

# COVID-19 Workplace Outbreaks by Industry Sector and Their Associated Household Transmission, Ontario, Canada, January to June, 2020

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**Objective:** To analyze workplace outbreaks by industry sector in the first wave of the pandemic, and associated household cases. **Methods:** Number, size, and duration of outbreaks were described by sector, and outbreak cases were compared to sporadic cases in the same time frame. Address matching identified household cases with onset  $\geq 2$  days before,  $\geq 2$  days after, or within 1 day of the workplace outbreak case. **Results:** There were 199 outbreaks with 1245 cases, and 68% of outbreaks and 80% of cases belonged to (1) Manufacturing, (2) Agriculture, Forestry, Fishing, Hunting, (3) Transportation and Warehousing. There were 608 household cases associated with 339 (31%) outbreak cases, increasing the burden of illness by 56%. **Conclusions:** Workplace outbreaks primarily occurred in three sectors. Prevention measures should target industry sectors at risk to prevent spread in and out of the workplace.

**Keywords:** household transmission, industry, outbreaks, SARS-CoV-2, workplace

The coronavirus disease (COVID-19) pandemic caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) led to a lockdown on non-essential services in mid-March 2020 in Ontario, with subsequent staged regional re-opening of the economy from May 2020.<sup>1,2</sup> Over this period, a number of workplace settings have been identified in Canada and internationally as particularly susceptible to outbreaks with high attack rates, such as food processing facilities.<sup>3–7</sup> These outbreaks have highlighted the need for workplace infection and prevention and control measures to reduce the risk within workplaces, in particular where employees have close, prolonged contact.<sup>8</sup> However, with re-opening of the economy and previously closed (“non-essential”)

## Learning Objectives

- Discuss the approach used to identify and analyze the impact of workplace outbreaks in Ontario during the first phase of the COVID-19 pandemic.
- Summarize the findings of the analysis of workplace outbreaks, including the most commonly involved industrial sectors.
- Discuss the findings on household transmission, including its impact on overall burden of illness from workplace outbreaks.

workplaces, ongoing assessment of outbreak settings is necessary to understand evolving COVID-19 transmission risk in workplaces. While other jurisdictions have identified specific industry sectors associated with outbreaks, similar systematic assessment is lacking in Canada.<sup>5</sup>

Assessment of the morbidity and mortality of cases associated with workplace outbreaks alone may under-represent the burden of illness associated with these outbreaks.<sup>5</sup> Previous studies have shown the impacts from workplace outbreaks beyond the affected cases to their surrounding community adding to the overall burden of illness from household and community transmission.<sup>3,9</sup> Identifying vulnerable industry sectors and their related community transmission is necessary to target public health interventions to prevent outbreaks and subsequent community spread. Our objectives were to: (1) describe workplace outbreaks in Ontario over the first 6 months of 2020 (the first wave of the SARS-CoV-2 pandemic and initial stages of re-opening); (2) describe cases associated with these workplace outbreaks; and (3) estimate the additional burden of illness due to associated household transmission.

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Clinical significance: From January 21 to June 30, 2020, there were 199 workplace outbreaks in Ontario, Canada; 68% of outbreaks and 80% of outbreak-associated COVID-19 case were in three industry sectors. Household transmission occurred among 31% of outbreak cases. Prevention measures should target industry sectors at risk to prevent spread in the workplace and community transmission.

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## METHODS

### Data Source

We obtained data on workplace outbreaks and laboratory-confirmed cases identified by the 34 local public health units (PHU) in Ontario.<sup>10</sup> Data were obtained from the integrated Public Health Information System, the Toronto Public Health Coronavirus Rapid Entry System, the Ottawa Public Health COVID-19 Ottawa Database, the Middlesex-London COVID-19 Case and Contact Management tool and Ontario Case and Contact Management database, collectively known as CCM Plus. Cases were extracted from January 21, 2020, when COVID-19 became reportable in the province, to July 28, 2020, to account for the delay in surveillance and reporting of cases associated with workplace outbreaks declared January 21 to June 30, 2020.

