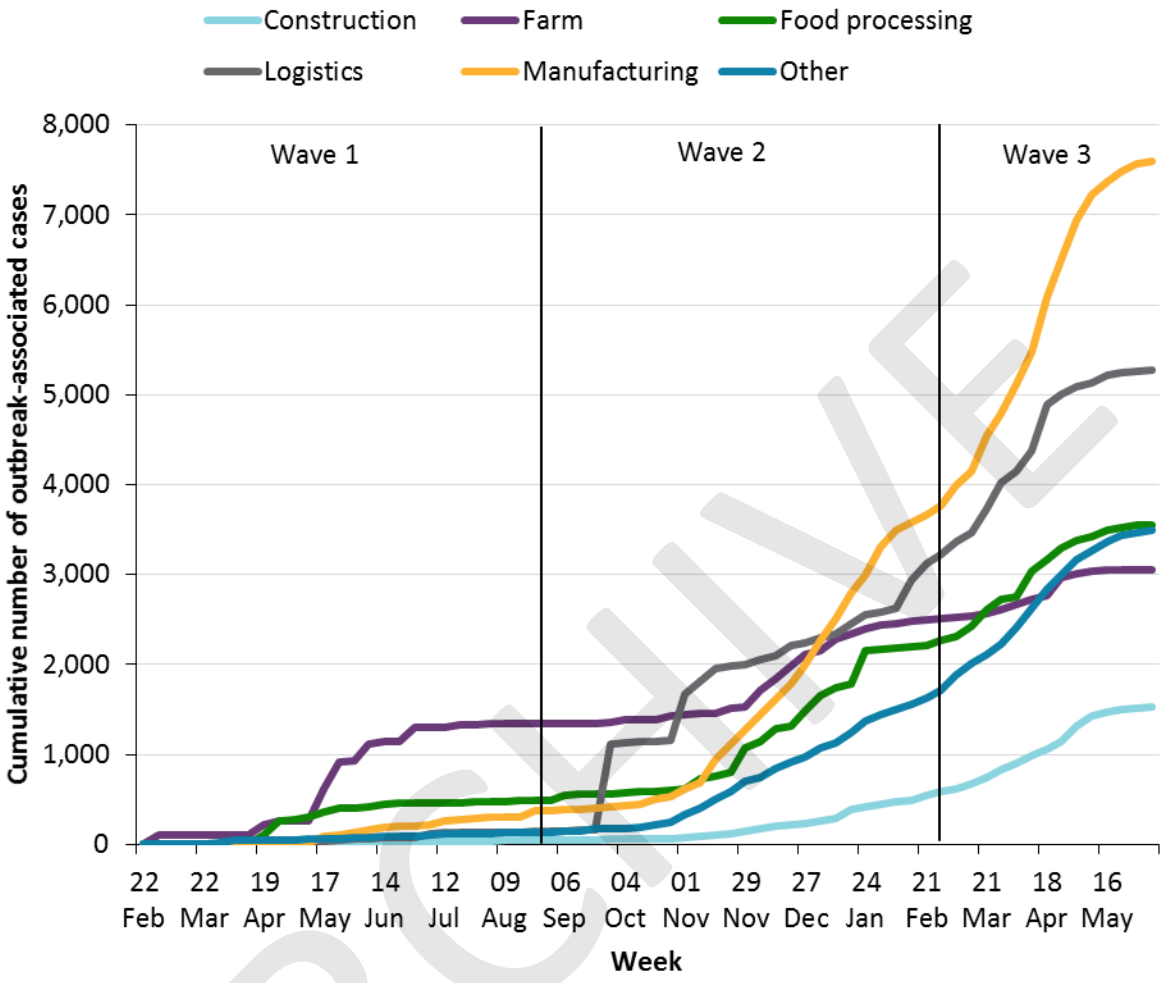
Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.
Data Source: CCM

Figure 2b. Cumulative number of cases from other settings outbreaks, by setting type and week, reported between week 9 (February 16, 2020) and week 23 (June 12, 2021): Ontario



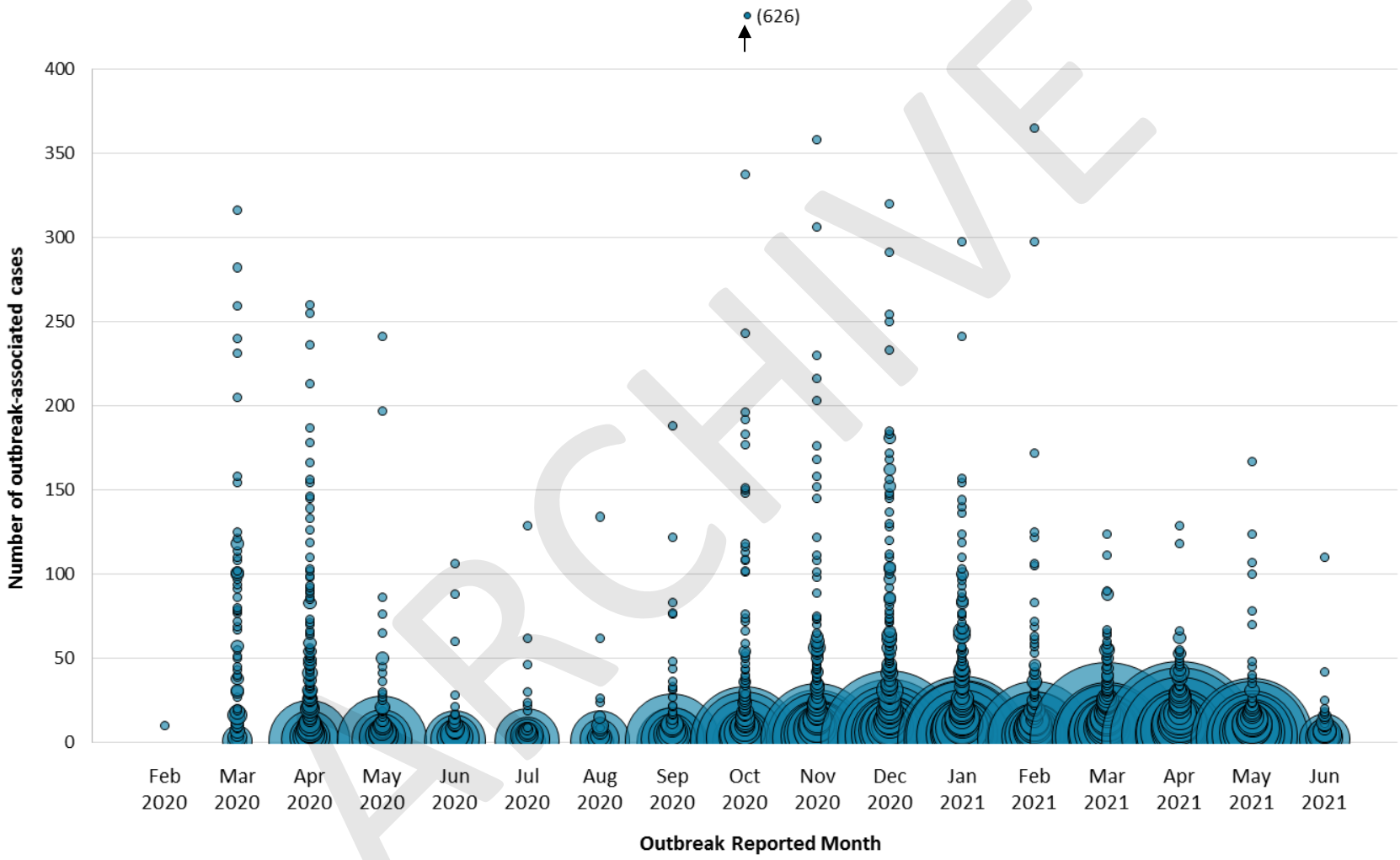
Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.
Data Source: CCM

