COVID-19 in Durham Region

Epi Summary 1 – Describing the Pandemic

July 2020

This report is a snapshot of the epidemiology of COVID-19 activity in Durham Region from its beginning on February 24, 2020 to the end of Stage 1 reopening on June 18, 2020.

The report presents information about confirmed cases that are residents of Durham Region based on data extracted from the integrated Public Health Information System (iPHIS) for Durham Region on July 3, 2020 at 9:00AM.

What is a confirmed case?

A confirmed case is a person who has tested positive for COVID-19 infection based on a laboratory test.

Highlights

- Durham Region had 1,671 confirmed COVID-19 cases with an illness onset date between February 24 and June 18, 2020.
- The highest peak in cases occurred on April 10 with 52 cases.
- There were 34 confirmed institutional outbreaks of COVID-19 and half of these outbreaks occurred in long-term care homes.
- Sixty-one per cent of cases were female.
- The smallest number of cases were in the 0 to 19-year age group and the highest number in the 40 to 59-year age group.
- Fifty-six per cent of cases most likely acquired COVID-19 as a resident, patient, or staff member of an institution or congregate living setting where there was an outbreak.
- The most likely exposure source for cases changed over time and varied by municipality.
- By the end of Stage 1, 89 per cent of Durham Region cases have recovered.

Cases Over Time

1,671 Confirmed COVID-19 cases among Durham Region residents with an illness onset date between February 24 and June 18.

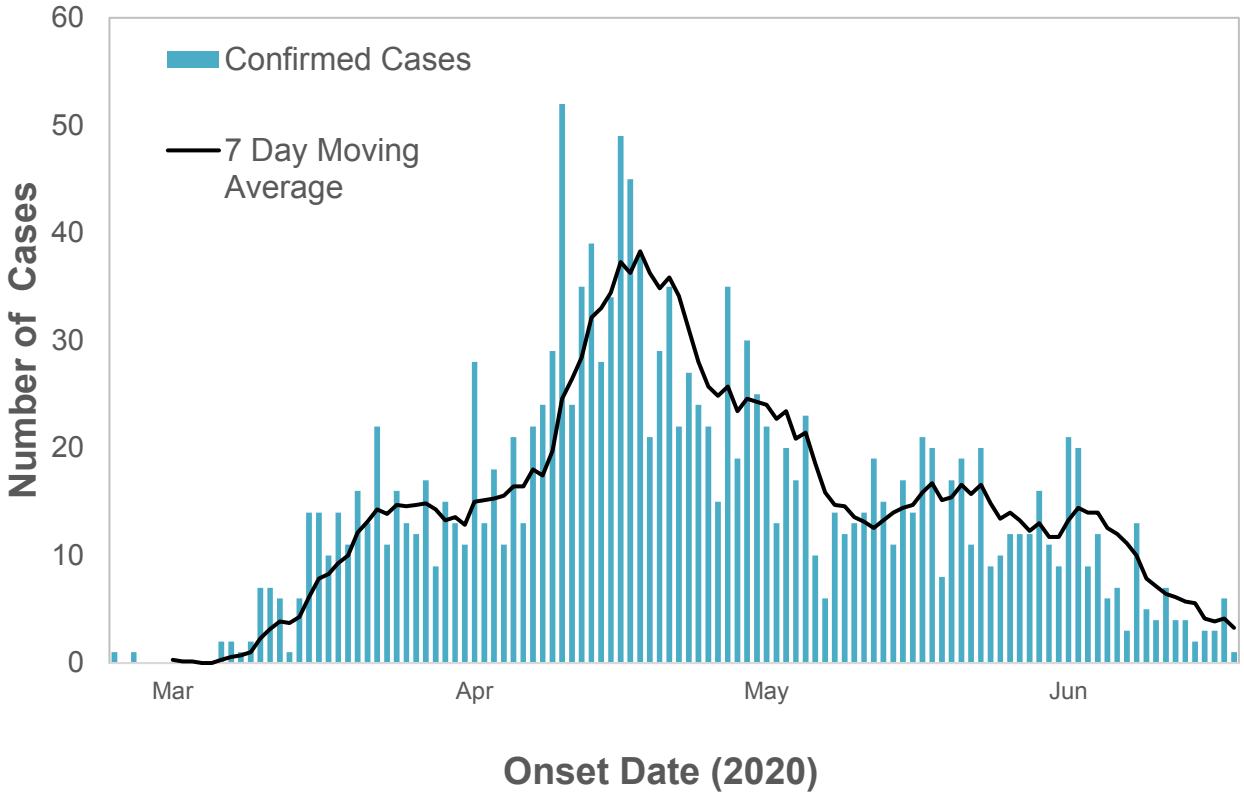
What's the difference between onset date and reported date?

Reported date refers to the date the Durham Region Health Department (DRHD) was first notified of the case. Onset date is the date a case's symptoms first began, or if unavailable, the day the sample was taken for the laboratory test.

Why does this matter?

It can take up to 14 days after illness began for a case to be reported to a public health unit. This is because reporting depends on when the person first became ill, when they were tested for COVID-19 and how quickly the lab was able to process the test and report the results back to the health unit. Since there can be a long delay between illness onset and reported date, onset date gives us a better picture of the epidemiology of COVID-19.