### Outbreak Definitions

PHUs are responsible for declaring outbreaks of SARS-CoV-2 in various settings, including workplaces, based on their assessment of risk of acquisition and transmission.<sup>11</sup> Provincial guidance on the definition of a workplace outbreak (two or more cases reasonably acquired in the workplace) was only issued on June 11, 2020.<sup>12</sup> There was no formal definition prior to this guidance, and outbreaks were declared based on health unit assessment of risk

**TABLE 1.** The Number, Size, and Duration Associated with Workplace Outbreaks by Industry Sector in Ontario from January 21 to June 30, 2020, with Associated Cases and Case Severity Until July 28, 2020

Sector Code	Sector	Outbreaks, n (%)	Cases, n (%)	Hospital Admissions	ICU Admissions	Ventilations	Deaths	Median Size (Range)	Median Days Duration (Range)
11	Agriculture, forestry, fishing and hunting	24 (12.1)	197 (15.8)	3	1	0	2	3.5 (1–34)	13.5 (0–119)
23	Construction	12 (6.0)	44 (3.5)	2	0	0	0	2.5 (1–8)	4.5 (0–12)
31–33	Manufacturing	89 (44.7)	702 (56.4)	31	10	7	2	3 (1–140)	9 (0–119)
44–45	Retail	13 (6.5)	39 (3.1)	0	0	0	0	1 (1–14)	0 (0–56)
48–49	Transportation and Warehousing	22 (11.1)	103 (8.3)	1	1	0	0	2 (1–36)	5.5 (0–75)
52	Finance and Insurance	5 (2.5)	14 (1.1)	0	0	0	0	2 (1–5)	6 (0–31)
62	Health care and social assistance	13 (6.5)	43 (3.5)	4	0	0	0	3 (1–13)	5 (0–50)
72	Accommodation and food services	5 (2.5)	15 (1.2)	0	0	0	0	2 (2–5)	6 (2–16)
92	Public Administration	3 (1.5)	21 (1.7)	0	0	0	0	9 (2–10)	10 (3–18)
	Other Sectors* with <3 outbreaks	13 (6.5)	67 (5.4)	11	3	1	2	3 (1–16)	7 (0–52)
	<b>Total</b>	<b>199</b>	<b>1245</b>	<b>52</b>	<b>15</b>	<b>8</b>	<b>6</b>	<b>3 (1–140)</b>	<b>7 (0–119)</b>

\*Includes waste management and remediation services (1), radio and television broadcasting (1), offices of real estate agents and brokers (1), computer systems design and related services (2), military (1), special food services (1), investigation and security services (1), personal care services (1), automotive repair and maintenance (1), services to buildings and dwellings(1), other support services (1).

of an outbreak in the setting, which could include outbreaks with a single case. In this report, workplaces refer to non-hospital, non-congregate living, and non-childcare settings. Agriculture outbreaks were excluded as congregate living settings if greater than four cases had the same address. Workplace outbreak locations (address and business name as entered by the PHU) were manually classified according to the North American Industry Classification System (NAICS) into one of 20 industry sectors.<sup>13</sup> Outbreak size is the number of confirmed cases linked by the PHU to an outbreak. Outbreak duration is the time from the accurate episode date of the first to the last case in the outbreak, and zero in outbreaks with a single case. Accurate episode date is determined by a hierarchy of symptom onset, specimen collection/test date, or reported date based on availability of case data.

### Outbreak-Associated Cases

Outbreak associated cases greater than or equal to 14 years old were included based on work eligibility in Ontario.<sup>14</sup> Demographic information included gender, age, presence of one or more comorbidities (list previously described),<sup>9</sup> and Ontario region (Central East, Central West, Eastern, North East, North West, South West, Toronto). Clinical symptoms were classified as asymptomatic, presymptomatic (defined as having a testing date prior to symptom onset date), symptomatic, or missing. Clinical outcomes were classified as not hospitalized, hospitalized, intensive care unit without a ventilator, required a ventilator, and death. Outbreak cases were compared to sporadic (or non-outbreak related cases where cases were not associated with any type of outbreak, workplace or otherwise) cases ≥ 14 years old over the same time period in Ontario (January 21 to July 28, 2020).

