

Incidence of COVID-19 transmission in Ontario workplaces

As the incidence of diagnosed cases escalates in the second wave of the COVID-19 pandemic in Ontario, it is important to understand the degree to which employment in the essential service sectors represents an increased risk of infection. The purpose of this Issue Briefing is to examine what the available data says about the role of workplaces in COVID-19 transmission in Ontario, the relative contribution of workplace outbreaks to case numbers during the first and second waves of the COVID-19 pandemic in Ontario, and current information gaps in understanding the impact of workplaces in COVID-19 transmission at the population level.

From the onset of the COVID-19 emergency in Ontario, a large portion of the province's workers employed in designated essential service sectors have been working with others in common work settings. Essential service sectors, representing approximately 40 per cent of the Ontario labour force (1), include health care, manufacturing, construction, transportation, warehousing, urban transit, and distribution and retail of food, alcohol and pharmaceuticals. Each month, three million Ontario workers in these essential services have worked more than 400 million hours in proximity to co-workers and, in some cases, providing services to clients, customers and other members of the public.

What is a workplace outbreak?

In Ontario, public health authorities attempt to establish the source of infection for each positive diagnosis of COVID-19. This process, called contact tracing, involves collecting information from cases concerning their activities and personal contacts in the 14-day period prior to the onset of symptoms. Based on the information obtained, public health authorities make a determination of the likely source of acquisition: through contact with a social relation (family or friend); associated with a confirmed outbreak; travel; or no known link to a case (called sporadic community transmission).

The most common method of acquisition has consistently been close contact with a social relation, which contributes between 40 to 50 per cent of all COVID-19 cases in Ontario. Over the course of the COVID-19 pandemic, the likely source

KEY MESSAGES

- From the onset of the COVID-19 emergency in Ontario, more than three million workers employed in essential services have been working with others in common work settings.
- In the second wave of the pandemic so far, outbreaks in essential service workplaces (excluding health-care, congregate living and educational settings) have contributed just over five per cent of all cases among working-age adults in Ontario.
- That less than six per cent of new COVID-19 infections among working-age adults in the second wave of the pandemic can be attributed to workplace outbreaks (not including outbreaks in health-care, congregate living and educational settings) suggests the importance of the often-substantial adjustments to work practices implemented by employers, frequently in consultation with workers, to minimize the risks of workplace transmission.
- From the beginning of the pandemic, more than 7,900 COVID-19 infections have been attributed to workplace transmission among workers in essential services. In the months ahead, diligence in workplace infection control practices will be crucially important to protect the health of essential service workers.

of acquisition could not be determined for fully 33 per cent of new cases of infection, either because no information could be collected, or no potential source of transmission could be identified.

Public health authorities define workplace outbreaks as situations in which two COVID-19 cases occur within a 14-day period in the same workplace, with both having been reasonably acquired in the workplace (e.g. no obvious source of infection outside the workplace and a known exposure source in the workplace) (2). Workplace outbreaks are identified by public health units using a variety of sources of information, including contact tracing, concerns raised by workers and requests for assistance from employers.

Sources of information on workplace outbreaks in Ontario

For this summary, we have used publicly available data from the Ontario Data Catalogue (3). Data used includes a summary file of all confirmed positive cases of COVID-19 in Ontario as of January 10, 2021. This file includes information on the age and gender of the COVID-19 case, the likely onset date, an assessment of how the case was likely acquired, and whether the case was related to an outbreak.

We also used a specific outbreak datafile, which reports the count of the number of COVID-19 cases due to outbreaks in Ontario. The outbreak datafile distinguishes between outbreak-related cases attributed to the following six settings: care settings (which includes hospitals, long-term care homes and retirement homes); congregate living settings (which includes correctional facilities, shelters and group homes); education settings; other workplace settings; recreational settings; and unknown settings. The workplace setting is further broken down into retail, farming, food processing, medical and health (not including health care) and other settings (such as warehouses, construction, shipping and distribution).