Figure 1: Epidemic Curve of COVID-19 Cases by Onset Date



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

The bars on **Figure 1** show the number of confirmed COVID-19 cases per day from February 24 to the end of Stage 1 reopening on June 18, based on onset date.

The black line on **Figure 1** shows the moving average for the past seven days. The average smooths out the day-to-day variation in case counts to better understand the general direction of the trend.

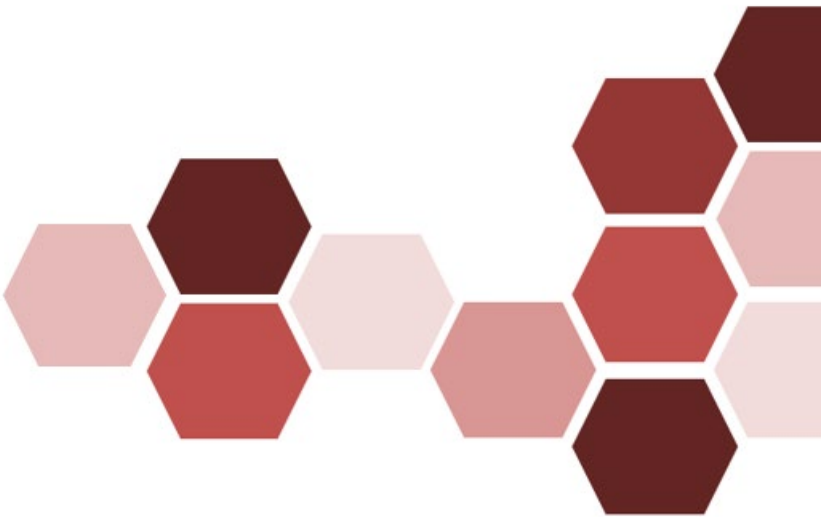
The first COVID-19 case was reported in Durham Region on February 28 and their symptoms began on February 24. Except for a close contact of this first case, there were no new cases reported until one week later.

At the beginning of the pandemic in Durham Region, there were two noticeable peaks in cases:

- The first small peak occurred on March 22 with 22 cases.
- The second, and highest peak, occurred on April 10 with 52 cases.
- It is important to note that of these 52 cases, 27 of them (52%) were asymptomatic cases found through testing at two long-term care homes.

Case numbers declined after this peak, however, the decline in cases was not smooth. There were noticeable periods with steep declines in case numbers, followed by slight increases and plateaus.

The most recent and steadiest decline in case numbers began in early June and since then, case numbers averaged less than 10 per day.



Institutional Outbreaks

34 Confirmed institutional outbreaks of COVID-19 in Durham Region

3 Outbreaks active at the end of Stage 1 reopening

What is a health care institution?

A place which provides medical, nursing and personal care services to residents who live there or patients who are being treated there.

These include **long-term care homes**, **retirement homes**, and **hospitals**.

What is an institutional outbreak?

An institutional outbreak occurs when one or more cases of COVID-19 are detected in a health care institution. This can include patients, residents and staff.

When is an outbreak declared in an institution?

Long-term care or retirement home:

When **ONE or more cases** of COVID-19 is detected in a staff or resident of the long-term care or retirement home.

Hospital:

When **TWO or more cases** (patients and/or staff) are reported from a specific area in the hospital and they likely acquired their infection in the hospital.

When is an outbreak declared over?

This is based on the last case identified.

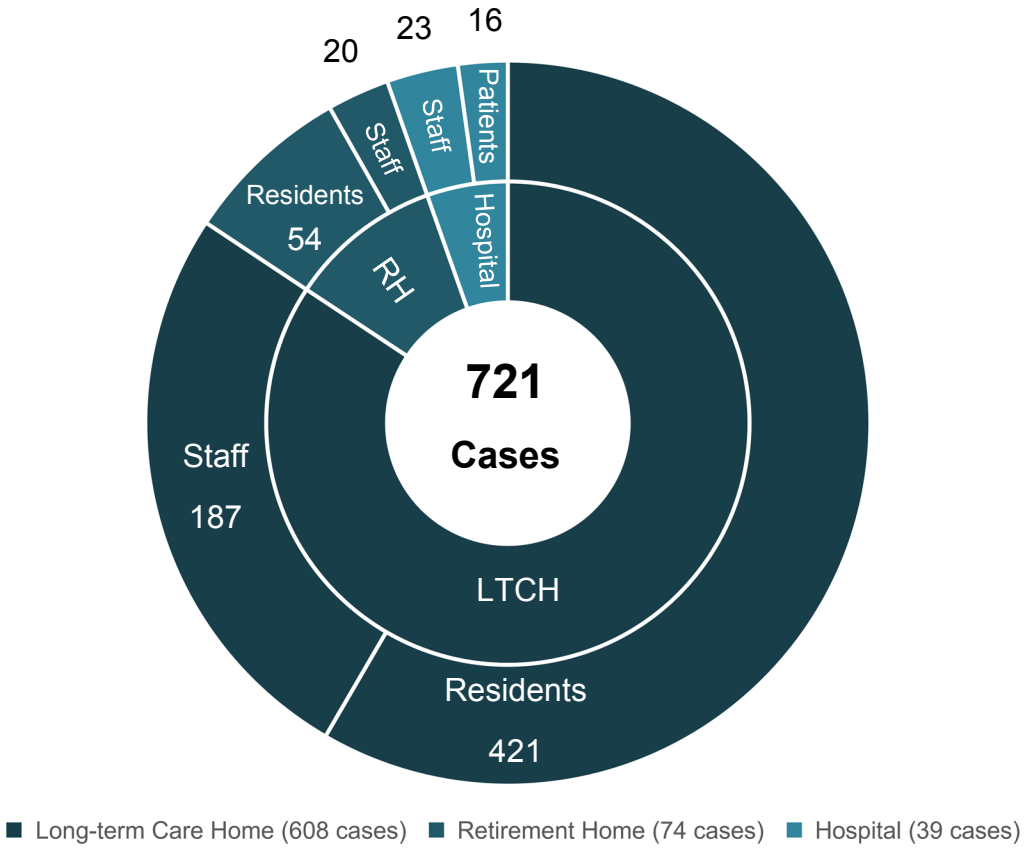
Last case is a resident or patient:

When **no new cases** have been identified in the past 14 days since the last case became ill or was isolated.

Last case is a staff member:

When **no new cases** have been identified in the past 14 days since the last shift the staff worked.

Figure 2: COVID-19 Outbreaks in Institutions by Setting

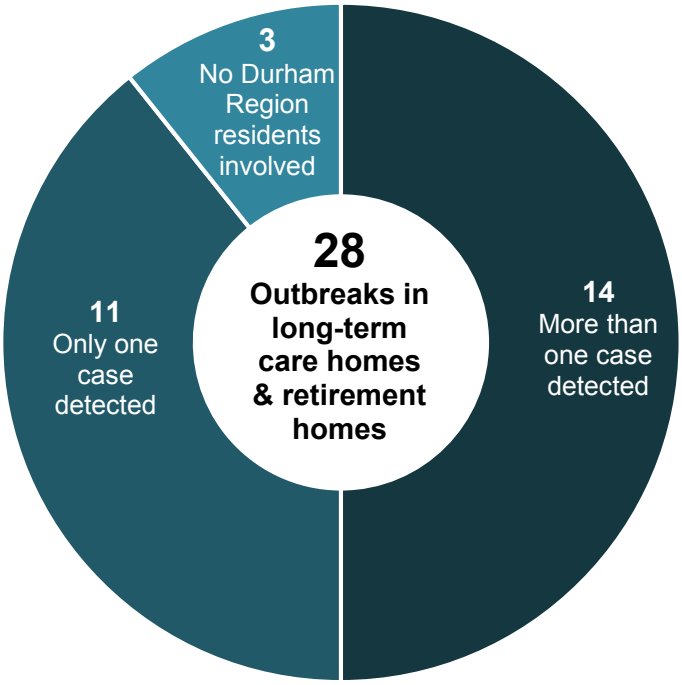


Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

The first institutional outbreak in Durham Region was declared on March 16, 2020. From March 16 to June 18, there were 34 confirmed outbreaks in 27 institutions. Of these outbreaks, 19 occurred in long-term care homes (LTCHs), nine in retirement homes (RHs) and six in hospitals. Eighty-four per cent of all institutional outbreak cases acquired COVID-19 from a long-term care home and 58 per cent of these cases were residents.

Of the 1,671 Durham Region cases, 721 cases (43%) most likely acquired COVID-19 as the result of an outbreak in a Durham Region institution – 491 cases (29%) were residents or patients in an institution and 230 cases (14%) were staff members.

Figure 3: COVID-19 Outbreaks in Long-term Care Homes & Retirement Homes



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

It is helpful to look at the number of cases related to outbreaks specifically in LTCHs and RHs as an outbreak can be declared if only one person tested positive in the facility, even if the case was a staff member who acquired the illness elsewhere and there were no other cases in that facility. The number of outbreaks involving only one person also paints a picture of how well the virus was controlled in most settings.

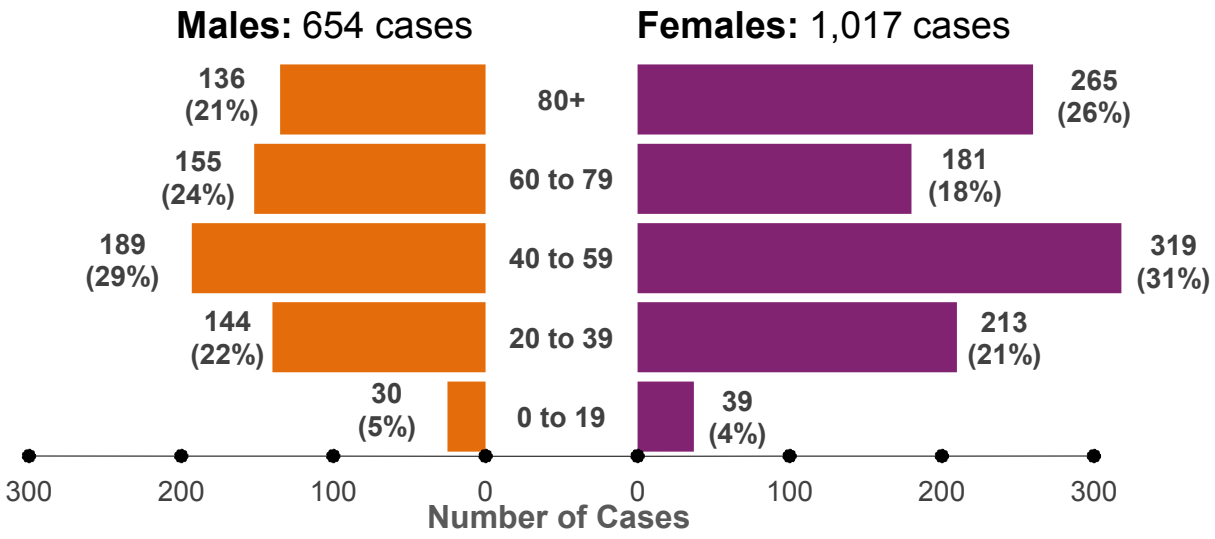
As shown in **Figure 3**, one-third of the 28 outbreaks in Durham Region LTCHs and RHs involved only one confirmed case.