### Household Associated Cases

We defined household associated cases using a natural language processing algorithm to link laboratory-confirmed workplace outbreak-associated cases to other laboratory-confirmed COVID-19 cases in Ontario by matching their residential address. Symptom onset dates of household and outbreak cases were compared to describe overall household cases as: acquisition (household case was 2 to 28 days prior to outbreak case), transmission (household case was 2 to 28 days after outbreak case), or unknown direction (household case ± 1 day of outbreak case). Onset of illness

was defined as symptom onset date, which was available for 60% of outbreak cases and 63% household cases. For those missing symptom onset date we performed a deterministic imputation of symptom onset values by calculating the weekly median number of days from test date to symptom onset date from other cases where data were available and applied it the cases' known test date. If test date was not available we used the weekly median time from symptom onset to date reported to the local PHU to impute symptom onset for cases missing both symptom onset and test date. Onset date in asymptomatic individuals was the testing date or reporting date if testing date was not available. For any households with two or more cases associated with the same workplace outbreak, the second and beyond cases were considered household cases to estimate the additional burden of illness when household cases are included to workplace outbreak associated cases. As a sensitivity analysis, all cases associated with a workplace outbreak were presumed to be workplace related despite occurring in the same household as another workplace outbreak case. Demographics of workplace associated cases and the demographics of their household associated cases were assessed overall and by industry sector.