It should be noted that workers infected in health-care, congregate living and education settings are not included in workplace outbreak numbers, but rather within their respective settings. Unfortunately, the data in these settings is not currently broken down by numbers of cases among employees versus patients, clients or students. The weekly summaries from Public Health Ontario do separate COVID-19 infections among staff versus residents in long-term care settings due to outbreaks. As of the January 2, 2021 summary, 28 per cent of the 15,917 COVID-19 cases due to outbreaks in long-term care since the start of the pandemic have been among staff members (approximately 4,500 cases). The Daily Situational Reports from the Ministry of Health's Health System Emergency Management Branch estimates that, as of December 28, 2020, 11,980 COVID-19 cases in Ontario since the beginning of the pandemic emergency have been among health-care workers. This number includes staff in long-term care facilities and all other health-care settings, and include cases due to both outbreaks and other types of transmission (4).

Table 1 presents a summary of total COVID-19 cases in Ontario by month, as well as cases among Ontarians aged 20 to 69 years of age (referred to as the working-age population), and COVID-19 cases due to outbreaks. As can be seen in this table, the proportion of COVID-19

cases due to outbreaks has varied month by month during the pandemic. In the April to May 2020 period, 43 to 58 per cent of all cases were attributed to outbreaks. These outbreaks were concentrated in health-care settings, including long-term care facilities. As community transmission rose in the second wave of the pandemic, outbreaks in all settings declined to between 14 and 18 per cent of all COVID-19 cases in Ontario.

Using the information in Table 1, we can also compare the number of cases due to workplace outbreaks to the total number of cases among the working-age population. In the following estimates, cases attributed to outbreaks in health-care, congregate living, educational and recreational settings are excluded. The contribution of workplace outbreaks was highest in the period from May through July of 2020, with a high of 22 per cent of all cases among the working-age population being attributed to workplace outbreaks in June. The elevated share of cases in the May to July 2020 period are attributed to workplace outbreaks arising from agricultural settings in southwest Ontario. Currently, workplace outbreaks (not including those, as mentioned, in hospitals, long-term care and retirement homes, group homes, correctional institutions and schools) contribute approximately five per cent of all cases among the working-age population.

Conversely, since October, close contact has been the source of acquisition in 40 per cent of all cases among the working-age population. As well, for a substantial number of COVID-19 cases among the working-age population, we do not have enough information to know how the case was acquired. For example, 26 per cent of cases among the working-age population have no information available on transmission, while another 20 per cent are classified as having no known epidemiological link (i.e. the source of infection cannot be determined).

Current limitations in estimates of COVID-19 cases from workplace outbreaks

Given the way workplace outbreak data is currently collected, the number of cases attributed to workplace outbreaks are likely underestimated. This would be the case where work colleagues live together, commute to the workplace together and/or socialize outside of the workplace together. In these situations, the attribution of the exact location of transmission will be complicated and, given this uncertainty, these cases will not likely be classified as workplace outbreaks.

Two other types of COVID-19 cases would also not be attributed to workplace outbreak numbers. These are

Steps to better understanding workplaces as a source of COVID-19 transmission

From the onset of the COVID-19 emergency in Ontario, more than three million workers employed in essential service sectors have been working with others in common work settings. That fewer than six per cent of new COVID-19 infections among working-age adults in the second wave of the pandemic can be attributed to workplace outbreaks (not including outbreaks in health-care, congregate living and educational settings) is, therefore, surprising and draws our attention to potential explanations. The most plausible explanation lies in the often-substantial adjustments to work practices implemented by employers, frequently in consultation with workers, to minimize the risks of workplace transmission (5). Additionally, employer guidance to workers to refrain from coming to work and to self-isolate if experiencing COVID-19 symptoms, especially if the employer provides wage or salary continuity, may also be responsible for the low incidence of workplace transmission observed in the second wave of the pandemic.

subsequent cases that result from the initial workplace outbreak case (e.g. among household members or other persons in the community), and cases that might be transferred through a worker to a client/customer of that business, including situations in health care (excluding residential care) or educational settings where a worker transmits COVID-19 to a patient or student in the workplace.

It is also important to note that workplace outbreaks represent COVID-19 cases where transmission has likely occurred at the workplace. This number should be distinguished from the number of COVID-19 cases among people who have been in these settings (i.e. at the worksite). For example, since September 2020, 7,487 COVID-19 cases have been reported in education settings in Ontario, with 70 per cent of these among students, 15 per cent among staff and 15 per cent not specified. Over this same time period, 2,227 COVID-19 cases have been attributed to outbreaks in education settings. As such, in education settings, outbreak cases represent about 30 per cent of the total number of cases reported by people who have been in education settings. Given the specifics of the education setting, this proportion should not be generalised to other workplace settings.