Figure 2c. Cumulative number of cases from workplace outbreaks, by setting type, week 9 (February 16, 2020) to week 23 (June 12, 2021): Ontario



Notes: Week refers to the week that the outbreak was declared. All cases associated with an outbreak are assigned to the week the outbreak was declared, which may not align with the week that cases were reported. Includes outbreaks that are ongoing and outbreaks that are no longer active. Not all settings were open during the reporting period due to provincial public health measures. See Appendix A for full descriptions of outbreak categories.
Data Source: CCM

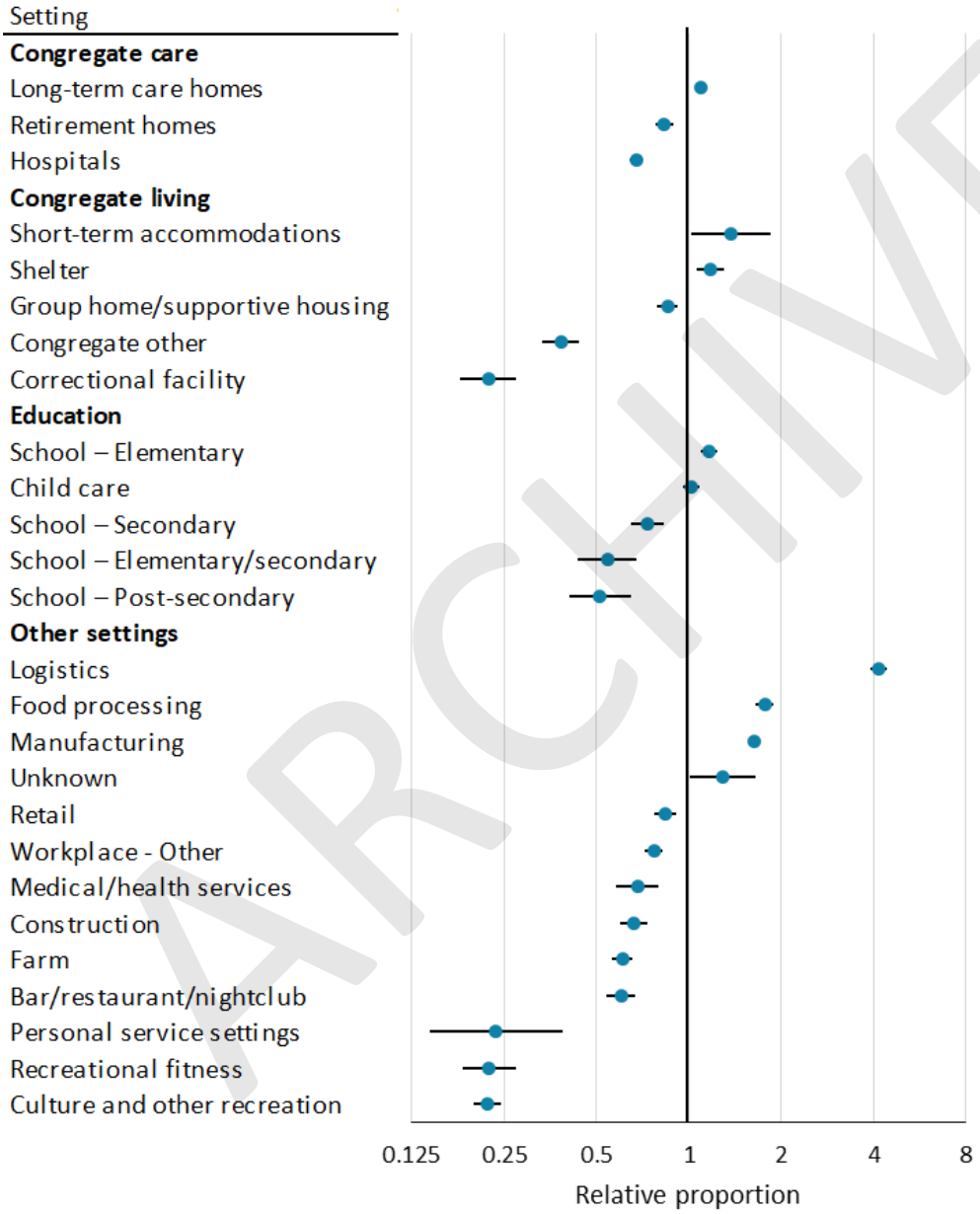
Figure 3. Distribution of cases associated with outbreaks by month, February, 2020 to June, 2021: Ontario



Notes: Bubble size corresponds to number of outbreaks of a given size. Y-axis restricted to a scale of 0 to 400 cases in order to improve visualization of smaller outbreaks. Due to axis restriction, an October 2020 outbreak associated with 626 cases is represented in brackets.
Data Source: CCM

Hot spot neighbourhoods

Figure 4. Relative proportion and 95% confidence intervals of outbreak-associated cases among residents of hot spot neighbourhoods compared to the rest of the province, by setting.



Notes: Relative proportions are plotted on an exponential scale. Neighbourhood is based on where outbreak-associated cases reside - not the location of the outbreak setting. Hot spot communities are based on Forward Sortation Areas (FSA) selected by the province for priority vaccine access as of May 1, 2021. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of a hot spot community, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are not residents of a hot spot