Nine per cent (3 outbreaks) involved only one staff member who worked in a local facility but was not a Durham Region resident. These cases were counted in the data of the local public health unit where the staff lived.

Of the 687 Durham Region cases linked to outbreaks in LTCHs and RHs, 601 cases (88%) resulted from outbreaks in only six facilities.

Case Demographics: Age & Gender

Figure 4: Number and Percentage of COVID-19 Cases per Age Group



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

Figure 4 shows the number of COVID-19 cases in each age group by gender.

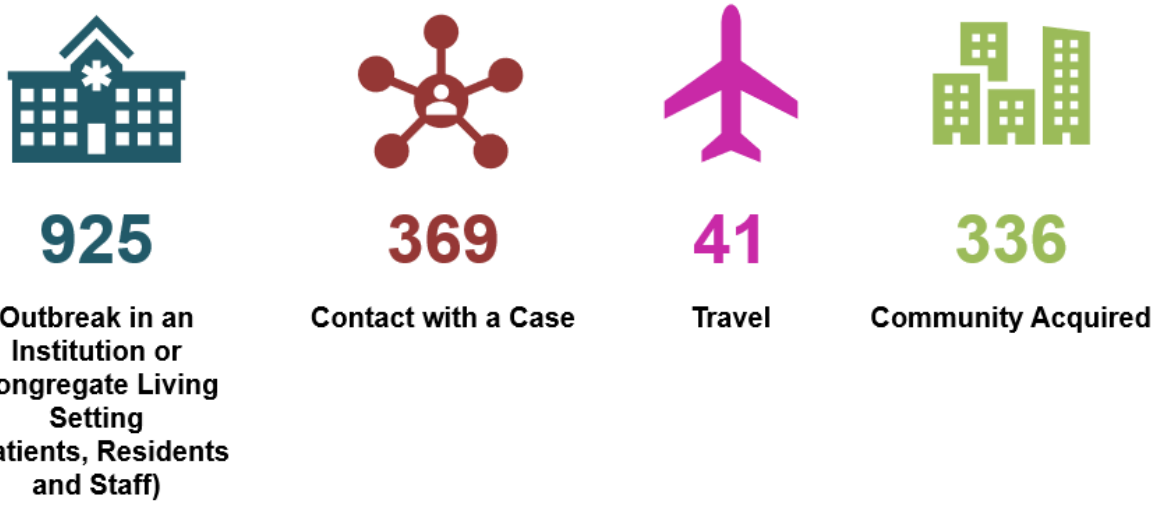
Most Durham Region cases were females (61%).

The fewest cases occurred in the 0 to 19-year age group for both genders, only 5% of male and 4% of female cases were less than 20 years of age. The percentage of cases in the 20 to 39-year age group was similar for males and females. **The largest number of cases occurred in the 40 to 59-year age group for both genders.** There was a higher percentage of male cases in the 60 to 79-year age group (24%), compared to females (18%). There was a much higher percentage of female cases 80 years of age and older (26%) compared to males (21%). This difference is likely due to the substantial impact institutional outbreaks had in shaping the COVID-19 pandemic within Durham Region, as there is a larger population of older females living in LTCHs and RHs compared to males.

Exposure Source

How does the Public Health figure out how a case acquired COVID-19?

Case investigation by DRHD allows investigators to determine the most likely way someone became infected with COVID-19. This is called their **exposure source**.