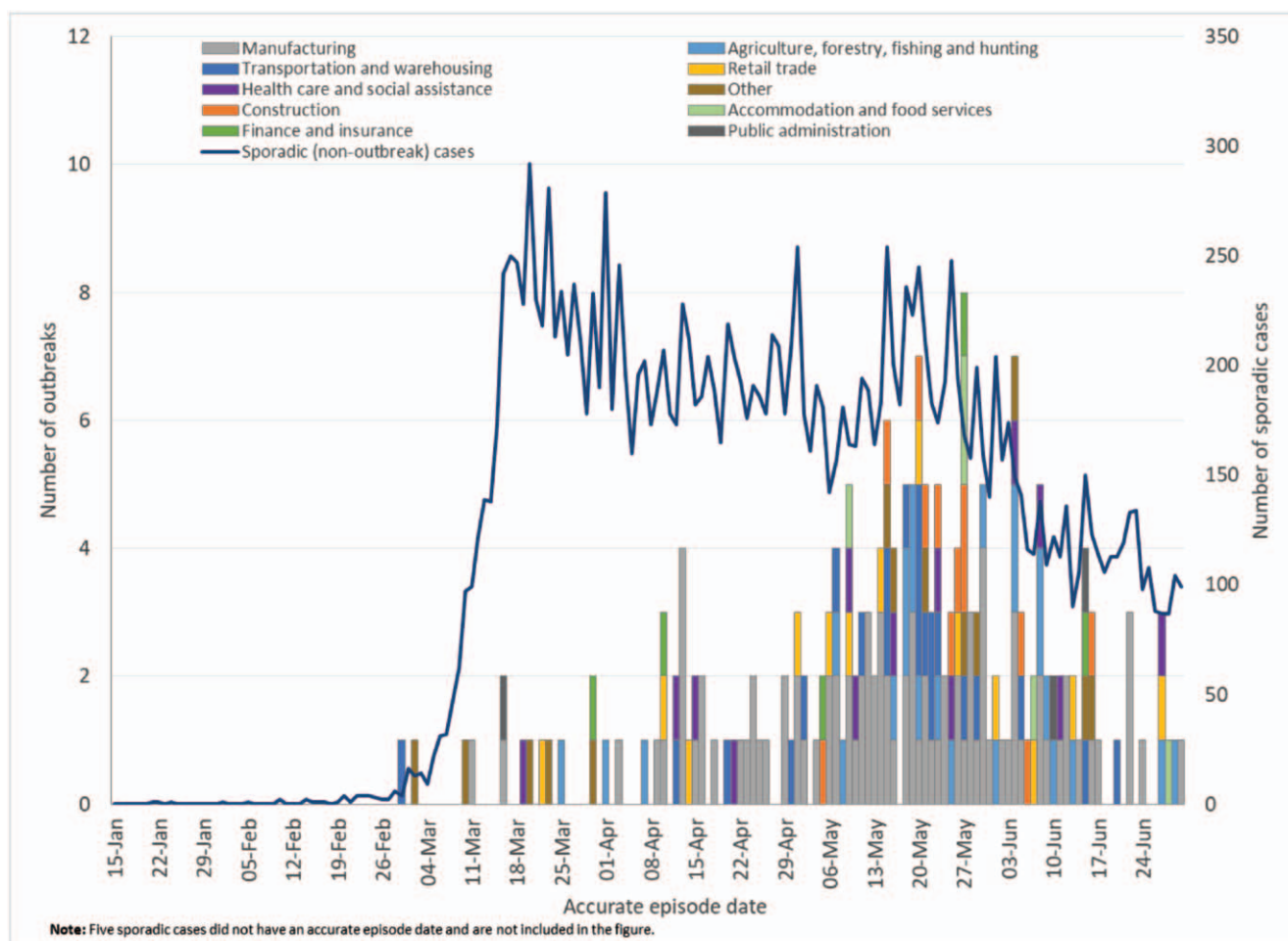
### Statistical Analysis

Demographic, medical risk factor (one or more comorbidity or presence of a high risk status condition) and severity outcome (whether the case had any one or more of hospitalization, intensive care unit admission, ventilation, or death) variables were compared between outbreak cases and sporadic cases by chi square test or Mann-Whitney test for non-parametric measures. Two sided *P* < 0.05 was considered significant. All descriptive and statistical analyses were conducted in SAS version 9.3 (SAS Institute, Cary, NC).

This analysis was approved by the Public Health Ontario Research Ethics Board (2028-020.01).

## RESULTS

There were 199 workplace outbreaks declared by PHUs in Ontario between January 21 and June 30, 2020, with 1245 outbreak-associated cases (Table 1). There were three or more outbreaks associated with nine industry sectors, with the majority in Manufacturing (45%), Agriculture, Forestry, Fishing, and Hunting (12%), and Transportation and Warehousing (11%), with cases in



**FIGURE 1.** Distribution of workplace outbreaks by industry sector from January 21 to June 30, 2020, and the daily count of sporadic (non-outbreak associated) cases in that time period, Ontario.

these sectors accounting for 56%, 16%, and 8%, of all outbreak cases, respectively. Outbreaks ranged in size from 1 to 140 cases (median: 3 cases), with 149 (75%) having two or more cases. Median outbreak size was largest in the Public Administration sector (9 cases) and smallest in the Retail sector (1 case), and while Manufacturing had the largest outbreak (140 cases), its median size was 3 cases. Outbreak duration ranged from zero days (50 outbreaks with a single case) to 119 days, with Agriculture, Forestry, Fishing, Hunting having the longest median duration (13.5 days), and the Retail sector having the shortest median duration (0 days), due to eight outbreaks with only a single associated case. A sensitivity analysis restricting to outbreaks with two or more associated cases ( $n = 149$  outbreaks; 1195 cases) found similar trends in median number of cases and duration of outbreaks across industry sectors (Supplemental Table, <http://links.lww.com/JOM/A898>).

Workplace outbreaks were infrequent from the end of February until the end of April 2020 ( $n = 42$ , 21%), and steadily increased from the beginning of May, to a peak of eight outbreaks declared in a single day on May 27 (Fig. 1).<sup>1</sup> Over this period, sporadic (non-outbreak associated) SARS-CoV-2 cases in Ontario peaked in March, and then had a smaller peak in May (Fig. 1). Both sporadic cases and workplace outbreaks steadily declined over June. There were no specific patterns of sectors affected over the time period.

Outbreak associated cases compared to sporadic cases were significantly more likely to be male (71.7% vs. 51.5%,  $P < 0.001$ ), younger (median age 40 years vs. 45 years,  $P < 0.001$ ), and were less

likely to have one or more comorbidities (22.8% vs. 33.1%,  $P < 0.001$ ) (Table 2). Outbreak cases were significantly more likely to be asymptomatic (20.7% vs. 9.2%,  $P < 0.001$ ) or presymptomatic (3.9% vs. 2.5%,  $P < 0.001$ ), less likely to be hospitalized (4.2% vs. 12.3%,  $P < 0.001$ ), and less likely to die (0.5% vs. 2.6%,  $P < 0.001$ ). There were a total of 52 hospitalizations and 6 deaths among workplace outbreak associated cases. Workplace outbreak cases were under-represented compared to sporadic cases in most regions of Ontario, but over-represented in the South West (17.4% vs. 8.0%) region.