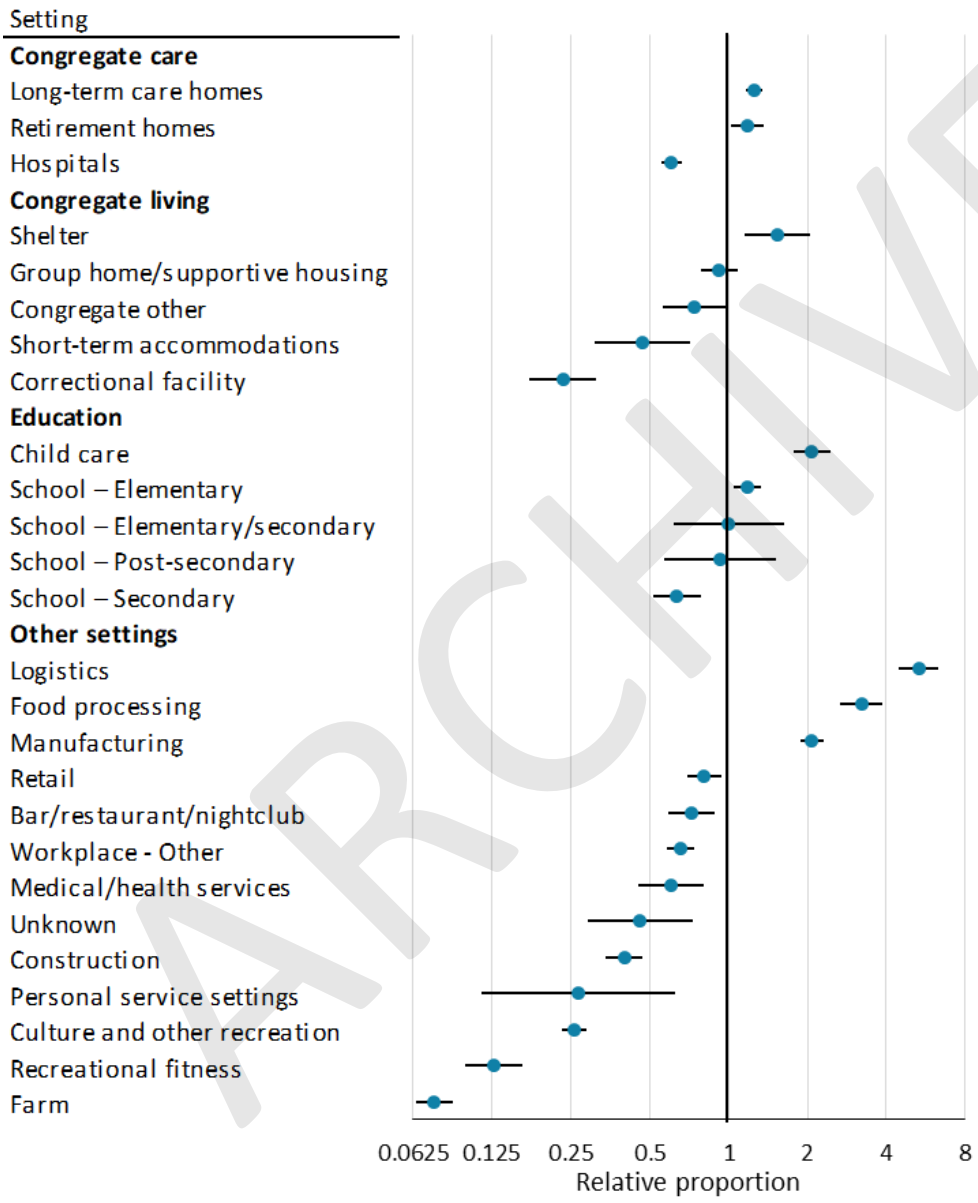
community. Settings where the 95% confidence intervals overlap with the null value of one have no significant difference between outbreak cases that live in hot spot communities and who live in the rest of Ontario. Cases identified as living in congregate setting or had missing or invalid postal codes were excluded (see Data Notes: Neighbourhood level analyses for additional information). Data table for this graph provided in Appendix B (Table B1).

Data Source: CCM

Hot spot communities in Ontario had a higher proportion of outbreak cases associated with logistics, manufacturing, and food processing workplaces. Relative to the rest of Ontario, the proportion of outbreak-associated cases living in hot spot communities was 4.15 times higher for logistics workplace outbreaks. On the other hand, non-hot spot communities had a higher proportion of outbreak cases associated with culture and other recreation settings, recreational fitness, and correctional facilities. The proportion of outbreak-associated cases living in hot spot communities was 0.22 times as high (78% lower) for these settings, compared to the rest of Ontario.

Neighbourhood diversity

Figure 5. Relative proportion and 95% confidence intervals of outbreak associated cases in high (quintile 5) diversity neighbourhoods compared to low (quintile 1) diversity neighbourhoods.



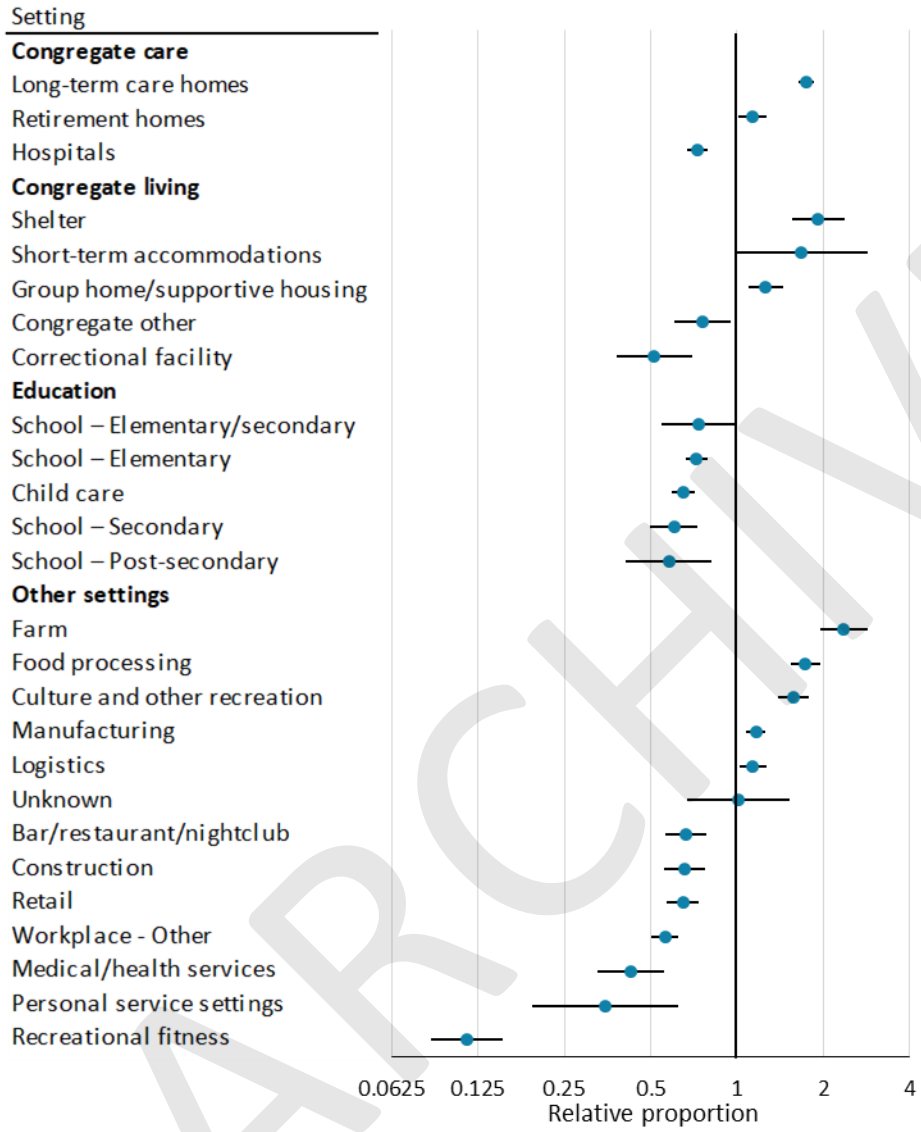
Notes: Relative proportions are plotted on an exponential scale. Neighbourhood is based on the area where outbreak-associated cases reside - not the location of the outbreak setting. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of high diversity neighbourhoods, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are residents of low diversity neighbourhoods. Settings where the 95% confidence intervals overlap with the null value of one indicate no significant difference

between outbreak cases that live in either high or low diversity neighbourhoods. Neighbourhood diversity is measured using quintile of ethnic concentration dimension of the Ontario Marginalization Index. Cases identified as living in congregate setting or had missing or invalid postal codes were excluded. Many people associated with farm outbreaks are temporary foreign agricultural workers, who are not accounted for in the Canadian census and therefore not able to be included in this measure of neighbourhood diversity. See Data Notes: Neighbourhood level analyses for additional information. Data table for this graph provided in Appendix B (Table B2)
Data Source: CCM, Ontario Marginalization Index 2016

Residents of the most diverse neighbourhoods are more likely to experience marginalization related to racism, discrimination, and systematic oppression. These findings may reflect underlying structural factors which can increase susceptibility of being associated with outbreaks, such as ability to practice physical distancing at work and higher incidence of community transmission of COVID-19.