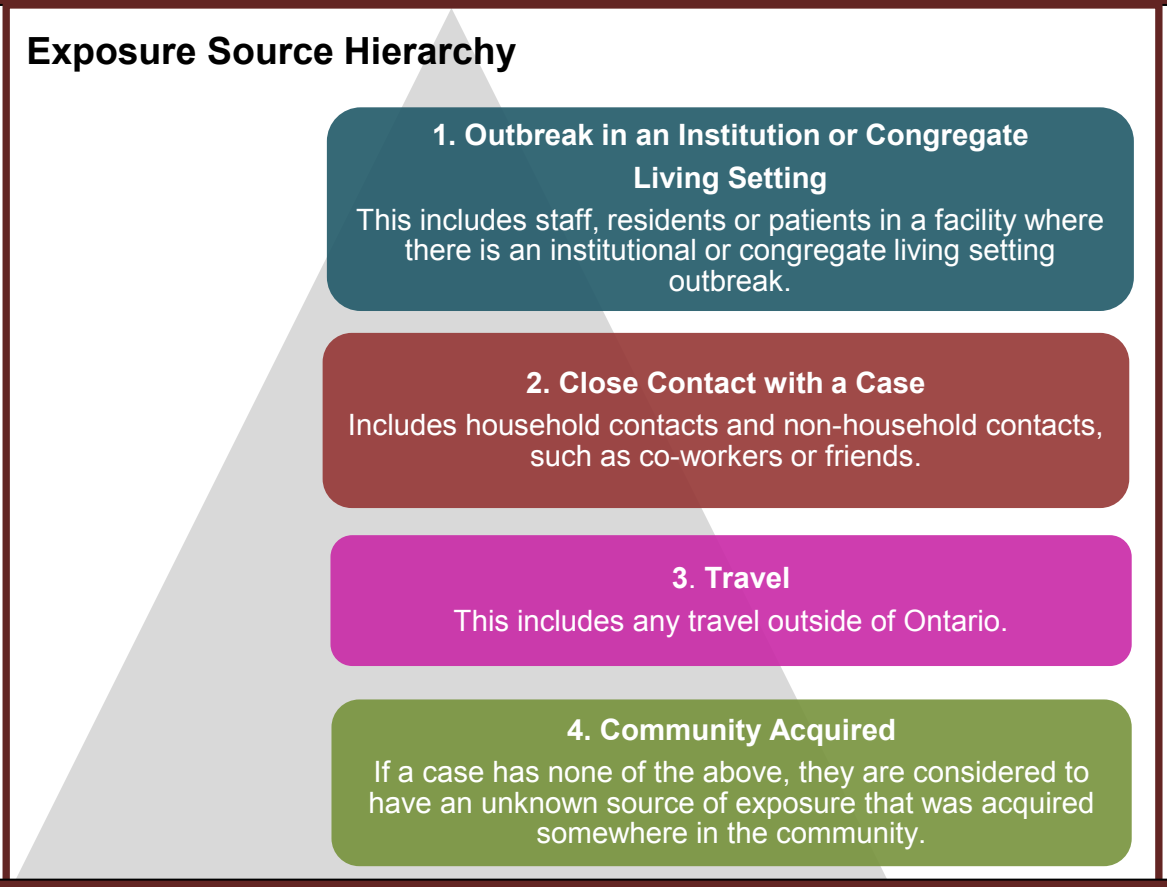


At the end of Stage 1, 56 per cent of cases were related to an institutional or congregate living outbreak (24% staff and 32% resident or patient), 22 per cent of cases were due to close contact with a case, 2 per cent of cases were travel-related, and 20 per cent of cases had an unknown exposure somewhere in the community.

What if a case has more than one exposure?

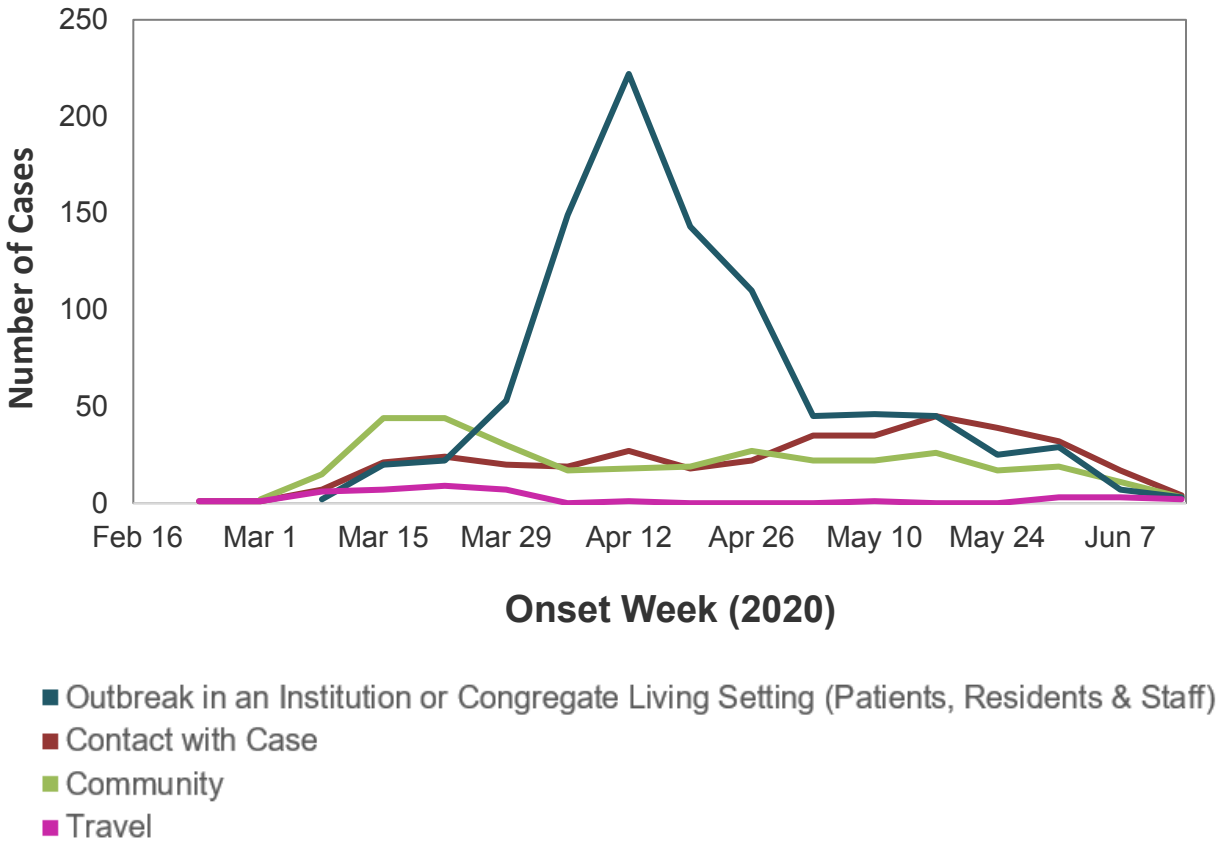
An exposure source hierarchy helps determine which is the most likely exposure in the event of multiple exposures. This hierarchy was based on current understanding of COVID-19 risk in different settings.
For example, if a confirmed case had travelled and was also a staff member at an institution where there was an active outbreak, they would have two possible sources of exposure. The following hierarchy helps determine which is the most likely:

Exposure Source Hierarchy



Based on this hierarchy, the most likely source of exposure for the example case would be the institutional outbreak.

Figure 5: Trends in COVID-19 Exposure Source



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

Figure 5 shows changes in how COVID-19 was acquired throughout the pandemic in Durham Region, based on onset week.

The most likely exposure source for Durham Region COVID-19 cases changed over time.

In February and March, the most common exposure was the community. Although travel was the least common exposure source overall, it was the most common in February and March.

In April and early May, the most common exposure source was outbreaks in institutions or congregate living settings. These outbreaks had a large part in shaping COVID-19 in Durham Region, as seen by the large spike in cases in the graph above.

The proportion of outbreak-related cases decreased in May and June as containment of the virus in institutions improved.

In late June and early July, contact with a case was the most common exposure source.

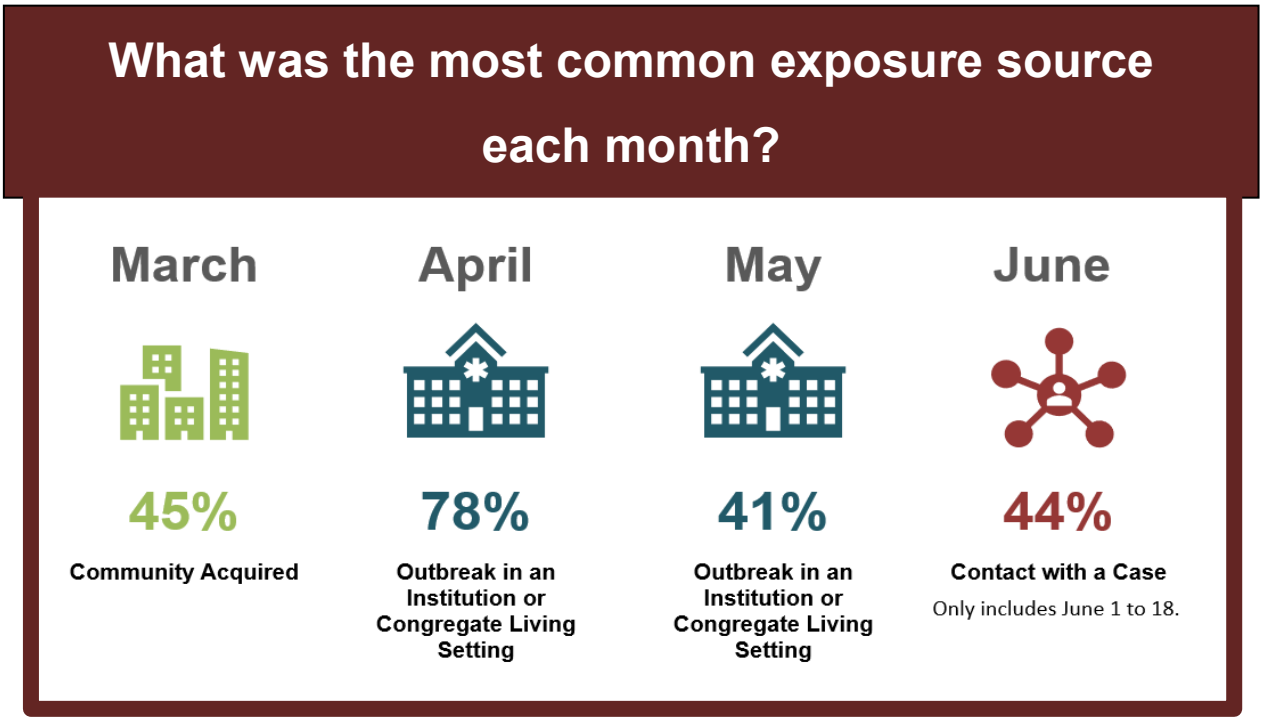
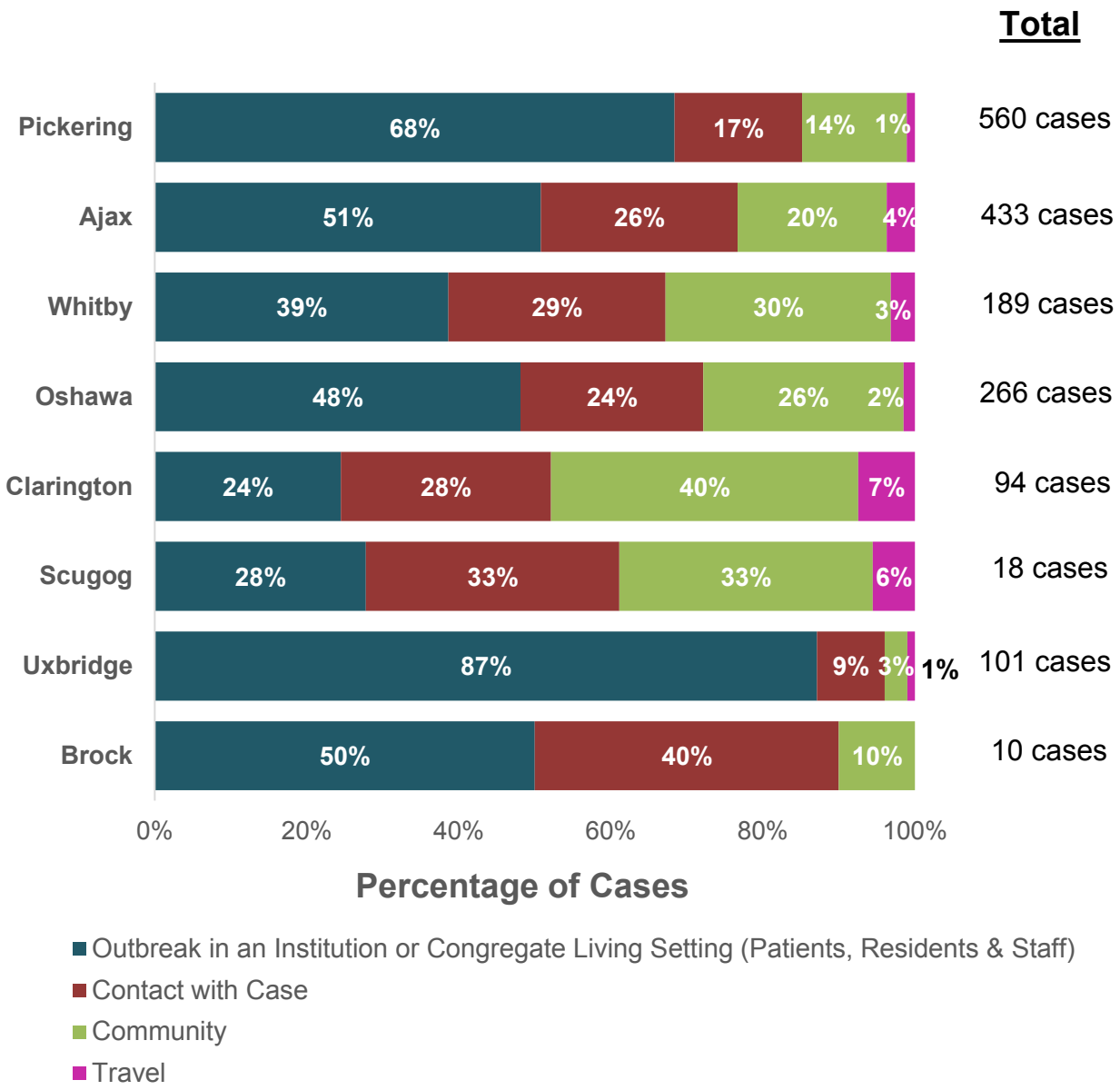