Among 1196 (96%) workplace outbreak cases with a valid residential address, 339 were matched to 608 household cases. There was a median of one household case associated with the 339 workplace outbreak case (range 1 to 12 cases). Of the household cases, 17% (103/608) belonged to the same workplace outbreak, but considered household cases as they occurred after the initial workplace outbreak case in their household, leaving 31% (339/(1196 to 103)) workplace cases with at least one associated household case. Therefore, accounting for household cases among cases with a valid address increased the burden of illness associated with workplace outbreaks by 56% (608/(1196 to 103)). Whereas assuming all cases are workplace associated (even if in the same household), the burden of illness increased by 42% ((608 to 103)/(1196)). Based on onset dates, 11% (66/608) of household cases were greater than equal to 2 days prior (potential acquisition), 60% (368/608) were greater than equal to 2 days after (potential transmission), and 29% (174/608) were  $\pm 1$  day (unknown direction) relative to the outbreak case.

**TABLE 2.** Demographics, Medical Risk Factors, Clinical Presentation, Outcomes and Region of Workplace Outbreak Associated Cases and Sporadic Cases (Non-outbreak Associated) 14 Years of Age and Older, Ontario, January 21 to July 28, 2020

Variable	Number and Proportion of Workplace Outbreak Associated Cases		Number and Proportion of Sporadic Cases		Total	P
Total	1245		22,503		23,748	
Gender						
Female	352	(28.3)	10,925	(48.5)	11,277	<0.001
Age						
Median Age	40 years (14–83)		45 years (14–103)			<0.001
14–19	31	(2.5)	1,016	(4.5)	1,047	<0.001
20–29	278	(22.3)	4,725	(21.0)	5,003	
30–39	295	(23.7)	3,740	(16.6)	4,035	
40–49	268	(21.5)	3,615	(16.1)	3,883	
50–59	253	(20.3)	4,225	(18.8)	4,478	
60–69	104	(8.4)	2,930	(13.0)	3,034	
70–79	14	(1.1)	1,433	(6.4)	1,447	
80+	2	(0.2)	816	(3.6)	818	
Unknown	0	(0.0)	3	(0.0)	3	
Medical Risk Factors						
One or more comorbidities	284	(22.8)	7,448	(33.1)	7,732	<0.001
High risk status (60+, immunocompromised, cardiovascular, COPD)	190	(15.3)	6,498	(28.9)	6,688	<0.001
Clinical Presentation						
Asymptomatic	258	(20.7)	2,081	(9.2)	2,339	<0.001
Presymptomatic	49	(3.9)	544	(2.4)	593	<0.001
Symptomatic	677	(54.4)	13,574	(60.3)	14,251	<0.001
Missing symptoms	261	(21.0)	6,304	(28.0)	6,565	
Outcomes						
Hospitalized	52	(4.2)	2776	(12.3)	2,828	<0.001
ICU	15	(1.2)	792	(3.5)	807	<0.001
Ventilator	8	(0.6)	347	(1.5)	355	<0.001
Death	6	(0.5)	584	(2.6)	590	<0.001
Region						
Central east	418	(33.6)	8,110	(36.0)	8,528	<0.001
Central west	106	(8.5)	2,927	(13.0)	3033	
Eastern	53	(4.3)	1,547	(6.9)	1,600	
North east	0	(0.0)	168	(0.7)	168	
North west	0	(0.0)	102	(0.5)	102	
South west	217	(17.4)	1,809	(8.0)	2,026	
Toronto	451	(36.2)	7,840	(34.8)	8,291	

Household cases were also most likely to be working age adults (19 to 59 years old) (74%), followed by less than 19 year olds (15%), and greater than equal to 60 years old (11%) (Table 3). Female outbreak cases were associated with 33% of household cases, but only account for 28.3% of workplace outbreak associated cases. The proportion of outbreak cases with a corresponding household case ranged by industry sector, from 7% (Construction) to 40% (Accommodation and Food Services) (Table 4). Overall, the ratio of household cases to outbreak cases was 0.5, with the highest ratio by far in the Accommodation and Food Services sector (1.1), and lowest in Construction (0.1). The proportion of female cases and

median age of cases was similar between outbreak cases with household cases and outbreak cases overall by industry sector, with no apparent trends across sectors between demographics of outbreak cases.