The most diverse neighbourhoods in Ontario have a higher proportion of outbreak cases associated with logistics, food processing, manufacturing workplaces, and child care settings. Relative to low diversity neighbourhoods, the proportion of outbreak-associated cases living in high diversity neighbourhoods are 5.33 times higher for logistics workplace outbreaks. The least diverse neighbourhoods had a higher proportion of outbreak cases associated with farm workplaces, recreational fitness, and correctional facilities. The proportion of outbreak-associated cases living in the most diverse neighbourhoods was only 0.8 times as high (92% lower) for farm workplace settings, compared to the least diverse neighbourhoods.

Figure 6. Relative proportion and 95% confidence intervals of outbreak associated cases in areas with high (Q5) neighbourhood material deprivation compared to areas with low (Q1) neighbourhood material deprivation.



Notes: Relative proportions are plotted on an exponential scale. Neighbourhood is based on where outbreak-associated cases reside - not the location of the outbreak setting. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of high material deprivation neighbourhoods, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are residents of low material deprivation neighbourhoods. Settings where the 95% confidence intervals overlap with the null value of one indicate no significant difference between outbreak cases that live in either high or low material deprivation neighbourhoods. Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs. Cases identified as living in congregate setting or had missing or invalid postal codes were excluded. Many people associated with farm outbreaks are temporary foreign

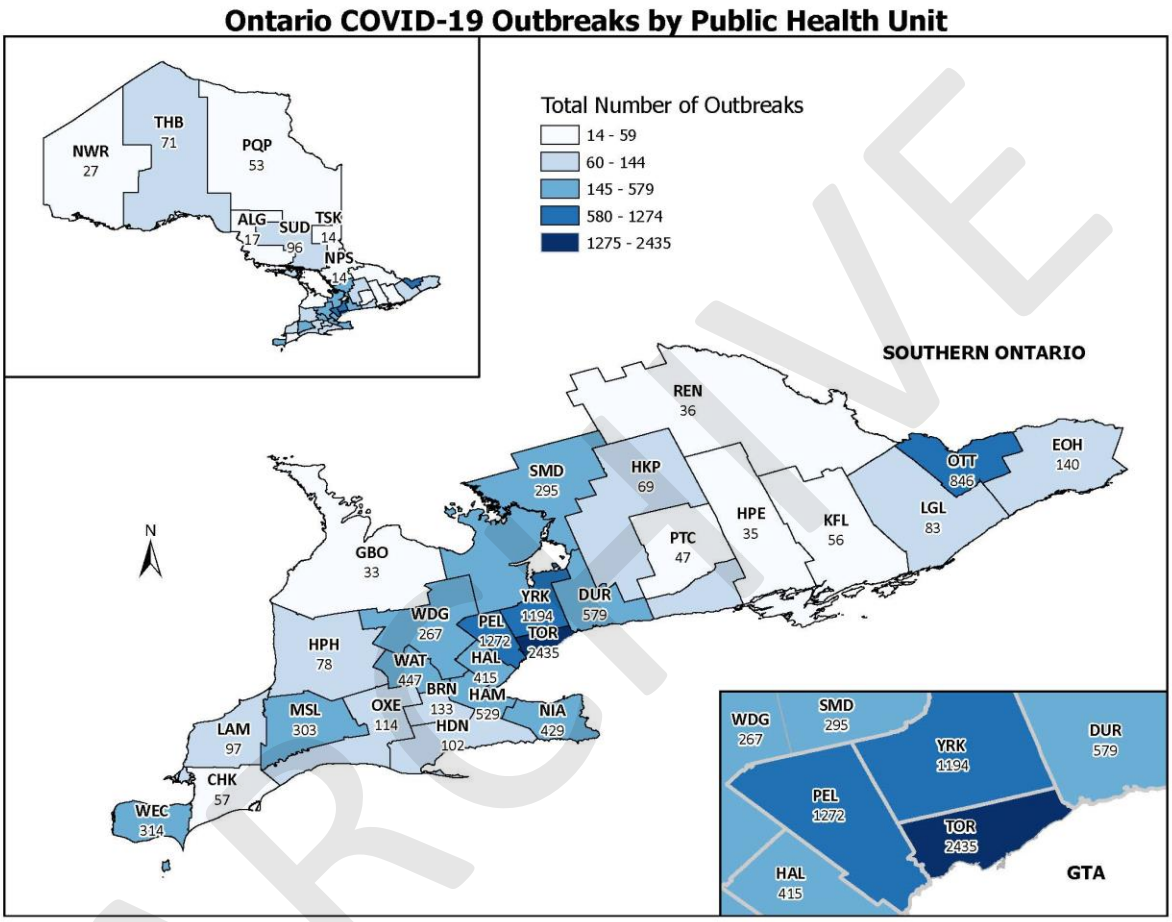
agricultural workers, who are not accounted for in the Canadian census and therefore not able to be included in this measure of neighbourhood material deprivation. See Data Notes: Neighbourhood level analyses additional information. Data table for this graph provided in Appendix B (Table B3).
Data Source: CCM, Ontario Marginalization Index 2016

Residents of the neighbourhoods with the highest material deprivation are more likely to experience marginalization related to poverty, precarious housing and employment and inability to access material resources. These findings may reflect underlying structural factors which can increase susceptibility of being associated with outbreaks, such as ability to practice physical distancing at work and higher incidence of community transmission of COVID-19.

Neighbourhoods with high material deprivation in Ontario have a higher proportion of outbreak cases associated with farm, long-term care settings (non-residents), and shelters (non-residents). Relative to low material deprivation neighbourhoods, the proportion of outbreak-associated cases living in high material deprivation neighbourhoods are 2.36 times higher for farm outbreaks. The lowest material deprivation neighbourhoods had a higher proportion of outbreak cases associated with recreational fitness, personal service settings, and medical/health settings. The proportion of outbreak-associated cases living in the highest material deprivation neighbourhoods was only 0.11 times as high (89% lower) for recreational fitness settings, compared to the lowest material deprivation neighbourhoods.

Geography

Figure 7. Number of confirmed COVID-19 outbreaks reported between February 16, 2020 and June 12, 2021 by public health unit: Ontario



Note: Includes outbreaks that are ongoing (as of June 12, 2021) and outbreaks that are no longer active. Cut-offs for map categories were determined by natural breaks and adjusted for round numbers. Geography is based on the diagnosing public health unit where the outbreak-associated cases reside. Not all settings were open during the reporting period due to provincial public health measures Outbreak-associated cases not assigned to a public health unit were excluded. Two outbreaks that involved cases from Ontario and outside of Ontario were excluded. Data table for this map provided in Appendix B (Table B4).
Data Source: CCM

Technical Notes

Data Sources

- The data for this report were based on:
    - The data for this report were based on information successfully extracted from the Public Health Case and Contact Management Solution (CCM) for all PHUs by PHO as of **July 5th, 2021 at 1 p.m** for cases reported from February 1, 2021 onwards, and as of **July 5, 2021 at 9 a.m.** for cases reported up to January 31, 2021.
    - The data included are for outbreaks reported in Ontario from February 16, 2020 to June 12, 2021 and cases linked to those outbreaks up until the date of extraction (July 5, 2021).
- CCM is a dynamic disease reporting system, which allows ongoing updates to data previously entered. As a result, data extracted from CCM represent a snapshot at the time of extraction and may differ from previous or subsequent reports. This applies to both case and outbreak data.
- The health equity (neighbourhood-level diversity and deprivation) analyses use data from the 2016 Ontario Marginalization Index and the Statistics Canada Postal Code Conversion File:
    - Matheson FI; van Ingen T. 2016 Ontario marginalization index. Toronto, ON: Providence St. Joseph's and St. Michael's Healthcare; 2018. Joint publication with Public Health Ontario.
    - Statistics Canada Postal Code Conversion File (PCCF), reference date of May 2020.