Figure 6: Percentage of COVID-19 Cases by Exposure Source and Municipality of Residence



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

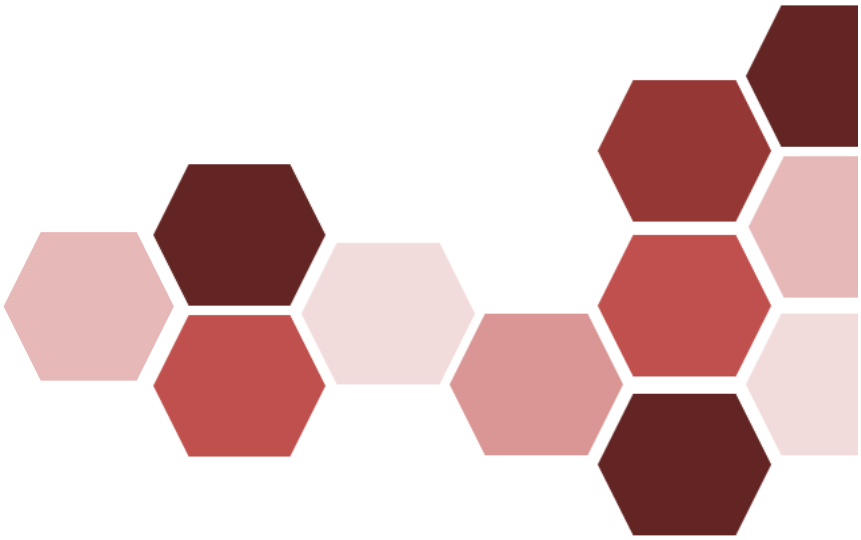
Figure 6 shows the percentage of COVID-19 cases by their most likely source of exposure for each municipality in Durham Region, as well as the total number of cases reported in each municipality.

Pickering and Ajax had the highest number of cases, mostly due to large institutional outbreaks in those communities.

In contrast, Scugog and Brock had the fewest cases, with less than 20 cases each.