**INTERPRETATION**

Three sectors (Manufacturing, Agriculture, Forestry, Fishing, Hunting, and Transportation and Warehousing) accounted for two-thirds of the PHU declared non-hospital, non-congregate, non-childcare workplace outbreaks of COVID-19 between January and June 30, 2020, in Ontario. While most outbreaks only had a

**TABLE 3.** Addressed Matched Household Cases (n=608) by Age Group and Timing of Onset Relative to Their Workplace Outbreak Associated Case

Timing Relative to Associated Workplace Outbreak Case	<19 Years	19–59 Years	≥60 Years	Total (%)
≥2 days prior (acquisition)	7	48	11	66 (10.9)
≥2 days after (transmission)	60	261	47	368 (60.5)
±1 day (unknown)	22	141	11	174 (28.6)
Total	89	450	69	608 (100)

**TABLE 4.** Description of Workplace Outbreak Associated Cases Associated with an Address Matched Household Case(s) by Industry Sector

Sector Code and Name	Outbreak Cases with Household Case Relative to Overall Outbreak Cases	% Female of Outbreak Cases with Household Case	Median Age (Range) of Outbreak Cases with Household Case	Household Cases	Proportion of Household Cases to Overall Outbreak Cases
11. Agriculture, forestry, fishing and hunting	23/197	35%	35 (16–62)	40	0.2
23. Construction	3/44	0%	43 (41–52)	6	0.1
31–33. Manufacturing	227/702	26%	45 (16–76)	395	0.6
44–45. Retail trade	11/39	18%	46 (28–74)	24	0.6
48–49. Transportation and warehousing	20/103	45%	40.5 (18–64)	50	0.5
52. Finance and insurance	5/14	80%	41 (26–55)	7	0.5
62. Health care and social assistance	14/43	86%	45 (18–83)	23	0.5
72. Accommodation and food services	6/15	83%	43.5 (21–53)	16	1.1
92. Public administration	5/21	80%	30 (28–65)	7	0.3
Other sectors	25/67	32%	51 (22–69)	40	0.6
Total	339/1245	33%	44 (16–83)	608	0.5

few cases, the largest outbreak had 140 cases accounting for 11% of all workplace outbreak cases in this analysis. Accounting for household cases associated with workplace outbreak cases with valid addresses increased the workplace outbreak case burden of illness by 56%.

Analysis of workplace outbreaks by NAICS sectors in the United States found Manufacturing was also the most common sector for workplace outbreaks; however, Construction and Wholesale Trade were the next most common sectors in that study.<sup>5</sup> Manufacturing, and particularly food manufacturing, is a sector that requires on-site work at specific times, and often in crowded conditions where physical distancing in lines of work is not possible, and environmental requirements for refrigeration/humidity may impact the use of personal protective equipment for COVID-19. Recommended prevention measures, such as plexiglass barriers where distancing is not possible, evolved over time as more was known about the risk of transmission in these settings.<sup>15–17</sup> Ontario food sector-specific guidance was initially issued April 30, 2020, by the Ministry of Labour, Training, Skills Development; however, outbreaks occurred to occur through May and June.<sup>15</sup>

Farm-related outbreaks, as part of the Agriculture, Forestry, Fishing, Hunting sector, may be over-represented in Ontario, and in particular the South West region of Ontario, due to intense arable farming in the region.<sup>18–20</sup> There was more than double the percentage of workplace outbreak cases in South West compared to sporadic cases in the region, largely due to the burden of farm-related outbreaks there, whereas most other regions had a lower proportion of outbreak cases to sporadic cases. As this analysis removed farms with evidence of congregate living (>4 cases with the same address), where there was significant spread among migrant farm workers living in dormitory-style housing, this analysis is an under-representation of the full burden of illness among farms in Ontario. Some farms with congregate living may still be included in this analysis. Outbreaks in this sector had the longest median duration, almost double than the overall median duration (13.5 vs. 7 days), suggesting there may be different challenges in bringing outbreaks under control in this sector. Prolonged duration of outbreaks place workplaces and workers under added strain from extended application of outbreak measures including isolation and quarantine. Active surveillance and testing efforts are required for earlier identification and control of outbreaks in this sector as well as mitigation measures for those in extended quarantine. In May, the implementation of farm-based mass surveillance testing programs

may have also contributed to enhanced identification of farm outbreaks, as well as identification of asymptomatic cases, thereby increasing outbreak counts and associated case counts compared to other sectors where surveillance testing was not in place. Overall, for all sectors, provincial workplace outbreak guidance recommending broad testing in the workplace once an outbreak is identified likely contributed to the increased proportion of asymptomatic and presymptomatic cases compared to sporadic cases where asymptomatic testing was not routine during this time period.<sup>12,21</sup>