Table 1: Total number of COVID-19 cases in Ontario and cases due to outbreaks by setting type among persons aged 20 to 69 years, January to December 2020

	Total cases	Cases, ages 20 to 69	Cases attributed to outbreaks						Workplace outbreak cases as a percentage of all cases, ages 20 to 69
			Total outbreak cases	Health-care settings ⁽¹⁾	Congregate living settings ⁽¹⁾	Education settings ⁽²⁾	Workplaces ⁽³⁾	Recreational settings	
January to March	6,034	4,662	352	309	17	0	25	0	0.5%
April	14,277	9,016	8,339	7,287	778	6	203	23	2.2%
May	10,192	7,520	4,393	3,155	358	21	850	9	11.3%
June	5,413	4,263	1,801	701	126	1	946	27	22.2%
July	3,875	3,092	715	199	14	25	442	14	14.3%
August	3,351	2,570	274	97	29	20	98	29	3.8%
September	13,535	10,684	1,219	436	58	143	228	354	2.1%
October	24,402	18,483	3,457	1,947	263	457	430	356	2.3%
November	46,546	35,051	7,129	3,460	421	940	1,872	417	5.3%
December	71,711	53,848	11,128	6,115	712	962	2,861	332	5.3%
Total	199,336	149,189	38,807	23,706	2,776	2,575	7,955	1,561	5.3%

(1) Case counts combine worker and patient/resident infections

(2) Case counts combine worker and student infections

(3) Case counts exclude health-care, congregate living, education and recreational settings

As has been the case throughout the COVID-19 pandemic, close social contact – not related to an outbreak – remains the most common source of COVID-19 transmission and underscores the need for effective physical distancing procedures in both workplace and non-workplace settings. Understanding the proportion of these close contact transmissions that occur in workplace settings (e.g. worker to client, client to client, or client to worker) remains an important information gap. Given the strain placed on contact tracing by the large number of COVID-19 cases in the second wave (6), it is likely that a proportion of workplace outbreaks are not being identified. For example, among the working-age population, the source of COVID-19 transmission could not be determined in 26 per cent of COVID-19 transmissions between the start of the pandemic and August 31, 2020. This proportion has risen to 43 per cent since September 2020, and it is likely that some of these cases are workplace outbreaks.

Another important current information gap is the rate of work-related COVID-19 transmission (e.g. per hour worked or exposed) generally in the working population and across industries. This is complicated by the appropriate increases in remote work and reductions in the number of hours worked at the worksite during the COVID-19 pandemic. Having a better estimate of the number of hours that Ontario workers spend in workplace settings would enable more useful comparisons between workplace outbreak numbers and outbreaks in other settings (e.g. recreational settings), which cannot be meaningfully done at present.

Although workplace outbreaks do not appear to be driving overall COVID-19 case numbers in Ontario, it is vital that workplaces remaining open protect workers by instituting (or maintaining) effective infection control procedures, such as physical distancing, cleaning, ventilation and physical barriers, as well as by ensuring the availability of adequate and effective personal protective equipment (PPE). As previous IWH research has noted, adequate PPE and infection control not only protects workers from COVID-19 transmission, but also lowers levels of anxiety and depression among workers who are required to be at the worksite (7,8).

It is also important that we continue to pay attention to work and health issues that have been exacerbated during the pandemic. These include the labour market experiences of low-wage workers and workers without adequate sick-leave benefits. While the eventual dissemination of COVID-19 vaccines will hopefully reduce some of the inequalities experienced by these workers in Ontario in relation to COVID-19, they will continue to experience in other ways the non-COVID-19-related health impacts that are associated with these employment conditions.

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References

- (1) Labour Force Survey, August 2020. Statistics Canada. Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/200904/dq200904a-eng.htm>
- (2) For more information, see: http://health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/2019_workplace_outbreak_guidance.pdf
- (3) More information about the Ontario Data Catalogue can be found at: <https://data.ontario.ca/about>
- (4) Daily Situational Reports. Ontario Ministry of Health's Health System Emergency Management Branch. Available at: https://myrnao.ca/daily_situational_reports_from_ontarios_moh_eoc
- (5) See: <https://www.mapleleafoods.com/stories/our-operational-status-during-covid-19-pandemic/>
- (6) See: <https://www.toronto.ca/wp-content/uploads/2020/10/8e62-TPH-Change-to-Contact-Tracing-October-8-2020.pdf>
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