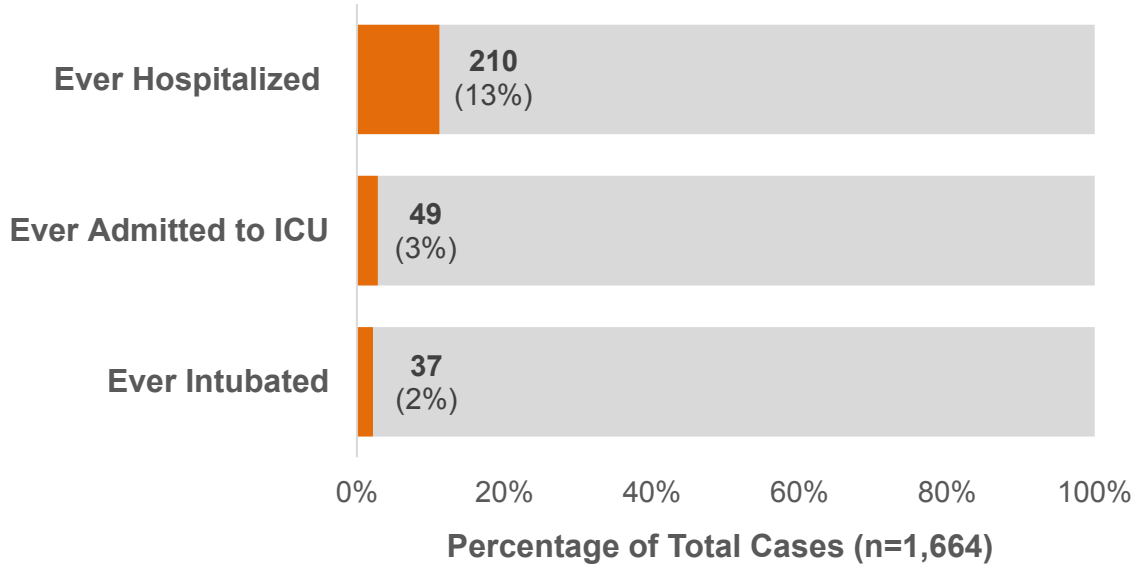
Figure 6 highlights municipal differences in how cases acquired COVID-19:

- The impact large institutional outbreaks have had on Uxbridge and Pickering is quite noticeable.
- Clarington and Scugog are the only municipalities where exposure to an institutional outbreak is not the most common source of exposure. Instead, community transmission has been the most common source of exposure in these communities.



Case Severity and Outcomes

Figure 7: Hospital Interventions for COVID-19 Cases



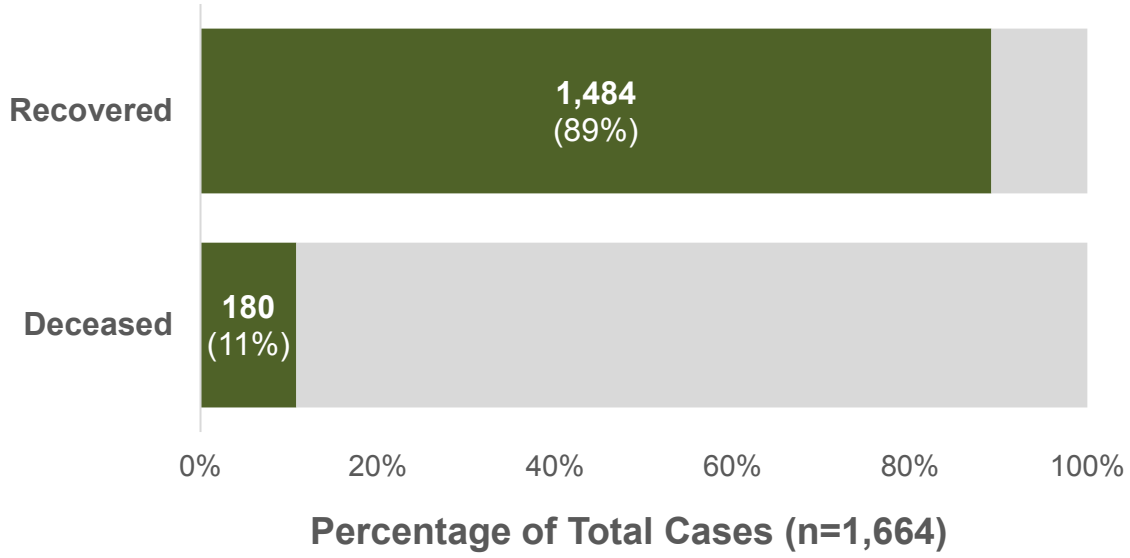
Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

Excluding seven cases who were still isolating on June 18, **13 per cent of Durham Region COVID-19 cases were hospitalized at least once**, three per cent required admission to the Intensive Care Unit (ICU), and two per cent required intubation for placement on a ventilator.

Of the 210 cases who were hospitalized, 23 per cent were transferred to the ICU.

Three quarters of all ICU patients were placed on a ventilator.

Figure 8: Outcome of Durham Region COVID-19 Cases



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, extracted by Durham Region Health Department on July 3, 2020 at 9:00AM.

Eleven per cent of Durham Region cases passed away, with 84 per cent of the 180 deaths occurring in residents of LTCHs or RHs.

Excluding seven cases who were still isolating on June 18, **89 per cent of Durham Region cases had recovered by the end of Stage 1.**