Workplaces in the Transportation and Warehousing sector often included both activities (trucking and warehousing). Warehouse conditions may face similar indoor crowded conditions as the Manufacturing sector, and require similar prevention measures of distancing and personal protective equipment when distancing cannot be maintained.<sup>22</sup> Truck drivers may face an increased risk from face to face interactions when receiving/delivering shipments, as well as the need to frequent public rest areas for breaks. Concern has also been raised by Canadian long-haul truck drivers that make frequent crossings into affected areas in the United States with higher levels of community transmission than in Canada.<sup>23</sup> Only select details on occupation are routinely collected for surveillance, and job type data were not available to assess relative contribution from Transportation vs Warehousing activities.

The timing of the peak of workplace outbreaks at the end of May is potentially linked to the gradual re-opening measures in Ontario starting from the beginning of May, thereby increasing the potential work settings beyond essential workplaces where outbreaks could occur.<sup>1</sup> However, updated data entry guidance for PHU reporting of workplace outbreaks was issued on May 8, potentially increasing the capture of outbreaks from that time (Public Health Ontario, 2020). Of note, the downward trend of workplace outbreaks paralleled declines in sporadic cases through June, and continued after issuance of provincial outbreak management guidance on June 11.<sup>12</sup> Additionally, most education settings were virtual-only in the analysis time frame.

Workplace outbreak cases were younger, healthier, more likely to be male and had less severe outcomes compared to sporadic cases. Although there is evidence of a potential “healthy worker effect,” there were 52 hospitalizations and 6 deaths among included cases. Additionally, every case poses a risk of further spread in their home and community. While full contact lists for outbreak cases were not available to assess the overall community burden, our associated household cases analysis suggests that workplace

outbreak cases may result in subsequent transmission to household members. Household spread can increase the case burden of illness related to workplace outbreaks, but also may increase the severity of impact from outbreaks if household cases are more likely to be hospitalized or die from COVID-19 than the workplace outbreak cases. The proportion of workplace associated cases associated with household cases (31%) was similar to what was found in another study among all cases in Ontario and other studies internationally.<sup>24–27</sup>

While there were no specific trends across sectors by age and gender for household cases, further investigation could assess the apparent increase in household cases among workers in the Accommodation and Food Services sector and whether the sociodemographic factors of workers in that sector are more likely to be associated with housing situations that lead to increased household transmission. If there are differential risks by sociodemographics of workers, targeted prevention in their workplaces would have greater impact on community transmission.

Limitations of this analysis include incomplete case capture where there were strict testing criteria early in the pandemic limiting detection of all cases, and broad asymptomatic testing and testing of close contacts was not introduced until the beginning of June 2020.<sup>1</sup> Additional cases may be missing linkage to an outbreak, under-representing the magnitude of workplace outbreaks. Genomic analysis was not completed for workplace outbreaks or household cases; therefore, these epidemiologically linked cases may be due to other exposures and do not represent transmission in the workplace or household. Manual assignment of outbreak locations may have led to misclassification by sector; however, this is less likely given broad sector categories versus analysis by subsector. Industry sector may not be representative of the actual occupation of outbreak cases. Use of address matching may have under-represented household transmission cases if addresses were missing, incomplete, or contained errors. Finally, estimates of workers by sector over this time period was not available for this analysis to assess case rates by sector.

## CONCLUSIONS

Workplace outbreaks have significant impacts on the workers and industries affected, as well as broader community impacts from associated household cases. Sector-specific guidance is needed to address sectors at increased risk of outbreaks. As further loosening/tightening of public health measures continue over time, future analyses are needed to reassess trends in affected sectors when a greater number of sectors are operating, affected workers, and broader community transmission related to workplace outbreaks.

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