Data Notes: Outbreak dates

- Outbreak reported week uses the date the public health unit reported the outbreak. If this date is unavailable, the date the public health unit created the outbreak is used.
- Weeks correspond to Public Health Agency of Canada's Flu weeks, and begin on Sunday and end on Saturday.

Data Notes: Outbreak classification

- Only confirmed outbreaks are included in this report. All outbreaks reported as confirmed in CCM were included in these analyses regardless of whether the case data in CCM supported the outbreaks' classification.
- The outbreak data for these settings are restricted to those in which an outbreak was declared by the public health unit. The data also do not include cases linked to these settings as an exposure. Outbreaks are declared by the local medical officer of health or their designate in accordance to the Health Protection and Promotion Act and criteria outlined in Ministry guidance documents.

- For outbreaks declared in certain settings such as long-term care, hospitals, educational settings, farms and workplaces, there are provincial outbreak definitions. These definitions may have single case thresholds, and may also include changes in the case thresholds for declaring an outbreak over time (i.e., the threshold for declaring an outbreak in a child care setting increased from one to two cases as of November 9, 2020; the threshold for declaring an outbreak in a LTCH increased from one to two cases as of May 5, 2021). However, there is no provincial case definition for several setting types reported as other settings. As such, a standard approach to declaring an outbreak across these settings may differ by public health unit.

    - All 'other' setting outbreaks were manually classified based on the name, address, and additional relevant information available in CCM for the outbreak, as entered by the PHU. Other setting outbreaks consisted of outbreaks outside of congregate care settings (i.e., hospitals, long-term care, retirement home), congregate living settings (i.e., correctional facilities, shelters, group homes, other congregate), and education settings (i.e., childcare settings and schools).

    - All outbreak classifications are mutually exclusive, however, an outbreak declared in a restaurant may have been a workplace outbreak if cases were identified among staff only.

    - Outbreaks reported in the workplace – farm category may include cases related to shared living amongst farm staff. As such, some of these outbreaks may be more similar to outbreaks in congregate living settings.

    - For additional information regarding outbreak setting type classification definitions, please refer to Table A1 in the Appendix. Some outbreaks may be misclassified due to lack of information to assist with the manual classification process.

- School classification types are defined by the Ministry of Education. Some schools classified as secondary may also have an intermediate school in the same location that start in Grade 7.

    - Elementary/Secondary schools include public or private schools educating children in a combination of elementary and secondary grades (e.g., Kindergarten to Grade 8, Grades 9 to 12, and Kindergarten to Grade 12).

- Ongoing outbreaks are those that are reported in CCM as 'Open' and without a 'Declared Over Date' recorded. Closed outbreaks are 'Closed' or have a 'Declared Over Date' recorded in CCM or where the outbreak start date (determined by the onset date of first case, or if missing the reported date, or if missing the created date) is more than 5 months from the current date, even for outbreaks where the outbreak status value selected in CCM is 'OPEN'.

- The median duration of outbreaks was only measured for outbreaks with a "Closed" Outbreak Classification status. Outbreak length was calculated using the 'Outbreak Date' as the start date and the 'Outbreak Date End' as the end date. The "Outbreak Date" is a calculated field used to determine the outbreak declared date using the following hierarchy of date fields (Onset date of the first case > Reported Date > Created Date). The "Outbreak Date End" is a calculated field used to determine the end date of the outbreak using the following hierarchy of date fields (Onset date of the last case > Date the outbreak was declared over). Due to variations in data entry practices and variability in case definitions, this can result in outbreaks having a duration

length of 0 days (i.e., if only a single case is linked to an outbreak, the symptom onset date for the first and last case will be the same).

Data Notes: Outbreak-associated cases

- Only cases meeting the confirmed case classification as listed in the MOH COVID-19 case definition are included in the report counts from CCM. This includes persons with a positive detection of serum/plasma immunoglobulin G (IgG) antibodies to SARS-CoV-2, which was added to the confirmed case definition on August 6, 2020.
    - Cases of confirmed reinfection, i.e., where genome sequencing indicates the two episodes are caused by different viral lineages, added to the confirmed case definition on November 20, 2020, are counted as unique investigations.
- The data only represent cases reported to public health units and recorded in CCM. As a result, all counts will be subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours, which may depend on severity of illness, clinical practice, changes in laboratory testing, and reporting behaviours.
- COVID-19 cases from CCM for which the Classification and/or Disposition was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, IGNORE, DUPLICATE, or any variation on these values have been excluded. The provincial case count for COVID-19 includes cases that are counted once across all systems from which the case data are obtained. Duplicate records may exist if these records were not identified and resolved prior to data upload to the Ministry.
- Due to reporting delays and potential variations in data entry processes across public health units, there may be additional COVID-19 cases that have not yet been entered in CCM, or have not been entered as linked to an outbreak. As such, some outbreaks may have zero linked cases as of the data extraction date. This includes 93 outbreaks in congregate care, 68 outbreaks in congregate living, 37 outbreaks in education, and 247 outbreaks in other settings. Results should be interpreted with caution due to potential under-detection of outbreak associated cases.
- Lags in CCM data entry due to weekend staffing may result in lower case counts than would otherwise be recorded.
- Outbreak-associated cases do not include secondary cases acquired from outbreak-associated cases, and therefore, may under-represent the true magnitude of cases impacted by a COVID-19 outbreak.
- Hospitalization includes all cases for which a hospital admission date was reported at the time of data extraction. It includes cases that have been discharged from hospital as well as cases that are currently hospitalized. Emergency room visits are not included in the number of reported hospitalizations.
- Deaths are determined using the outcome field in CCM. Any case marked ‘Fatal’ is included in the deaths data. The CCM field Type of Death is not used to further categorize the data.
- Orientation of case counts by geography is based on the diagnosing health unit (DHU). DHU refers to the case's public health unit of residence at the time of illness onset and not

necessarily the location of exposure. Cases for which the DHU was reported as MOH (to signify a case that is not a resident of Ontario) have been excluded from the analyses.

- There were two outbreaks that involved cases from Ontario and outside of Ontario and were not assigned to a public health unit. These were excluded from public health unit level analyses.

- Case reported week uses the date the case was reported to the public health unit.

Data Notes: Neighbourhood level analyses

- Provincial priority vaccination communities (i.e., hot spots) are defined using the forward sortation areas (FSAs), the first three characters of a resident's postal code. Hot spot FSAs are based on the Ontario Ministry of Health list of hot spot communities for prioritizing vaccination access, as of May 1, 2021. Cases are assigned to hot spots based on the FSA of residence, and not whether or not the outbreak setting was in a hot spot.

- The hot spot and ON-Marg analyses were limited to community-dwelling outbreak-associated cases, and excluded 29,762 (31.8%) outbreak-associated cases identified as living in a congregate setting. An additional 1,404 (1.5%) individuals had invalid or missing postal codes, or lived in neighbourhoods where an ON-Marg quintile could not be derived, and were also excluded from this hot spot and ON-Marg analyses.

- ON-Marg is an area-based index which assigns a measure based on neighbourhood characteristics, not individual characteristics. Not all individuals in a given area will reflect the broader demographic trends of the area in which they live. This means, for example, that not every individual who lives in an area of high neighbourhood material deprivation experiences material deprivation themselves. Heterogeneity of demographic characteristics can vary substantially, especially across large rural geographies.

    - Neighbourhood diversity is defined using the ethnic concentration dimension of ON-Marg, which measures populations who may experience marginalization related to racism and discrimination. It is based on the proportion of non-white and non-Indigenous residents and/or the proportion of immigrants that arrived in Canada within the past five years.

    - Neighbourhood material deprivation is defined using the material deprivation dimension of ON-Marg, which is closely connected to poverty. It refers to the inability of individuals and communities to access and attain basic material needs. The indicators included in this dimension measure income, quality of housing, educational attainment and family structure characteristics.

    - Due to data suppression for some census indicators on First Nation reserves in Ontario, residents of reserves could not be included in ON-Marg and therefore people associated with COVID-19 outbreaks who are living in these communities could not be assigned to a quintile of marginalization. While Indigenous individuals living off reserves are included in this analysis, Indigeneity data is not currently collected or captured in dimensions of ON-Marg.

- This report uses the Statistics Canada dissemination area (DA) for a measure of neighbourhood diversity and material deprivation. As the smallest level of geography for which census data is

made publically available, individuals are assigned to a level of ON-Marg using DA to minimize potential misclassification of socio-demographic characteristics using area-level data. As a result, the findings from this report may not align with studies which use other levels of geography (e.g., neighbourhoods based on postal code), including those evaluating coverage in provincially designated “hot spots”.

- The Single Link Indicator Postal Code Conversion File (PCCF) was used to match individuals to a DA based on their postal code, which were subsequently assigned to a quintile of marginalization that contained 20% of Ontario neighbourhoods. The quintiles for the ethnic concentration and the material deprivation dimensions are ordered from quintiles 1 to 5, with quintile 1 having the lowest level of marginalization (i.e., least diverse or least material deprivation) and quintile 5 having the highest level of marginalization (i.e., most diverse or most material deprivation).

Appendix A – Outbreak setting definitions

Table A1. Definitions for various setting types including congregate care, congregate living, education, and other settings.

Setting type	Definitions
Congregate care	
Long-term care homes	A facility that provides care and services for people who no longer are able to live independently or who require onsite nursing care, 24-hour supervision or personal support. LTC Homes are governed under the Long Term Care Homes Act (LTCHA) and Ontario Regulation 79/10.
Retirement homes	A residential complex or the part of a residential complex, that is occupied primarily by persons who are 65 years of age or older, that is occupied or intended to be occupied by at least the prescribed number of persons who are not related to the operator of the home, and where the operator of the home makes at least two care services available, directly or indirectly, to the residents. Retirement homes are governed under the Retirement Homes Act, 2010, S.O. 2010, c. 11.
Hospitals	Any institution, building or other premises or place that is established for the purposes of the treatment of patients and that is approved under the Public Hospitals Act, R.S.O. 1990, c. P.40.
Congregate living	
Correctional facility	An institution established or continued under section 14, whether it is operated or maintained by the Ministry or by a contractor, but does not include a place of open custody, a place of secure custody, a place of temporary detention or a lock-up established under section 16.1 of the *Police Services Act*; ("établissement correctional"). Ministry of Correctional Services Act, R.S.O. 1990, c. M.22.
Shelter	A facility set up to provide for the needs of homeless people; often including temporary residence, food, sanitation and other forms of support.
Group Home/Supportive Housing	A home providing staff-supported residential accommodation in a group setting for special populations that need a supervised living environment. Common examples include children and youth in care, individuals with developmental or physical disabilities, individuals recovering from substance abuse, teenaged mothers, or victims of domestic violence.

Setting type	Definitions
Short-term accommodations	A short-term rental is all or part of a dwelling unit that is offered for accommodations for less than 28 consecutive days with or without payment. This includes but is not limited to bed and breakfasts (B&Bs), hotels and motels.
Congregate other	Other setting in which persons live in a group setting with shared amenities.
Education	
Child care	Facility that provides temporary care for or supervision of children and is operated under the Child Care and Early Years Act, 2014, S.O. 2014, c. 11.
School – Elementary	Elementary schools include a public or private school educating children in elementary (Kindergarten to Grade 8) grades
School - Elementary/Secondary	Elementary/ Secondary schools include a public or private school educating children in a combination of elementary (Kindergarten to Grade 8) and secondary (Grade 9 to 12) grades (e.g., K-12 combined).
School – Secondary	Secondary schools include a public or private school educating children in secondary (Grade 9 to 12) grades
School - Post-secondary	Educational facility offering the highest level of educational attainment including apprenticeships or trades certificate or diploma; general or vocational college, or other non-university certificate or diploma; university certificate or diploma below bachelor level; or a university degree.
Other settings	
Bar/restaurant/nightclub	A facility for socialization/entertainment where food and/or drinks may be served.
Medical/Health Service	A facility or business that provides health or medical services in a community or non-institutional setting, such as doctors' offices or clinics, and dental clinics. Examples of settings captured under 'Other medical/health services' include community health centres, home care services and wellness clinics.
Personal service settings	A facility that provides personal services including invasive services that is operated under the O. Reg. 136/18. (e.g., tattoo parlours, hair salons, tanning studios).
Recreational fitness	A facility that provides activities where the primary purpose of the activity is participation, with the related goals of improved physical

Setting type	Definitions
	fitness, fun, and social involvement. Examples of settings captured under 'Recreational fitness – other' include athletic facilities, dance studios, recreational/community centres, golf courses, tennis courts and indoor playgrounds.
Retail	A setting in which goods and/or services are sold to individual consumers for their personal use. Example of settings captured under 'retail – other' include shopping malls, auto dealerships, standalone retailers, and big box stores.
Culture and other recreation	A setting in which social gatherings take place, including places of worship, indoor and outdoor private events (including weddings and funerals), and other community gathering spaces. Examples of settings captured under 'culture and other recreation – other' include theatres, banquet halls (not including weddings), race tracks, private transportation, private residences, and other community settings.
Workplace – Construction	A workplace comprised of employees working on developing, maintaining or repairing residential and non-residential buildings, or parts within. Outbreaks and cases captured in this setting include construction worksites and may include offices related to the construction industry.
Workplace – Logistics	A workplace comprised of employees working in warehouses, transportation, shipping or postal services.
Workplace – Farm	A workplace comprised of an area of land and its buildings used for growing crops and/or rearing animals, including greenhouses.
Workplace - Food Processing	A food service establishment that is a commercial operation that processes food for human consumption, and provides processed food for sale and distribution to other business entities such as restaurants and grocery stores.
Workplace – Manufacturing	A workplace comprised of employees working on a production line, where labour and machinery are used to produce goods from raw materials and smaller components.
Workplace – other	Other places of employment including offices, banks, municipal services (e.g., fire station), and veterinary clinics, among others.
Unknown	Setting that cannot be classified due to missing or inadequate data.

Appendix B – Supplementary tables

Table B1. Number of outbreak-associated cases stratified by residence in a hot spot community or the rest of Ontario.

Setting	% of cases in hot spots % (N)	% of cases in rest of Ontario % (N)	Relative proportion
Congregate care			
Long-term care homes	17.1 (5,688)	15.7 (5,436)	1.09*
Retirement homes	4.5 (1,506)	5.4 (1,887)	0.83*
Hospitals	6.7 (2,232)	10.0 (3,455)	0.67*
Congregate living			
Short-term accommodations	0.3 (101)	0.2 (77)	1.37*
Shelter	2.3 (753)	1.9 (665)	1.18*
Group home/supportive housing	3.3 (1,092)	3.9 (1,334)	0.85*
Congregate other	0.9 (284)	2.2 (774)	0.38*
Correctional facility	0.3 (108)	1.6 (549)	0.20*
Education			
School – Elementary	6.9 (2,294)	5.9 (2,052)	1.16*
Child care	5.9 (1,972)	5.8 (2,015)	1.02
School – Secondary	1.3 (444)	1.7 (585)	0.79*
School – Elementary/secondary	0.3 (115)	0.6 (221)	0.54*
School – Post-secondary	0.3 (106)	0.6 (215)	0.51*
Other settings			
Logistics	12.7 (4,212)	3.1 (1,057)	4.15*

Setting	% of cases in hot spots % (N)	% of cases in rest of Ontario % (N)	Relative proportion
Food processing	6.5 (2,163)	3.7 (1,277)	1.76*
Manufacturing	13.9 (4,612)	8.5 (2,936)	1.64*
Unknown	0.4 (141)	0.3 (114)	1.29*
Retail	3.2 (1,048)	3.8 (1,306)	0.84*
Workplace - Other	4.4 (1,456)	5.7 (1,968)	0.77*
Medical/health services	0.7 (246)	1.1 (377)	0.68*
Construction	1.8 (603)	2.7 (950)	0.66*
Farm	3.0 (992)	4.9 (1,700)	0.61*
Bar/restaurant/nightclub	1.5 (495)	2.5 (858)	0.60*
Personal service settings	0.1 (19)	0.2 (84)	0.24*
Recreational fitness	0.4 (118)	1.6 (549)	0.22*
Culture and other recreation	1.4 (467)	6.4 (2,205)	0.22*
Total	**100 (33,267)**	**100 (34,646)**	**-**

Notes: Neighbourhood is based on the area where outbreak-associated cases reside—not the location of the outbreak setting. Asterisks indicate where 95% confidence intervals do not overlap with the null value of one. Hot spot communities are defined using postal code Forward Sortation Areas (FSA), based on communities selected by the province for priority vaccine access as of May 1, 2021. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of a hot spot community, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are not residents of a hot spot community. Cases identified as living in congregate setting or had missing or invalid postal codes were excluded. Data table for Figure 4.
Data Source: CCM

Table B2. Number of outbreak-associated cases stratified by residential quintile of neighbourhood diversity.

Setting	% of cases in high diversity neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low diversity neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
Congregate care						
Long-term care homes	18.0 (5,014)	16.0 (2,112)	15.1 (1,326)	15.0 (1,124)	14.4 (741)	1.25
Retirement homes	4.7 (1300)	4.8 (630)	4.9 (433)	4.6 (346)	3.9 (203)	1.18*
Hospitals	6.2 (1,726)	9.5 (1,255)	11.0 (968)	10.0 (749)	10.2 (527)	0.61*
Congregate living						
Shelter	1.5 (430)	1.8 (235)	1.7 (145)	1.6 (117)	1.0 (52)	1.53*
Group home/supportive housing	3.2 (888)	3.7 (492)	3.4 (295)	3.9 (291)	3.5 (178)	0.92
Congregate other	0.9 (241)	1.2 (160)	2.8 (243)	1.2 (91)	1.2 (60)	0.74*
Short-term accommodations	0.3 (76)	0.2 (24)	0.1 (12)	0.2 (17)	0.6 (30)	0.47*
Correctional facility	0.3 (98)	0.6 (77)	0.8 (74)	1.0 (74)	1.5 (85)	0.21*
Education						

Setting	% of cases in high diversity neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low diversity neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
Child care	6.1 (1,708)	7.5 (991)	6.7 (587)	4.5 (339)	2.9 (152)	2.08*
School – Elementary	6.6 (1,833)	8.0 (1,051)	6.8 (595)	5.6 (421)	5.6 (287)	1.18*
School – Elementary/ secondary	0.4 (103)	0.8 (107)	0.5 (48)	0.6 (46)	0.4 (19)	1.00
School – Post-secondary	0.3 (95)	0.6 (79)	0.6 (52)	0.5 (40)	0.4 (19)	0.92
School – Secondary	1.4 (379)	1.4 (189)	1.7 (149)	2.0 (153)	2.0 (103)	0.68*
Other settings						
Logistics	13.3 (3,720)	5.6 (740)	4.0 (349)	2.4 (183)	2.5 (129)	5.33*
Food processing	7.0 (1,963)	5.1 (666)	3.7 (323)	3.5 (260)	2.2 (113)	3.21*
Manufacturing	14.5 (4,037)	11.0 (1,445)	9.6 (842)	7.6 (570)	7.0 (359)	2.08*
Retail	3.2 (892)	4.3 (570)	3.8 (334)	3.5 (261)	4.0 (204)	0.81*
Bar/restaurant/ nightclub	1.6 (452)	2.5 (331)	2.5 (220)	2.5 (184)	2.3 (116)	0.72*
Workplace - Other	4.3 (1199)	5.2 (681)	5.8 (512)	6.7 (501)	6.6 (339)	0.65*

Setting	% of cases in high diversity neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low diversity neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
Medical/health services	0.7 (202)	1.0 (129)	1.2 (101)	0.9 (69)	1.2 (62)	0.60*
Unknown	0.2 (62)	0.4 (58)	0.5 (44)	0.8 (60)	0.5 (25)	0.46*
Construction	1.5 (425)	2.7 (360)	3.1 (270)	2.9 (214)	3.8 (197)	0.40*
Personal service settings	0.0 (13)	0.2 (20)	0.4 (32)	0.3 (24)	0.2 (9)	0.27*
Culture and other recreation	2.6 (723)	2.5 (333)	3.3 (288)	4.6 (343)	10.1 (520)	0.26*
Recreational fitness	0.4 (99)	1.1 (149)	1.6 (142)	1.5 (114)	2.8 (144)	0.13*
Farm	0.7 (196)	2.2 (289)	4.5 (391)	12.1 (908)	9.3 (481)	0.08*
Total	**100 (27,874)**	**100 (13,173)**	**100 (8,775)**	**100 (7,499)**	**100 (5,154)**	-

Notes: Neighbourhood is based on the area where outbreak-associated cases reside—not the location of the outbreak setting. Asterisks indicate where 95% confidence intervals do not overlap with the null value of one. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of high diversity neighbourhoods, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are residents of low diversity neighbourhoods. Neighbourhood diversity is measured using the quintile of ethnic concentration dimension of the Ontario Marginalization Index. The ethnic concentration dimension is based on the proportion of non-white and non-Indigenous residents and/or the proportion of immigrants that arrived in Canada within the past five years. Cases identified as living in congregate setting or had missing or invalid postal codes were excluded. Many people associated with farm outbreaks are temporary foreign agricultural workers, who are not accounted for in the Canadian census and therefore not able to be included in this measure of neighbourhood diversity. Data table for Figure 5.

Data Source: CCM, Ontario Marginalization Index 2016

Table B3. Number of outbreak-associated cases stratified by residential quintile of neighbourhood material deprivation.

Setting	% of cases in high material deprivation neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low material deprivation neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
Congregate care						
Long-term care homes	20.5 (3,333)	17.8 (2,402)	15.6 (1,947)	14.0 (1,565)	11.8 (1,070)	1.74*
Retirement homes	5.2 (841)	5.0 (669)	4.0 (501)	4.3 (485)	4.6 (416)	1.13*
Hospitals	7.7 (1,254)	8.0 (1,078)	8.3 (1,031)	8.0 (897)	10.6 (965)	0.73*
Congregate living						
Shelter	2.4 (387)	1.6 (217)	1.2 (152)	1.0 (110)	1.2 (113)	1.92*
Short-term accommodations	0.3 (54)	0.2 (33)	0.2 (30)	0.2 (24)	0.2 (18)	1.68
Group home/supportive housing	3.8 (623)	3.4 (457)	3.3 (415)	3.3 (372)	3.0 (277)	1.26*
Congregate other	1.1 (180)	0.9 (122)	1.2 (152)	1.9 (208)	1.5 (133)	0.76*
Correctional facility	0.5 (79)	0.6 (82)	0.7 (83)	0.7 (78)	0.9 (86)	0.51*
Education						

Setting	% of cases in high material deprivation neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low material deprivation neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
School – Elementary/ secondary	0.6 (100)	0.3 (36)	0.3 (43)	0.6 (68)	0.8 (76)	0.74*
School – Elementary	6.3 (1,026)	5.8 (779)	6.3 (779)	7.2 (807)	8.7 (796)	0.72*
Child care	5.4 (876)	5.2 (702)	5.5 (683)	6.8 (761)	8.3 (755)	0.65*
School – Secondary	1.3 (217)	1.3 (176)	1.5 (181)	1.8 (198)	2.2 (201)	0.60*
School – Post-secondary	0.4 (65)	0.3 (36)	0.5 (57)	0.6 (64)	0.7 (63)	0.58*
Other settings						
Farm	3.4 (547)	3.5 (476)	3.1 (391)	6.5(721)	1.4 (130)	2.36*
Food processing	6.7 (1,089)	6.4 (861)	4.7 (584)	3.9 (439)	3.9 (352)	1.73*
Culture and other recreation	5.5 (888)	2.2 (299)	3.2 (398)	2.7 (306)	3.5 (316)	1.57*
Manufacturing	10.8 (1,753)	13.0 (1,755)	13.3 (1,652)	11.2 (1,248)	9.3 (845)	1.16*
Logistics	6.4 (1,034)	10.2 (1,373)	11.0 (1,368)	7.5 (837)	5.6 (509)	1.14*
Unknown	0.4 (63)	0.4 (51)	0.2 (27)	0.7 (73)	0.4 (35)	1.01

Setting	% of cases in high material deprivation neighbourhoods (Q5) % (N)	% of cases in Q4 % (N)	% of cases in Q3 % (N)	% of cases in Q2 % (N)	% of cases in low material deprivation neighbourhoods (Q1) % (N)	Relative proportion (Q5 / Q1)
Bar/restaurant/ nightclub	1.8 (297)	1.9 (254)	2.0 (247)	2.3 (255)	2.7 (250)	0.67*
Construction	1.9 (304)	1.9 (260)	2.6 (318)	2.9 (325)	2.8 (259)	0.66*
Retail	2.8 (463)	3.3 (449)	3.9 (489)	4.1 (459)	4.4 (401)	0.65*
Workplace - Other	3.8 (618)	5.1 (691)	5.6 (703)	5.4 (602)	6.8 (618)	0.56*
Medical/health services	0.6 (94)	0.8 (105)	0.9 (118)	1.1 (123)	1.4 (123)	0.43*
Personal service settings	0.1 (18)	0.1 (15)	0.1 (18)	0.2 (18)	0.3 (29)	0.35*
Recreational fitness	0.3 (55)	0.7 (95)	0.8 (95)	1.2 (134)	3.0 (269)	0.11*
Total	**100 (16,258)**	**100 (13,473)**	**100 (12,462)**	**100 (11,177)**	**100 (9,105)**	**-**

Notes: . Neighbourhood is based on the area where outbreak-associated cases reside—not the location of the outbreak setting. Asterisks indicate where 95% confidence intervals do not overlap with the null value of one. Relative proportions can be interpreted like relative risks, where a value greater than one indicates a higher proportion of outbreak cases associated with a given setting are residents of high material deprivation neighbourhoods, and a value less than one indicates that a higher proportion of outbreak cases associated with a given setting are residents of low material deprivation neighbourhoods. Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs. Excludes residents of congregate settings, such as long-term care residents. Many people associated with farm outbreaks are temporary foreign agricultural workers, who are not accounted for in the Canadian census and therefore not able to be included in this measure of neighbourhood material deprivation. Data table for Figure 6.
Data Source: CCM, Ontario Marginalization Index 2016

Table B4. Number of confirmed COVID-19 outbreaks reported between February 16, 2020 and June 12 by public health unit: Ontario

Public Health Unit Name	Abbreviation	Number of outbreaks
Algoma Public Health	ALG	17
Brant County Health Unit	BRN	133
Chatham-Kent Public Health Services	CHK	57
City of Hamilton Public Health Services	HAM	529
Durham Region Health Department	DUR	579
Eastern Ontario Health Unit	EOH	140
Grey Bruce Health Unit	GBO	33
Haldimand-Norfolk Health Unit	HDN	102
Haliburton, Kawartha, Pine Ridge District Health Unit	HKP	69
Halton Region Public Health	HAL	415
Hastings & Prince Edward Public Health	HPE	35
Huron Perth Public Health	HPH	78
Kingston, Frontenac, Lennox & Addington Public Health	KPL	56
Lambton County Public Health	LAM	97
Leeds, Grenville and Lanark District Health Unit	LGL	83
Middlesex-London Health Unit	MSL	303
Niagara Region Public Health	NIA	429
North Bay Parry Sound District Health Unit	MPS	14
Northwestern Health Unit	NWR	27
Ottawa Public Health	OTT	846
Peel Public Health	PEL	1,272
Peterborough Public Health	PTC	47

Public Health Unit Name	Abbreviation	Number of outbreaks
Porcupine Health Unit	PQP	53
Public Health Sudbury & District	SUD	96
Region of Waterloo Public Health and Emergency Services	WAT	447
Renfrew County and District Health Unit	REN	36
Simcoe Muskoka District Health Unit	SMD	295
Southwestern Public Health	OXE	114
Thunder Bay District Health Unit	THB	71
Timiskaming Health Unit	TSK	14
Toronto Public Health	TOR	2,435
Wellington-Dufferin-Guelph Public Health	WDG	267
Windsor-Essex County Health Unit	WEC	314
York Region Public Health	YRK	1,194

Notes: Includes outbreaks that are ongoing and outbreaks that are no longer active. Geography is based on diagnosing public health unit where the outbreak-associated cases reside. Not all settings were open during the reporting period due to provincial public health measures. Two outbreaks that involved cases from Ontario and outside of Ontario were excluded. Data table for Figure 7.
Data Source: CCM

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). COVID-19 - COVID-19 Outbreaks and Cases in Ontario, by Setting: February 16, 2020 to June 12, 2021. Toronto, ON: Queen's Printer for Ontario; 2021.

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